

Lessons learned in co-developing a culturally tailored intergenerational program with a community advisory board

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Background:

One in four older adults in the United States aged 60 or older experiences social isolation (Malaini et al., 2023). Black/African American and Hispanic older adults face heightened risks of social isolation due to structural and contextual inequalities. However, few intergenerational programs are culturally grounded or co-designed with the community they intend to serve. While both communities experience significant barriers to culturally responsive programming, this presentation focuses specifically on our work with the West Texas Hispanic community. Through a community-engaged initiative, we partnered with Hispanic community leaders in West Texas to co-develop and pilot-test a culturally tailored Intergenerational Wisdom Exchange Program (WisE). WisE pairs Hispanic college students with Hispanic older adults who are socially isolated for 10 weeks of structured interactions in which older adults share their life stories and students provide digital literacy support using tablet devices. WisE aims to foster meaningful intergenerational connections, strengthen purpose and generativity among older adults, and ultimately reduce social isolation and loneliness.

Methods:

This demonstration project follows a three-stage process: (1) developing the WisE curriculum and implementation plan in collaboration with a community advisory board (CAB), (2) conducting a pre-pilot with three dyads to identify and address potential challenges, and (3) pilot-testing the program with 26 dyads using pre- and post-assessments. We are currently co-developing the WisE curriculum in partnership with a CAB made up of six Hispanic student leaders and six Hispanic older adult leaders, each bringing diverse backgrounds and perspectives to ensure the program reflects the community's lived experiences. In Stage 1, we convened the CAB monthly at our community partner site, beginning each meeting with a shared dinner featuring Hispanic foods such as tacos and salsa to build rapport and trust. During these sessions, CAB members reviewed the WisE life story and digital literacy curriculum to ensure cultural appropriateness, relevance, and accurate translation into Texan/Mexican Spanish.

Results:

Lessons learned from Stage 1 highlighted several key considerations. First, participants benefit from preparatory training that provides guidance on communication styles and common intergenerational stereotypes. Second, simplifying English-language materials improves clarity and accessibility and supports more accurate translation into Texan/Mexican Spanish. Third, offering a group orientation session helps establish trust, rapport, and shared expectations before dyads begin one-on-one meetings. Fourth, matching dyads based on shared characteristics while attending to cultural dynamics, such as gender norms and expressions of machismo, enhances comfort and communication. Finally, allowing older adults the flexibility to use their own cell phones, rather than introducing new tablets, increases digital comfort and supports more sustainable engagement.

Conclusion:

This presentation highlights the often-underreported process of developing a culturally tailored intergenerational program. By foregrounding the intensive community partnership, curriculum co-design, and iterative problem-solving that shaped WisE, we illustrate how cultural grounding is not an add-on but a core mechanism that strengthens cultural relevance, trust, and sustained engagement. Documenting these processes offers critical insight for researchers and practitioners who typically focus only on intervention outcomes, demonstrating that culturally responsive development work is essential for achieving meaningful, equitable, and sustainable program effects.

Psychological Impact After Open Fractures: Distinct Patterns in Pediatric and Adult Populations

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Introduction:

Pediatric open fractures are serious injuries that usually require surgery and prolonged hospitalization. Beyond the physical challenges, these injuries can lead to psychological consequences such as post-traumatic stress disorder (PTSD), anxiety, depression, and dissociative symptoms. These factors may slow recovery, interfere with returning to school or daily activities, and affect long-term development. In adults, psychological outcomes after open fractures have been more widely documented, often centering on PTSD, anxiety, and depression. This study systematically reviewed the psychological outcomes of pediatric open fractures and compared findings with outcomes reported in adult populations.

Methods:

A systematic review of pediatric patients (ages 0–18) with open fractures was conducted in accordance with PRISMA guidelines and registered with PROSPERO. Searches across PubMed, ScienceDirect, Sage Journals, and Google Scholar (2013–2023) identified studies reporting psychological or functional outcomes. Eligible designs included randomized controlled trials, cohort studies, case–control studies, and case series. Two independent reviewers screened 419 records, and 31 studies met inclusion criteria. Pediatric findings were then contextualized against outcomes described in a published systematic review of adult long bone fractures.

Results:

Across pediatric studies, the most frequently reported psychological effects included PTSD (8–22%), acute stress disorder, depression, anxiety, dissociation, and peritraumatic amnesia. These symptoms were often connected to delays in going back to school, difficulty returning to sports, problems with sleep, and ongoing pain. In adults, PTSD was seen more often (12–30%), with depression and anxiety also common, but these were mostly linked to challenges getting back to work and normal social activities. In both children and adults, mental health challenges slowed recovery and rehabilitation, but children were more vulnerable to lasting developmental problems, much like those seen with adverse childhood experiences (ACEs).

Conclusion:

Psychological effects after open fractures are common in both children and adults, but they show up in different ways. Adults often struggle with PTSD, depression, and anxiety that interfere with returning to work and social roles. Children experience these same problems but also face added risks to their growth and development, making them more vulnerable to long-term effects similar to adverse childhood experiences (ACEs). Recognizing these differences is key to tailoring care. Children may benefit from early mental health support and developmentally focused screening, while adults often need psychosocial and occupational help. Treating both the physical and psychological sides of open fractures can improve recovery and prevent long-term complications in all patients.

Dementia Related Differing Cultural Health Needs

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Study Question and Background

Recent county-level data indicates that Midland County has an Alzheimer's prevalence rate of 12.4% among individuals aged 65 and older, which is slightly above the state average of 11.9%. Research suggests that up to 40% of dementia cases could be prevented or delayed by making key lifestyle changes, such as improving nutrition, sleep, social engagement, and health literacy. Given the higher-than-average prevalence in Midland County, targeted education programs on Alzheimer's and dementia are essential for raising awareness and promoting the adoption of protective health behaviors. Our goal is to provide the residents of Midland County with targeted evidence-based interventions corresponding with the factors they find most concerning. Our three populations were the Midland Senior Center, which is predominantly Caucasian, the Southeast Senior Center, which is predominately African American, and the Casa de Amigos, which is predominantly Hispanic/Latino.

Data Collection Methods

The project methods include targeted outreach to Midland community members, facilitating an effective focus group, and ensuring smooth discussions. The team will collect vital details on the needs of the community through recording and written information. After the focus groups, the team will evaluate the data for adequacy.

Results

The three focus group locations revealed both similarities and differences in their community needs. Midland Senior Center and Southeast Senior Center shared common interests in educational topics, though with slightly different focuses—Midland expressed more interest in healthy brain habits, while Southeast was more concerned with recognizing the warning signs of dementia. Casa de Amigos showed interest in these areas as well, with an added emphasis on learning about caregiving support.

Narrative/Discussion

Focus groups at Midland County senior centers revealed distinct Alzheimer's-related concerns. The Midland Senior Center emphasized brain-healthy habits, the Southeast Senior Center stressed recognizing early warning signs, and Casa de Amigos highlighted the importance of caregiver support. Despite these differences, all sites wanted culturally tailored information delivered in multiple formats. Overall, focus groups proved effective in uncovering community needs, especially among vulnerable populations, providing rich, firsthand insights into prevention and health promotion.

Limitations

Coordinating sessions posed scheduling and transportation challenges. Moreover, the small sample size restricts broad generalization but fosters deeper, more direct engagement with participants.

Next Steps

The next steps include conducting intervention workshops for each of the location-specific needs, implementing a pre- and post-quiz assessment to gauge the level of knowledge, and providing pamphlets and information within the local community to increase access to local resources.

Parental interpretation of the M-CHAT: Effects of Clinician Guidance in a Borderland Pediatric Clinic

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Background:

Early identification of Autism Spectrum Disorder (ASD) can significantly influence developmental outcomes, and the M-CHAT remains one of the most commonly used tools for screening toddlers during routine pediatric visits. However, the accuracy of this screening depends heavily on how well parents understand the questions, which can be challenging in communities where language, culture, and health literacy vary widely. This project seeks to understand whether parents answer the M-CHAT differently when they complete it alone compared to when they receive guidance from a medical student. The second objective is to evaluate how parents interpret the purpose and meaning of the M-CHAT before and after speaking with a clinician or researcher.

Methods:

The study will take place at a pediatric clinic that serves families from the El Paso area, many of whom are bilingual or primarily Spanish-speaking. Parents of children between 18 and 24 months will be invited to participate during their well-child visits. Each parent will fill out the M-CHAT twice: first without assistance, and then a second time with support from a medical student who will explain wording and clarify misunderstandings while avoiding influencing the actual answers. The two versions of the M-CHAT will be compared at the question and overall score level using paired statistical methods. Before and after the guided portion, parents will also complete a short survey designed to gauge their understanding of what the M-CHAT measures, how it is interpreted, and what the results mean for their child. Survey responses will be scored on a Likert scale to better understand parents' opinions and perceptions, thereby informing more targeted improvements to M-CHAT administration.

Results:

We plan to interact with approximately 50–75 families. The main outcomes will include how often parents change specific responses between the independent and guided versions of the M-CHAT, whether their risk classification shifts, and how their survey responses change after speaking with a clinician. We expect to identify particular questions that commonly lead to confusion and to learn more about the role of language preference, educational background, and health literacy.

Conclusions:

By examining how parental understanding affects M-CHAT responses, this study aims to highlight gaps that can affect the reliability of early ASD screening in a diverse border community. The findings may help guide improvements to how the M-CHAT is administered, including the potential value of brief clinician-led clarification prior to completion of the screening questionnaire. Ultimately, the study may support more equitable and accurate screening practices and contribute to earlier referrals and intervention for children in the El Paso region.

A Case-Based Curriculum to Strengthen Medical Spanish Competency in First and Second Year Medical Students

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Background:

Language barriers are strongly associated with poor health outcomes. Hispanics account for 19% of the U.S. population; however, only 6% of physicians are Hispanic and 2% of non-Hispanic physicians are fluent in Spanish. Studies have shown that clinicians' ability to introduce themselves in Spanish and better understand patients' needs increase trust between patient and physician. This project evaluates the impact of monthly "Cafecito" sessions aimed at improving medical Spanish proficiency among MS1 and MS2 students. Each hour-long session involves instruction of key medical definitions and phonetic pronunciations, followed by case-based practice with a Spanish-speaking facilitator acting as a simulated patient.

Methods:

All participants will complete identical Pre- and Post-Test surveys in August and December assessing confidence (Likert scale) and knowledge (vocabulary, lay translation, symptom review, clinical phrasing, and clinical scenarios as multiple choice and free response questions). Along with demographic data, attendance month and elective-course participation are recorded. Proficiency is standardized using the Common European Framework of Reference for Languages (CEFR) model. Quantitative data will be analyzed using paired and between-group comparisons, with qualitative feedback reviewed through thematic coding.

Results:

This study is ongoing. To date, 56 students have completed the Pre-test. Monthly Cafecito sessions demonstrated consistent engagement from August through November, averaging 26 attendees per session, with 19, 9, and 4 new participants joining in September, October, and November, respectively. Based on CEFR-aligned proficiency levels, 50.8% of participants were classified as level A speakers, 25.4% as level B, 16.9% as level C, and 6.8% as native Spanish speakers. Additionally, 70% reported no prior formal instruction in medical Spanish. Most respondents (91.5%) identified English as their first language, while 3.3% identified Spanish and 5% identified another language.

Twelve participants were concurrently enrolled in a weekly Spanish elective, and among them, half attended two or more Cafecito sessions. Baseline communication confidence was uniformly low across all domains assessed. Mean confidence scores (1–5 Likert scale) ranged from approximately 1.0 to 2.5 for casual conversation, initiating clinical encounters, obtaining a basic history, discussing symptomology, providing patient education, and clarifying misunderstandings, indicating limited perceived readiness for Spanish-language clinical interactions. Despite this, 60% of respondents had already volunteered in predominantly Spanish-speaking clinical environments, suggesting that many students are entering linguistically demanding settings with insufficient confidence and skill.

Conclusion:

Preliminary results highlight strong student engagement paired with substantial gaps in Spanish-language communication confidence among pre-clinical learners. The combination of low baseline proficiency, minimal prior instruction, and limited self-efficacy, despite frequent exposure to Spanish-speaking patients, underscores a critical need for structured, skills-focused language support. The Cafecito curriculum, which integrates vocabulary instruction with case-based, facilitator-led practice, is positioned to address these deficits by strengthening learners' linguistic readiness and enhancing their ability to communicate effectively with Spanish-speaking patients. Ongoing data collection and post-intervention analysis will determine the program's impact on confidence, proficiency, and clinical applicability.

Enhancing dermatologic AI: metadata as a predictor of skin and identification

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Introduction:

Dermatologic conditions account for a substantial share of primary care visits. Yet limited access to dermatologists, particularly in underserved settings, can cause delays in diagnosis and increase morbidity. Artificial intelligence (AI) has demonstrated dermatologist-level performance in skin-image classification tasks^{1,3}, offering a pathway to support frontline decision-making. Our project evaluates whether metadata-only machine-learning models can approach or exceed the diagnostic performance of a known clinical standard (Clinical Impression 1), while also examining performance differences across race and Fitzpatrick skin types. In the future, by benchmarking clinicians and models side-by-side, we aim to identify potential bias and guide equitable education with the use of AI in dermatology^{4,5}.

Methods:

We analyzed a dermatology metadata dataset containing lesion-level pathology and clinician impressions. Clinical Impression 1 (CI1) performance was computed using sensitivity, specificity, PPV, NPV, accuracy, and AUC. Metadata-based machine-learning models (logistic regression, random forest, XGBoost) were trained using a lesion-level train/test split to prevent overlap, with preprocessing and 10-fold grouped cross-validation in tidymodels. A stacked meta-model was trained using base-model predicted probabilities. All models were evaluated on the same held-out test set, and performance for both clinicians and models was compared across race and Fitzpatrick skin type to assess subgroup differences.

Results:

Across 1,773 test lesions, Clinical Impression 1 (CI1) achieved the highest diagnostic performance (accuracy 0.84; sensitivity 0.82; specificity 0.87), outperforming all metadata-based machine-learning models. Logistic regression, random forest, XGBoost, and the stacked meta-model showed moderate accuracy (0.65–0.68) with similar AUC values (0.74–0.75). Performance stratified by race and Fitzpatrick skin type showed substantial variability within small subgroups; however, patterns were inconsistent and confidence intervals overlapped. In the largest demographic groups, model performance remained stable, and no statistically reliable evidence of demographic bias was detected. CI1 performance remained uniformly high across all subgroups.

Conclusion:

Our findings highlight the significant promise of AI-assisted dermatologic image analysis in expanding equitable access to care. Prior work demonstrates that AI tools can complement clinician decision-making and improve diagnostic accuracy, even in settings with limited specialty availability.^{2,3,6} As we continue to expand the diversity of our dataset, including representation across a wide range of skin tone, and refine algorithmic performance, this tool has the potential to integrate into rural primary care workflows and meaningfully enhance patient outcomes.^{5,7} Ultimately, our project seeks to empower frontline clinicians with rapid, evidence-based insights that reduce delays in dermatologic diagnosis and support more equitable care delivery.

Smoking-Associated Differences in Immune-Related Adverse Events and Healthcare Utilization in Skin Cancer Patients Treated with Immune Checkpoint Inhibitors

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Background:

Immune checkpoint inhibitors (ICIs) are widely used in the treatment of skin cancers, yet the impact of tobacco exposure on immune-related adverse events (irAEs), cardio-pulmonary complications, and healthcare utilization remains unclear. Smoking alters systemic inflammation, pulmonary reserve, and immune response, potentially modifying both toxicity profiles and real-world outcomes among ICI-treated patients. This study evaluated whether smoking status influences the incidence of irAEs, major adverse cardiovascular events (MACE), infections, mortality, and acute-care utilization in a large, multi-institutional cohort of skin cancer patients initiating ICIs.

Methods:

We conducted a retrospective cohort study using the TriNetX Research Network, comprising electronic health records from 109 healthcare organizations. Adults aged 18–90 with melanoma or non-melanoma skin cancer who received anti-PD-1, anti-PD-L1, anti-CTLA-4, or combination ICI therapy were included. Smoking status was defined using ICD-10 codes: smokers required ≥ 1 code for nicotine dependence (F17) or tobacco use (Z72.0), while non-smokers had no history of these codes. The index date was the first ICI administration. Outcomes were assessed from 1 day to 2 years post-index. Primary outcomes included GI, hepatic, endocrine, respiratory, and dermatologic irAEs; pneumonia; MACE; all-cause mortality; inpatient admission; and emergency department (ED) visits. Patients with recorded outcomes prior to the time window were excluded from the respective analyses. Propensity score matching (1:1) was performed across 42 covariates, including demographics, cancer characteristics, comorbidities, treatments, and medication classes, to yield two balanced cohorts of 7,451 patients each.

Results:

After matching, smokers experienced significantly higher rates of GI irAEs (13.4% vs 11.4%; RR 1.17, 95% CI 1.07–1.28), pneumonia (17.7% vs 13.9%; RR 1.28, 95% CI 1.18–1.39), MACE (40.1% vs 36.8%; RR 1.09, 95% CI 1.04–1.14), inpatient admissions (44.1% vs 35.6%; RR 1.24, 95% CI 1.16–1.32), and ED visits (25.8% vs 22.0%; RR 1.18, 95% CI 1.09–1.27). No significant differences were observed in hepatic irAEs, endocrine irAEs, or dermatologic irAEs. All-cause mortality did not differ between cohorts (34.9% vs 34.2%; RR 1.02, 95% CI 0.98–1.07). Kaplan–Meier analyses demonstrated significantly shorter time to pneumonia, GI irAEs, MACE, and acute-care utilization among smokers ($p < 0.01$ for each outcome). Barriers in translating evidence to practice include heterogeneity in smoking documentation and variations in cancer staging and treatment intensity across health systems.

Conclusions:

In this large real-world cohort of ICI-treated skin cancer patients, smoking was independently associated with higher rates of GI toxicity, pneumonia, cardiovascular complications, and acute-care utilization, but not increased mortality. These findings highlight the need for targeted cardio-pulmonary monitoring, smoking cessation support, and proactive symptom management strategies for smokers undergoing ICI therapy. Future studies should incorporate more granular smoking exposure measures, examine dose-response relationships, and evaluate whether tailored supportive-care interventions can mitigate preventable toxicity and healthcare utilization in this high-risk population.

Optimizing Care: Antimicrobial Strategies for Maggot-Infected Venous Stasis Ulcers

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INTRODUCTION AND BACKGROUND

Biofilm formation by bacteria in chronic wounds significantly impedes healing. Given rising antibiotic resistance and the push for antimicrobial stewardship, novel approaches to chronic wound management are essential. Defensins, potent antimicrobial peptides, have been identified in maggot secretions, offering new insights into wound healing. This discovery suggests a re-evaluation and prompt antibiotic stewardship when dealing with antimicrobial strategies for maggot-infected venous stasis ulcers.

CLINICAL PRESENTATION

This 64-year-old female, with a significant past medical history of COPD, CHF, HTN, AUD, portal vein thrombosis, and Wernicke encephalopathy, presented to the ED due to a malodorous, maggot-colonized open wound on her right lower extremity (RLE) ankle and foot. Despite the foul smell, she reported no pain and denied systemic symptoms such as SOB, CP, fever, chills, or GI disturbances. She admitted to medication non-adherence, daily alcohol consumption (6-12 beers), and smoking 0.5 PPD. As shown in Figure 1, the RLE ulcer is approximately 5 x 7 cm, superficially exposing subcutaneous tissue, located on the lateral medial malleolus and extending to the heel (approx. 3 cm above the ankle). The wound bed showed minimal slough/necrotic tissue with moderate seropurulent exudate. Peripheral wound skin changes, including moderate edema and slight erythema, were consistent with chronic venous insufficiency.

The wound contained fewer than 20 larval forms. While maggot debridement was acknowledged, there was concern regarding potential deeper tissue involvement and management of suspected underlying cellulitis.

Patient's open wound ongoing for 3+ months and 2-3 weeks with the maggot infection. ED presentation shows no fever, with a Tmax of 99.5F, normal RR, 72 bpm, and BP 162/82 on admission day. WBC 7.6, ESR 41, CRP 9.4. R foot Xray shows no osteomyelitis, soft tissue swelling and venous stasis in the RLE. No MRSA risk factors present.

Following pre-treatment blood culture collection in the ED, the patient was given vancomycin 2,500 mg and cefepime 1 g. Surgical consultation advised against operative intervention and further IV antibiotic treatment. On admission to the inpatient family medicine service, intravenous antibiotics were continued for 24 hours. The patient received cefepime for one additional day while hospitalized and was then discharged without requirement for home antibiotic therapy.

CLINICAL CORRELATION

At the time of admission, the patient exhibited no signs of systemic inflammatory response (0/4 SIRS criteria) or localized/diffuse infection. Notably, the patient's venous ulcer was colonized by maggots, which appeared to be effectively debriding necrotic tissue and inhibiting excessive bacterial proliferation.

The significant wound size and extent of maggot colonization, as shown in Figure 1, likely contributed to the emergency department physician and surgeon's initial decision to initiate broad-spectrum antibiotics. This approach was reasonable at the time, as neither the blood culture results, nor the laboratory data were yet available. Once the bloodwork returned without evidence of active infection and the clinical presentation did not meet SIRS criteria, current evidence-based guidelines would generally recommend against routine systemic antibiotics solely to promote healing in venous leg ulcers.

While the wound's appearance can understandably raise concern for infection, established recommendations emphasize limiting antibiotic use to cases with confirmed systemic or localized signs of infection.

In this case, the inpatient team's decision to continue antibiotics for an additional 24 hours while awaiting final blood culture results was cautious. Once cultures were confirmed negative, guidelines suggest that discontinuation of antibiotics may be appropriate when systemic (SIRS criteria) or localized signs of infection (e.g., tenderness, erythema, swelling, pain) are absent.

CONCLUSIONS & DISCUSSION

Base Decisions on Data – Wound appearance alone should not dictate antibiotic use; objective findings and criteria are an essential part of medical management.

Follow Guidelines – Evidence-based protocols support safe, targeted therapy and timely de-escalation when appropriate.

Reassess Promptly – Review labs and clinical status early to confirm need for ongoing antibiotics.

Balance Safety & Stewardship – Conservative use while awaiting key results protects patients and preserves antibiotic effectiveness.

Prevent Harm – Judicious prescribing reduces antibiotic resistance, C. difficile risk, and other adverse outcomes.

A Rare Rash With a Surprising Fix: Granuloma Gluteale Infantum Treated with Ketoconazole

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Introduction

Granuloma gluteale infantum (GGI) is a rare inflammatory condition of the diaper region characterized by erythematous papulonodular lesions that often arise following severe diaper dermatitis. Fewer than 40 cases have been documented, resulting in limited clinical guidance and no consensus on optimal treatment strategies. Proposed triggers include potassium bromide ointments, skin occlusion, *Candida* infection, and prior use of topical corticosteroids, but the pathogenesis remains poorly understood. Treatments in the literature vary widely, ranging from conservative management to immunomodulatory agents. We present a case of GGI in a 2-month-old infant that demonstrated rapid resolution with topical ketoconazole, highlighting its potential therapeutic role in cases with suspected fungal involvement.

Case Description

A 2-month-old male presented for a routine well visit with a recalcitrant gluteal rash that began at three weeks of age. The mother reported progressive worsening of the rash despite sequential treatments including mupirocin, ketoconazole, cephalexin, clindamycin, barrier creams, and systemic fluconazole. Physical examination reveals well-demarcated, maculopapular nodules with a bluish base.

Given the unusual appearance and lack of response to multiple therapies, a dermatology teleconsultation was obtained, which identified the lesions as suspicious for GGI. Secondary dermatology evaluation confirmed the diagnosis. At that time, the patient was started on 1% topical ketoconazole cream in conjunction with petroleum-based emollients. Within two weeks, the mother reported complete resolution of the lesions. No systemic therapy or additional antibiotics were required.

Discussion

This case documents one of the few cases of GGI resolution utilizing 1% topical ketoconazole. The causes and triggers of GGI are widely debated- convoluted by the rarity of the condition. It has been proposed that the rash has been associated with *Candida* infection, moisture, skin occlusion, and topical corticosteroid exposure. Although the natural course of GGI can include spontaneous resolution, the rapid improvement observed after re-initiating topical ketoconazole suggests that targeted antifungal therapy may play an important role in selected cases.

A handful of existing literature documents varied treatment approaches, including topical steroids, calcineurin inhibitors, antifungals, and supportive care, reflecting the absence of a unified management guideline. This case adds to emerging evidence that antifungal therapy may be particularly effective when GGI follows or coexists with candidal diaper dermatitis. Additionally, the patient's early age of onset broadens the known presentation window, as most reported cases occur between 4 and 12 months.

Conclusion

This case highlights topical ketoconazole as a potentially effective treatment for recalcitrant granuloma gluteale infantum. Recognizing the characteristic morphology of GGI and considering targeted antifungal therapy may prevent unnecessary systemic medications and reduce caregiver and patient distress. Although additional research is necessary to define the role of antifungal agents in GGI management, this case is notable for its well-documented treatment course and for being one of the rare reports demonstrating successful antifungal treatment.

Microvascular Complications of Food Insecurity in a Vulnerable Patient Population

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Food insecurity (FI), defined as limited or uncertain access to adequate and nutritious food, is a persistent public health challenge that disproportionately affects low-income and underserved populations. Individuals experiencing FI are more likely to face barriers to disease self-management, increasing their vulnerability to poor glycemic control and long-term complications of Type 2 Diabetes Mellitus (T2DM). North Louisiana consistently ranks among the regions with the highest rates of FI in the United States, making it an important setting in which to evaluate how socioeconomic disadvantage contributes to disparities in diabetes-related outcomes. This retrospective cohort study aimed to investigate the relationship between FI, area-level socioeconomic disadvantage as measured by the Area Deprivation Index (ADI), and the development of microvascular complications—including nephropathy, neuropathy, and retinopathy—among adults with T2DM receiving longitudinal care in this region. Data were extracted from electronic medical records of 163 adult patients diagnosed with T2DM who received care at Ochsner LSU Health outpatient clinics in Shreveport and Monroe, Louisiana, between January 2018 and 2023. Variables collected included demographic characteristics, duration of diabetes, food insecurity screening status, ADI based on patient residential ZIP code, and markers of microvascular disease. Nephropathy was assessed using the urine microalbumin-to-creatinine ratio (MACR), while neuropathy and retinopathy were identified using clinician diagnoses and documented exam findings. Patients were categorized according to FI status and ADI (with high deprivation defined as $ADI \geq 7$), and multivariate analyses were conducted to assess the independent and combined effects of FI and socioeconomic disadvantage on each microvascular outcome. FI alone was not found to be a statistically significant independent predictor of nephropathy as measured by MACR. However, the combined effect of FI and high ADI demonstrated meaningful and statistically significant associations with both neuropathy ($p = 0.024$) and retinopathy ($p < 0.001$). These associations were most evident among individuals who had been diagnosed with T2DM for more than five years, suggesting that chronic exposure to both metabolic and socioeconomic stressors may accelerate microvascular disease progression. Additionally, a significant interaction between FI and ADI was observed in relation to MACR values ($p = 0.026$), indicating that although FI alone did not predict nephropathy, the presence of socioeconomic adversity may intensify kidney dysfunction in food-insecure patients. These findings highlight the complex interplay between individual-level food insecurity and neighborhood-level socioeconomic disadvantage in shaping diabetes outcomes. The results underscore the importance of integrating FI screening into routine diabetes care, particularly in high-risk, socioeconomically marginalized communities. Recognizing FI in conjunction with broader social determinants of health may enable earlier identification of patients at elevated risk for microvascular complications. Targeted interventions—such as enhanced nutritional support programs, community resource referral systems, and tailored chronic disease management services—may mitigate disease progression and ultimately reduce disparities in diabetes-related morbidity. This study contributes to the growing evidence that addressing both FI and structural socioeconomic barriers is essential to improving health equity in populations disproportionately affected by T2DM.

Impact of DEI Initiatives in Emergency Care in Hispanic and Black Patients

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Background:

Hispanic and Black patients disproportionately rely on emergency departments (EDs) for healthcare and continue to experience disparities in access, communication, pain management, and overall quality of care. Reports of discrimination, microaggressions, and language barriers negatively affect trust and satisfaction. EDs serve as a critical point of care for underserved communities, DEI initiatives may help address these inequities.

Objective:

To evaluate how implementation of DEI initiatives in emergency care settings can impact clinical and patient-reported outcomes among Hispanic and Black populations.

Methods:

A miniature literature review of six peer-reviewed studies published between 2015 and 2025 was conducted using PubMed and Open Evidence. Search terms included a combination of keywords such as: “diversity equity inclusion,” “DEI,” “emergency care,” “emergency department,” “racial disparities,” “Black patients,” “Hispanic patients,” “clinical outcomes,” “patient reported outcomes. Boolean operators (AND, OR) were used to help refine results. Additionally, reference lists were screened for any relevant publications.

Results:

DEI interventions such as implicit bias training, culturally competent care, EQUIP initiatives, and language-concordant communication were associated with improved patient trust, communication, satisfaction, and perceived safety.

Conclusion:

DEI initiatives demonstrate promising potential to improve patient-reported outcomes and reduce disparities in emergency care. Continued research is needed to determine which DEI strategies are most effective in underserved settings.

Expanding Equitable HIV Care Through a Bilingual AI Clinical Assistant

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Background:

Language barriers, stigma, and mistrust remain major obstacles to HIV prevention and treatment in Texas, where uninsured and Spanish-speaking populations experience disproportionate delays in diagnosis, lower PrEP uptake, and reduced viral suppression rates. In Travis County, new HIV diagnoses exceed national averages, and linkage-to-care rates remain significantly lower among uninsured and Spanish-speaking patients. Current HIV information resources are largely English-only, static, and not adapted for low-literacy or high-stigma contexts. To address these disparities, we developed a bilingual (English/Spanish) AI Clinical Assistant designed to deliver anonymous, stigma-free, evidence-based HIV guidance. The goal of this project is to improve access, comprehension, and trust among populations traditionally excluded from digital health innovation and who face persistent inequities in HIV care.

Methods:

We designed a web-based HIV Clinical Assistant using a dual-lane architecture to ensure both safety and accessibility. The Quick-Tap lane provides pre-approved, bilingual responses for common patient needs using a structured JSON intent library. The Ask-Anything lane uses Retrieval-Augmented Generation (RAG) limited to clinician-approved sources such as CDC and IDSA guidelines to provide contextualized answers to more complex questions. Safety guardrails include intent-matching prioritization, crisis routing (e.g., 988/911), localized clinic referral options, and fallback logic for low-confidence queries. Development follows a human-centered, participatory design process in collaboration with clinicians, peer navigators, patients, and UX designers. Planned pilot testing (Dec 2025–Feb 2026) at Dell Medical School and Vivent Health will evaluate trust, comprehension, usability, and intent to seek HIV prevention or treatment services. Primary quantitative measures include trust scores (Likert scale), comprehension accuracy, engagement duration, and navigation outcomes. Qualitative data will include user interviews assessing tone, stigma-sensitivity, and perceived empathy.

Results:

Initial prototype usability testing with 12 English- and Spanish-speaking patients at Dell Medical School demonstrated strong interest in anonymous, bilingual access to HIV education and navigation. Participants described the system as “judgment-free,” “easy to use,” and “more approachable than traditional websites,” with cultural relevance and tone emerging as key facilitators of trust. Clinician testing confirmed accuracy of pre-approved responses and appropriateness of safety fallback mechanisms. Expanded pilot testing (n≈50) is in progress and will generate quantitative data on trust, comprehension, and behavioral intentions. Anticipated results include improved user understanding of HIV prevention options, increased willingness to explore PrEP, and stronger comfort discussing HIV-related topics. Final analyses will be available for presentation at the February 2026 symposium.

Conclusions:

Early findings suggest that a bilingual, stigma-sensitive AI clinical assistant can meaningfully improve access to trusted HIV information for Spanish-speaking and uninsured patients. By embedding safety guardrails, transparent communication, and culturally informed language, the tool offers a promising approach to addressing long-standing disparities in HIV prevention and care. Ongoing evaluation will provide evidence on usability, trust, and behavioral outcomes, informing future large-scale implementation and integration across community clinics. This work demonstrates how responsible, human-centered AI design can support equitable healthcare access and reduce the impact of stigma and language barriers in HIV care.

Coccidioidal Meningitis induced Trochlear Nerve Palsy: A Rare Recurrence Finding

Authors: Arnav Mohanty, BS; Samuel Smith, MD; Neil Maithel, MD; Faheem Sherrif, MD; Adam Lewis, MD

Presenting Author: Arnav Mohanty

UNTHSC-TCOM

Background:

Coccidioidal meningitis is a rare but severe manifestation of *Coccidioides* infection, often requiring lifelong antifungal therapy due to high recurrence risk. Typical presentations include headache, altered mental status, hydrocephalus, and multiple cranial nerve involvement. The objective of this report is to highlight the diagnostic and therapeutic challenges due to unusual symptoms and experimental medications

Methods:

Clinical information was obtained through chart review of the patient's electronic medical record, including history, diagnostic and radiologic findings, and treatment. The patient was managed by the primary team, infectious disease, and the neurosurgeon. Written informed consent was obtained from the patient for publication of this case report.

Case:

In this case, we present a 29 year old immunocompetent female who presented with diplopia and hydrocephalus. Her past medical history included coccidioidal meningitis which was treated seven years ago. Her lumbar puncture revealed elevated coccidioides titers, confirming recurrence of the disease. Her brain MRI showed hyperechoic lesions localized to the right ambient and quadrigeminal cisterns, correlating with isolated trochlear nerve involvement.

This presentation was highly unusual, as coccidioidal meningitis has not been reported to affect only the trochlear nerve, and the patient lacked other classical recurrence symptoms such as headache or fever.

Initial management included a ventriculoperitoneal shunt and antifungal therapy with Posaconazole. Although Posaconazole was in therapeutic ranges, there was no improvement despite it being standard therapy for recurrent meningitis cases. Given the lack of improvement, she was transitioned to an experimental antifungal agent, Amorolfin, which resulted in resolution of symptoms and stabilization of hydrocephalus.

Conclusions:

This case is notable because recurrence manifested solely as isolated trochlear nerve palsy, an atypical presentation not previously reported. The biggest highlight is the isolated palsy and that this patient is immunocompetent with a recurrence after she had been treated many years ago for the same disease. Clinicians should always suspect coccidioides even with atypical presentation and previous successful treatments if there had been a history. The introduction of Amorolfin, an experimental treatment, to this patient and treating her infection is another unique part as it is not indicated for coccidioidal meningitis. This use of the medication opens up many more avenues for antifungals and treating resistant, recurrent cases of meningitis.

Anchoring Misses Saddle Pulmonary Embolism in Pediatric Patient

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Presenting Author: Antonette Serrato

Texas College of Osteopathic Medicine

Chest pain is a common complaint in children, and though it is often non-cardiac in origin, it has a broad differential that includes potentially life-threatening causes. Clinicians must be aware of these serious etiologies, such as pulmonary embolism (PE), to promptly identify and rule out high-risk diagnoses. A pulmonary embolism is a blood clot most often originating from the lower extremities (DVT), which then travels to the lungs and blocks one or both pulmonary arteries, depending on size. While uncommon in the pediatric population, a PE can arise, especially in the setting of comorbid conditions, genetic defects, and/or prothrombotic medications and events. In this case study, data was obtained through a comprehensive chart review of laboratory testing, cross-sectional imaging, specialty consultations, appointment follow-ups, hospital transfers, and procedure results. We present a clinical case study of a 16-year-old female with multiple co-existing risk factors, including estrogen-containing contraceptive (OCP) use, obesity, asthma, recent respiratory infection, and heterozygous Factor V Leiden mutation, leading to the development of a massive saddle PE with right heart strain. Her initial symptoms of chest pain, syncope, and dyspnea were prematurely attributed to more common conditions, leading to delayed diagnosis in part due to cognitive biases, such as anchoring and diagnostic momentum. This case is distinguished by the presence of a large, hemodynamically significant saddle embolus in a pediatric patient with overlapping risk factors, requiring urgent interventional thrombectomy. Recognizing the additive risk of multiple coexisting prothrombotic factors and the development of pediatric-specific diagnostic and treatment algorithms are necessary, considering the limited applicability of the Geneva score, Pulmonary Embolism Rule-Out Criteria (PERC), and Wells criteria in children. This report contributes to the sparse literature on PE in children and provides emergency physicians with a framework for identifying and managing high-risk cases.

Mentors in Medicine: A Near-Peer Mentorship Model to Support First-Generation and Hispanic/Latino Premedical Students

Authors: Matheus Merrit Olmedo¹, Carlos Arturo Peña¹, Tommy Torres Christian¹, Benjamin Felipe Mujica¹, Persephone Alicea Ruiz¹, Anthony Kain Cantu¹, Alejandro Reyes¹, Gabriella Angel Jeffords¹

Presenting Author: Matheus Olmedo

UT Health San Antonio

Background:

First-generation and Hispanic/Latino premedical students continue to face structural barriers in navigating the medical school application process, including limited access to advising, mentorship, and application-specific preparation. To address these gaps, the Latino Medical Student Association (LMSA) implemented Mentors in Medicine (MIM), a near-peer mentorship initiative pairing 30 premedical students with 30 medical student mentors across four structured sessions focused on personal statement development, career exploration, application resources, and JAMP awareness.

Methods:

Participants completed pre- and post-program surveys assessing eight domains related to application confidence and familiarity with premedical support systems. Likert-type items (1–5) were analyzed using matched comparisons among respondents who completed both surveys ($n = 17$), employing descriptive statistics, paired t-tests, and Wilcoxon signed-rank tests. Open-ended responses were coded using a rapid qualitative analysis approach to contextualize participant experience. Demographic information was collected to evaluate program reach.

Results:

The participant cohort included substantial representation from historically underrepresented groups: 69% identified as Hispanic/Latino and 46% as first-generation. Statistically significant improvements were observed across multiple domains. Knowledge of the JAMP program increased from 3.65 to 4.59 ($\Delta = +0.94$, $p < 0.001$). Understanding of JAMP eligibility improved from 3.59 to 4.88 ($\Delta = +1.29$, $p < 0.001$). Awareness of academic, financial, and personal support resources increased from 3.65 to 4.41 ($\Delta = +0.77$, $p = 0.008$). Additional domains demonstrated positive trends. Qualitative responses highlighted the value of structured, individualized feedback and the clarity gained from mentor guidance. Participants described the mentorship as “organized and informative,” noted that feedback made the application process “feel more manageable,” and expressed appreciation for the opportunity to receive guidance from medical students with recent firsthand experience.

Conclusions:

The MIM program is a feasible, acceptable, and impactful mentorship intervention for premedical students, particularly those from first-generation and Hispanic/Latino backgrounds. Quantitative and qualitative results indicate that near-peer mentorship meaningfully improves students’ understanding of key components of the application process, including JAMP and available support resources. Given the strong engagement and favorable outcomes, LMSA plans to continue and expand the program in future years to further strengthen support for aspiring physicians from historically underrepresented backgrounds.

Assessing the Efficacy of Pharmacological Inhibition of TEAD Function in KRAS Inhibitor Resistance in Non-Small Cell Lung Cancer

Authors: Sofia Garza, Samrat Kundu, Amrita Barua, and Don Gibbons

Presenting Author: Sofia Garza

UT MD Anderson Cancer Center (Pre-Med Gap Year Student)

Background:

KRAS is one of the most frequently mutated oncogenes in solid tumors, including in non-small cell lung cancer (NSCLC). Recently, mutant-specific inhibitors of KRAS have shown promising therapeutic potential in both preclinical models and in human patients. Despite showing initial improved response to KRAS inhibitors (KRASi), however, most patients eventually acquire resistance to these therapies. As such, overcoming resistance to direct KRAS inhibitors in the context of NSCLC warrants future investigation of novel pharmacological agents that could prevent or reverse KRASi resistance, improve the durability of response, and improve patient outcomes. One pathway of interest is the YAP1/TEAD pathway, which has been demonstrated to be upregulated in the development of resistance to KRAS-G12C and G12D inhibitors. This study aims to evaluate the in vitro efficacy of novel TEAD degraders and inhibitors in KRASi-resistant human and murine models of NSCLC. We hypothesize that inhibition of the YAP1/TEAD pathway can successfully resensitize KRASi resistant cells to KRAS inhibition.

Methods:

Murine and human cell lines that are either sensitive or with acquired resistance to MRTX849 or MRTX1133, a KRAS G12C and G12D inhibitor, respectively, were treated with incremental concentrations of a novel TEAD degrader, which initiates ubiquitin-mediated degradation of TEAD proteins. Treatment efficacy was determined using an MTT cell viability assay. Protein and RNA were isolated from these cells for downstream analyses, including quantitative reverse transcription polymerase chain reaction (RT-PCR) and western blot.

Results:

Western blot analyses revealed significantly reduced expression of Cyr61, a downstream target of TEAD1, following treatment with the TEAD degrader. RT-PCR analyses also indicated downregulation of a panel of targets of the YAP1/TEAD pathway when KRASi-resistant cells were treated with a combination of the respective KRASi and the TEAD degrader. Furthermore, we observed significant resensitization of KRASi-resistant cells to MRTX1133 or MRTX849 upon KRASi-TEAD degrader combination treatment. We performed similar experiments with IAG933, a potent inhibitor of the YAP1/TAZ/TEAD pathway. Our results indicate that functional inhibition of TEAD by IAG933 was able to reverse KRASi resistance in murine and human KRASi-resistant cells.

Conclusion:

Our data provides evidence of the therapeutic potential of novel TEAD degraders and inhibitors in overcoming KRASi resistance in NSCLC. Current and ongoing work includes further in vitro testing of these compounds in human and murine KRASi-resistant cell lines, and in vivo trials to determine the efficacy of these pharmacological agents in our syngeneic mouse KRASi-resistant models.

Prediction Models for Lung Cancer by Smokers and Non-Smokers

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Presenting Author: Saivachan Ponnappalli

Sam Houston State University College of Osteopathic Medicine

Lung cancer is one of the leading causes of cancer-related mortality worldwide, with late-stage diagnosis and limited screening uptake contributing to poor outcomes. Current screening guidelines, such as those from the U.S. Preventive Services Task Force, remain heavily smoking-centric and often fail to capture high-risk individuals. Existing risk models also rely on detailed smoking histories, biomarkers, or genomic data that are not routinely available in primary care settings. This study aimed to evaluate an inclusive lung cancer risk-prediction approach using routinely available clinical and sociodemographic data. Using the NIH National COVID Cohort Collaborative (N3C) database, we conducted a quasi-experimental study of 20.6 million patients stratified by smoking status and applied a 1:5 case-control matching strategy to minimize confounding, resulting in a cohort of 548,445 individuals (97,036 lung cancer cases and 451,409 matched controls). Patients were stratified by smoking status based on indicators, and model performance was assessed using LightGBM with AUC, precision, recall, F1-score, and SHAP-based feature interpretation to identify key predictors. Stratified analyses were further conducted by age, race/ethnicity, and comorbidities. The model demonstrated a ROC score of 0.833 for an inclusive risk-prediction approach. SHAP analysis identified postal code, COPD, and urine protein indicators as the strongest predictors beyond smoking status. Stratified analyses revealed disparities in risk detection, particularly among African American and Asian populations. Findings suggest that routinely available clinical and sociodemographic variables can improve identification of high-risk individuals who may be missed by traditional smoking-based guidelines, especially in rural settings with limited access to high-care hospitalization. Leveraging routinely available data provides a practical framework for integrating lung cancer risk assessment into primary care. Earlier identification of high-risk individuals may enhance detection among populations historically overlooked by current screening criteria. Future work should incorporate imaging biomarkers and longitudinal patient histories to further improve predictive validity and clinical utility.

Perceived Health and Healthcare-Seeking Behavior Among Latino Immigrants with Unauthorized Immigration Status: Retrospective Analysis

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Tilman J. Fertitta Family College of Medicine

Background:

Immigrants with unauthorized legal status comprise approximately 11 million individuals, or 13.7% of the U.S. population.¹ This population faces extensive barriers to healthcare, such as fear of deportation, financial constraints, lack of insurance, and language barriers, which contribute to lower use of preventive services.^{2,3} Systemic factors including immigration policies exacerbate these barriers, limiting affordable healthcare access. Social isolation, financial pressures, and discrimination increase depression and anxiety risks in this population.⁴ This study examines how perceived physical and mental health influences healthcare-seeking behavior among U.S. Latino immigrants. Their unique experiences likely shape their health perceptions, underscoring the need to address healthcare barriers that affect perceived health, to protect the well-being of this vulnerable yet resilient immigrant community.

Methods:

This retrospective study analyzed clinical interviews from 254 Mexican unauthorized immigrants near the California-Mexico border, collected from November 2014-January 2015 using Respondent Driven Sampling (RDS). Participants were adults aged 18+. Healthcare use within the past 12 months served as the dichotomous outcome measure for health-seeking behaviors, while health satisfaction, chronic health conditions, and mental health (depression and anxiety) were proxies for perceived physical and mental health. Descriptive statistics summarized demographic characteristics. Chi-square tests assessed associations between healthcare use and perceived health, comparing both non-stratified data and data stratified by age, sex, and income. Logistic regression evaluated the effects of six variables on healthcare use, including health satisfaction, chronic conditions, depression, anxiety, English proficiency, and years in the U.S. Coefficients and p-values identified significant associations.

Results:

Among the 254 participants, 62.6% reported healthcare use within the past 12 months. Among those, 53.2% had one or more chronic health conditions, which were significantly associated with healthcare use using chi-square ($p = .002$). English proficiency was also significantly associated ($p = .015$). Conversely, health satisfaction ($p = .437$) and years in US ($p = .049$) showed no significant relationship with healthcare use. Regarding mental health, 22.05% reported depression and 16.1% reported anxiety, yet neither depression ($p = .999$) nor anxiety ($p = .769$) were significantly associated with healthcare use. Participants reporting symptoms of depression or anxiety were less likely to seek healthcare than those without symptoms. Logistic regression revealed significant associations between healthcare use and both chronic health conditions ($p = .007$) and English proficiency ($p = .014$), whereas age, sex, income, and years in the U.S were not significant.

Conclusions:

This study highlights the complex interplay between perceived health and healthcare-seeking behaviors among unauthorized Latino immigrants. Chronic health conditions were a significant driver of healthcare use, however mental health factors including depression and anxiety were not associated with healthcare use, revealing critical gaps in accessibility to mental health services. English proficiency was significantly associated with healthcare use, reflecting the influence of acculturation. Health satisfaction and years in the US were not significantly associated with healthcare use, likely due to barriers preventing access to care despite one's perceived health needs. Addressing these disparities requires targeted interventions and systemic reforms. Future research should develop culturally appropriate strategies to meet the needs of marginalized immigrant communities.

Head and Neck Squamous Cell Carcinoma – Recurrence Patterns in a Veteran Population

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Baylor College of Medicine

Background

Head and neck squamous cell carcinomas (HNSCC) continue to be a common cancer, accounting for up to 3% of all cancers in the United States. Differential environment exposure patterns influence the epidemiology of HNSCC in U.S. Veterans such as tobacco consumption, heavy alcohol use, and infection with human papillomavirus (HPV). This potentially shifts patterns of treatment failure and disease recurrences in an unpredictable manner. Recognizing these shifts enables multi-disciplinary teams to adjust treatment and optimize surveillance to appropriately service the target patient population. To address this gap, we plan to determine the incidence of HNSCC at the Michael E. DeBakey Veterans Affairs Medical Center (MEDVAMC), evaluate common treatment modality utilization rates, assess recurrence rates for HNSCC subtypes, and analyze overall survival outcomes.

Methods

This was a retrospective cohort study of veterans diagnosed with HNSCC treated at the Michael E. DeBakey Veterans Affairs Medical Center (MEDVAMC) between May 2015 and November 2024 and looked into tumor characteristics, treatment patterns and oncologic outcomes. Patients who presented with recurrent disease, did not complete recommended treatment, or were treated at an outside institution were excluded. Descriptive analyses were conducted using Microsoft Excel and survival analysis was completed using the Kaplan Meier method.

Results

A total of 366 Veterans (mean age 66.8; 98.1% male; 67.2% white) were included. Oropharynx (38%, 80% p16+), larynx (32.2%), and oral cavity (18.9%) were the most common primary sites. Among p16+ oropharyngeal primary tumors, 60.4% had at least a 10 pack-year smoking history, while 92.9% of HPV– cases had >10 pack-years. The median follow-up time was 29 months.

Treatment patterns varied by subsite. All patients with oral cavity primaries were treated with primary surgery while 73% of patients with oropharyngeal primaries were treated with primary radiation +/- chemotherapy. Laryngeal cancers showed a relatively balanced distribution, with 58.5% treated with XRT ± chemotherapy and 41.5% managed surgically ± adjuvant therapy.

5-year progression-free survival was similar across sites (oral cavity – 44%, oropharynx – 47%, larynx – 49%, $p = 0.48$) but patterns of recurrence varied. Over 50% of recurrences in oropharyngeal primaries occurred distantly with most metastasizing to the lung (90%) or liver (19%) while laryngeal primaries tended to recur locally (69%) and oral cavity primaries exhibited the highest rate of regional recurrence (39%). Among oropharyngeal primaries, smoking history >10 pack-years was associated with increased risk of locoregional recurrence (HR 5.34, 95% CI 1.24 – 22.96).

Conclusion

In this Veteran cohort, HNSCC demonstrated distinct clinical and epidemiologic patterns. Oropharyngeal SCC had a higher rate of distant metastasis, often asymptomatic and leading to poor mortality outcomes, underscoring the need for more aggressive distant imaging. The frequency of liver metastases raises questions about relying solely on chest CT and suggests abdominal imaging may be warranted. These findings highlight the importance of tailoring surveillance guidelines to the unique patterns seen in Veterans. Future studies should focus on larger databases to further refine risk stratification and optimize Veteran-specific head and neck oncologic care.

Impact of the LMSA Mock & Talk Mentorship Program on Premedical Readiness

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Presenting Author: Carlos Arturo Peña

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Background:

Premedical students—particularly Latino, first-generation, and students attending institutions with limited pre-health advising—face significant barriers in preparing competitive medical school applications. These challenges include limited access to personal statement feedback, structured interview preparation, and reliable guidance on navigating the admissions timeline. To address these persistent inequities, the Latino Medical Student Association (LMSA) at the Long School of Medicine implemented Mock & Talk, a near-peer mentorship initiative connecting medical students with premedical applicants across Texas. The program was designed to strengthen applicants' confidence, readiness, and understanding of the admissions process through individualized mentorship and skills-based coaching.

Methods:

Participants were recruited from colleges across Texas and paired with medical student mentors. Each mentor-mentee pair completed one written personal statement review and two mock interviews: one asynchronous recorded interview and one synchronous interview with live feedback. Students were additionally invited to a virtual admissions workshop facilitated by a medical school dean of admissions. A pre-post survey evaluated three domains: (1) interview confidence, (2) personal statement confidence, and (3) overall application preparedness. Items were rated on a 5-point Likert scale. Because pre and post responses were unmatched, independent-samples t-tests were used to compare pre-post mean scores. Demographic data were collected to contextualize program reach.

Results:

Seventy-five students attended the program. Demographically, 35% of respondents identified as Latino, 33% as Asian, 23.3% as White, and 16.5% as Black. A majority (61.2%) planned to apply in Spring 2025, and 41% had already completed their undergraduate degree. Analysis of domain-level outcomes demonstrated meaningful skill gains after program participation. Interview confidence increased from 3.01 to 3.92 ($\Delta = +0.90$, $p = 0.023$), reflecting improvements in recognizing question types, presenting oneself effectively, and managing interview structure. Overall application preparedness increased from 3.72 to 4.38 ($\Delta = +0.65$, $p = 0.021$), indicating stronger understanding of admissions expectations and application components. Personal statement confidence improved modestly (4.27 to 4.50; $\Delta = +0.23$, $p = 0.288$). Qualitative feedback underscored increased self-efficacy, reduced anxiety surrounding interviews, and appreciation for near-peer mentorship that many students reported lacking at their home institutions.

Conclusion:

The Mock & Talk program shows strong promise as a scalable, near-peer mentorship model that supports diverse premedical students in building application-ready skills. Significant gains in interview confidence and application preparedness highlight the value of structured coaching, individualized mentor feedback, and culturally responsive mentorship. The demographic reach of the program—especially its engagement of Latino and first-generation applicants—suggests that near-peer initiatives led by student organizations such as LMSA may play a vital role in reducing inequities along the pathway to medical school. Continued expansion and longitudinal follow-up will further clarify the program's long-term impact on applicant success and representation in medical education.

Pregnancy Outcomes in Patients with Fibromyalgia Tested with Duloxetine versus Gabapentinoids

Authors: Sandra Morales, Sarita Palacio, Jennifer Rosas, Bailey Matsumura, Guadalupe Jose Rodriguez

Presenting Authors: Sandra Morales, Sarita Palacio, Jennifer Rosas

UTMB JSSOM

BACKGROUND:

Fibromyalgia (FM) is a chronic pain disorder characterized by widespread musculoskeletal pain, sleep dysfunction, and frequent comorbid anxiety and depression. Women account for approximately 75-90% of cases. Although its pathophysiology is not fully understood, there is increasing evidence that symptoms worsen during pregnancy. First-line treatments include duloxetine, a serotonin-norepinephrine reuptake inhibitor (SNRI) for pain reduction; however, duloxetine in pregnancy is associated with increased risk of spontaneous abortion and postpartum hemorrhage. Additionally, gabapentinoids, such as gabapentin and pregabalin, reduce pain and improve quality of life in patients with FM. Studies suggest increased risk of preeclampsia and preterm birth in women taking gabapentinoids during pregnancy. There is limited research on the impacts of duloxetine and gabapentinoids on pregnancy, and worsening FM symptoms stress the importance of intervention during this time. The aim of this study is to compare the risks of hypertensive and other perinatal complications among pregnant patients with fibromyalgia treated with duloxetine versus gabapentinoids to improve outcomes for this population.

METHODS:

We conducted a retrospective cohort study using the TriNetX research network, a global database containing de-identified patient data from 30 countries. Two cohorts were constructed using ICD-10 and CPT codes. The first cohort included pregnant patients with fibromyalgia treated during pregnancy with duloxetine, and the second was composed of pregnant patients with fibromyalgia treated during pregnancy with gabapentinoids (gabapentin and pregabalin). Propensity score matching adjusted for demographics, risk factors, medications, and other relevant confounders, resulting in 2,412 patients per cohort. Outcomes were analyzed within TriNetX, including preeclampsia, postpartum hemorrhage, preterm birth, and gestational diabetes, spontaneous abortion, cesarean delivery, and premature rupture of membranes (PROM). A p-value ≤ 0.05 was deemed significant.

RESULTS:

77 patients in the duloxetine cohort had pre-eclampsia compared to 44 patients in the gabapentinoid cohort (3.2% vs 1.8%; $p=0.002$). 103 patients in the duloxetine cohort underwent cesarean delivery compared to 62 patients in the gabapentinoid cohort (4.3% vs 2.6%; $p=0.001$). 32 patients in the duloxetine cohort had PROM compared to 16 patients in the gabapentinoid cohort (1.3% vs 0.7%; $p=0.020$). No significant differences were observed for preterm birth, spontaneous abortion, postpartum hemorrhage, or gestational diabetes between both cohorts ($p>0.05$).

CONCLUSION:

In a matched cohort of over 2,400 pregnancies per group with fibromyalgia, duloxetine use was associated with higher risks of preeclampsia, cesarean delivery, and PROM compared to the gabapentinoid group. The risk of preterm birth, spontaneous abortion, postpartum hemorrhage, and gestational diabetes was similar between groups. Based on the data, it appears duloxetine has greater risk for perinatal complications compared to gabapentinoids. Further prospective studies are needed to confirm this conclusion. This study suggests that additional research is needed to better understand fibromyalgia pathogenesis, its effects on pregnancy, and the mechanisms by which these drugs reduce symptoms. Although propensity score matching was performed, the data may still be affected by confounding variables due to the nature of the retrospective study and variation in physician documentation.

TREATMENT AND RETURN TO SPORT IN ATHLETES WITH SCAPHOID FRACTURES

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Presenting Author: Emmanuel Franco

UTRGV School of Medicine

Background:

The scaphoid is a unique carpal bone due to its anatomical position, and due to its retrograde blood supply, it is highly vulnerable to fractures, nonunion, and avascular necrosis. Both acute and stress fractures occur in athletes, most commonly in contact and weight-bearing sports. Management can be conservative or surgical, but optimal return to sport timelines remains unclear. This systematic review aims to compare return to sport times, healing duration, and complications between operative and non-operative management of scaphoid fractures in athletes.

Methods:

This systematic review is being conducted in accordance with the Preferred Reporting Items for Systematic Reviews and meta-analyses (PRISMA). Three databases were utilized: PubMed, SCOPUS, and CINAHL, using the Boolean operators - (((scaphoid) AND (fracture)) AND (treatment)) AND (athlete) to identify studies published between 2015-2025. Inclusion criteria consisted of retrospective cohorts, randomized controlled trials, comparative studies, case series, and case reports. The risk of bias was evaluated narratively, considering study design and clarity of reporting. Due to the heterogeneity among studies, results were synthesized qualitatively using a narrative and descriptive approach.

Results:

A total of 96 articles were identified, and 7 studies met the inclusion criteria, encompassing 50 athletes from various sports. Return to sport ranged from 10-34 weeks, with earlier return following surgical fixation compared with conservative management. Healing times ranged from 8-26 weeks. Reported complications included failure of conservative treatment, post-traumatic arthritis, and hardware-related issues. The evidence is limited by small sample sizes, predominance of case reports, and inconsistent outcome reporting, restricting statistical comparison and generalizability.

Conclusion:

Overall, surgical fixation appears to provide superior outcomes for athletes by enabling faster healing and earlier return to sport compared with conservative treatment. These findings support consideration of early surgical intervention in athletic populations; however, larger studies are needed to confirm these results.

The Role of Menopause and Hormone Replacement Therapy as Mediators of Rotator Cuff Repair Recovery

Authors: Dipti Punjabi, BS; Vyshnavi Davuluri, BS; Nicole Kuo, BS; Rachel Stepanek, MD

Presenting Author: Dipti Punjabi

The University of Texas Medical Branch

Backgrounds

Rotator cuff tears are among the most common causes of shoulder pain, and surgical repair is often required to restore function. Evidence suggests that rotator cuff injuries occur more frequently in women, particularly those in the postmenopausal period. Furthermore, women experience higher rates of functional healing failure after rotator cuff surgery compared with men. Menopause is characterized by a decline in estrogen levels, and estrogen plays an essential role in processes critical for tendon healing, including collagen synthesis and extracellular matrix regulation. Animal models have demonstrated that estrogen supplementation can improve tendon healing, bone mineral density, and biomechanical strength at the repair site. Although some studies have examined female sex hormones in relation to musculoskeletal disorders, few have investigated the specific impact of menopause or hormone replacement therapy (HRT) on postoperative outcomes in humans. Given the high prevalence of rotator cuff disease in aging women and the influence of estrogen on musculoskeletal biology, understanding the relationship between the two represents a significant research gap. Our study aims to compare postoperative outcomes following rotator cuff repair among premenopausal women, postmenopausal women using HRT, and postmenopausal women not using HRT.

Methods

The TriNetX database was used to search through deidentified patient data from 110 healthcare organizations. The analysis process began with defining the cohorts using query criteria. The three cohorts were: (1) recent rotator cuff surgical repair, in menopause, and taking hormonal therapy; (2) recent rotator cuff surgical repair and in menopause; and (3) recent rotator cuff surgical repair and pre-menopausal. Then all cohorts were controlled for age, age at index event, and race. The index event was set as the rotator cuff surgical repair, and a comparison was conducted for the following outcomes two years following the rotator cuff surgical repair through TriNetX: post-operative infections, post-operative adhesive capsulitis, post-operative stiffness, and post-operative rotator cuff rupture.

Results

From the control group and menopausal group without HRT, the following surgical outcomes had significant risk difference p-values: post-operative adhesive capsulitis, stiffness, and rotator cuff rupture. This indicates menopause worsens tendon healing and surgical outcomes, likely due to estrogen deficiency. When comparing the control group and menopausal group with HRT, significant risk difference p-values were observed for post-operative infections, stiffness, and rotator cuff rupture, while post-operative adhesive capsulitis had no significant p-value. From these results, it is seen that HRT does not fully improve surgical outcomes in menopausal women compared to their pre-menopausal state. For the cohort comparing the menopausal group without HRT and the menopausal group with HRT, no significant p-values were noted for any surgical outcome, indicating no significant benefit from HRT.

Conclusion

Overall, menopause is associated with worse rotator cuff repair surgical outcomes, while the involvement of HRT is not significantly associated with better surgical outcomes. This research can help guide future studies on menopausal individuals and the effects of menopause on surgical recovery. Additionally, future research can focus on comparing the use of different HRTs to determine if there are differences in their effects on rotator cuff surgical repair outcomes.

Biologic Therapy and Perinatal Outcomes in Pregnant Patients With Inflammatory Bowel Disease: A Multicenter Retrospective Cohort Study

Authors: Lauren Fontenot, Amanda Romero Ocando, Guadalupe Jose Rodriguez, Bailey Matsumura

Presenting Authors: Lauren Fontenot and Amanda Romero Ocando

UTMB John Sealy School of Medicine

Background:

Diagnosis of inflammatory bowel disease (IBD) during pregnancy, particularly in active cases, is associated with several perinatal complications. Current research supports continuation of biologics throughout the preconception and perinatal period. Active cases of ulcerative colitis or Crohn's disease have been associated with increased risks of low birth weight, preeclampsia, preterm birth, c-section births, gestational diabetes, and stillbirths. Monoclonal biologics such as anti-TNF- α and anti-integrin antibodies have been effective treatments and are supported for use during pregnancy. However, patients have expressed concerns due to a lack of appropriate, evidence-based education. Discontinuation of biologics prior to and throughout the pregnancy has been linked with higher rates of maternal IBD relapse, preterm births, and adverse outcomes related to high disease activity. This study aimed to compare obstetric outcomes in pregnant patients with IBD treated with biologic therapy versus those without biologic exposure

Methods:

A retrospective cohort study was conducted using the TriNetX research network, which provides de-identified patient data from 111 healthcare organizations worldwide. Two cohorts of pregnant patients with inflammatory bowel disease (IBD) were constructed using ICD-10 codes and biologic medication codes. Cohort A included pregnant patients with IBD who received a biologic therapy, including infliximab, adalimumab, certolizumab pegol, vedolizumab, ustekinumab, guselkumab, risankizumab, or mirikizumab, as well as their biosimilars. Cohort B consisted of pregnant patients with IBD and no biologic or corresponding biosimilars exposure during pregnancy or in the year prior. The index event for both cohorts was the first recorded pregnancy encounter, and outcomes were evaluated from the index date forward. Propensity score matching (1:1) was performed across demographic variables, comorbidities, IBD-related medications, surgical history, and laboratory markers, resulting in 3,467 matched patients per cohort. Outcomes were identified using ICD and CPT codes, and statistical analysis was done using TriNetX.

Results:

145 patients in the non-biologic cohort received a diagnosis of preterm birth, compared with 102 in the biologic cohort (4.27% vs. 3.00%, $p=0.0053$). 187 patients in the non-biologic cohort received a diagnosis of spontaneous abortion compared to 110 patients in the biologic cohort (5.51% vs. 3.24%, $p<0.0001$). Risk of preeclampsia, postpartum hemorrhage, cesarean delivery, gestational diabetes, and thromboembolic complications were not statistically significant between the two groups.

Conclusion:

Treatment of inflammatory bowel disease with biologic therapy during pregnancy was associated with a decreased risk of preterm birth and spontaneous abortion. These results suggest that the use of biologics for IBD during pregnancy may be preferred to decrease the risk of certain adverse outcomes seen in the IBD population. Importantly, biologic therapy was not associated with increased risk of any of the other obstetric complications explored in this study. Limitations of this study include variability in physician code reporting and other confounding variables due to the nature of a retrospective study. Further prospective research is needed to confirm the safety across diverse patient populations and to confirm the results of this study.

Perioperative Outcomes of GLP-1 Receptor Agonist Use in Emergent Cholecystectomy

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Background:

Glucagon-like peptide-1 receptor agonists (GLP-1RAs) are widely used for the management of type 2 diabetes and obesity. GLP-1RAs enhance insulin secretion, inhibit glucagon release, and delay gastric emptying, which increases concern for postoperative complications such as bowel obstruction and ileus. While new evidence suggests that patients with low risk for delayed stomach emptying can continue using GLP-1RAs before elective surgery, there is limited evidence regarding the agonist's impact following emergent abdominal surgeries. Discontinuing medication prior to emergent procedures such as cholecystectomy may be challenging or unrealistic at times. Therefore, understanding GLP-1RAs effects on postoperative outcomes could influence clinical decision-making. This study aims to compare the rates of postoperative ileus, aspiration, bowel obstruction, constipation, and surgical site infection (SSI) in patients using GLP-1RAs versus matched non-users undergoing emergent cholecystectomy.

Methods:

A multicenter, retrospective cohort study was conducted using the TriNetX database. ICD-10 procedure codes were used to identify patients who underwent a cholecystectomy. The first cohort consisted of patients with GLP-1RA exposure prior to surgery, while the second cohort included patients without GLP-1RA exposure (N=5,154). Propensity score matching included demographics and comorbidities, such as diabetes mellitus and hypertension. Incidences of postoperative ileus, aspiration pneumonia, bowel obstruction, SSI, and constipation within three years of the index event were compared using risk ratios (RRs) with 95% confidence intervals.

Results:

No significant difference was observed between GLP-1RA users and non-users and postoperative ileus in emergent cholecystectomies (1.52% vs 1.1%, RR 1.405, 95% CI [0.846, 2.334], p=0.19). Similarly, rates of aspiration pneumonia (1.09% vs 1.58%, RR 0.692, 95% CI [0.425, 1.127], p=0.14) and rates of bowel obstruction were also nonsignificant (1.34% vs 1.30%, RR 1.03, 95% CI [0.631, 1.683], p=0.91). Intriguingly, GLP-1RA users had significantly lower rates of SSI compared with non-users (0.49% vs 1.15%, p=0.011, RR 0.43, 95% CI [0.219, 0.841]) and significantly higher rates of postoperative constipation (8.36% vs 6.28%, p=0.014, RR 1.33, 95% CI [1.06, 1.679]).

Discussion:

Despite concerns about delayed gastric emptying, our findings suggest that GLP-1RA therapy does not worsen GI complications in emergent settings. Interestingly, GLP-1RA users had significantly lower rates of SSI, likely related to the medication's mechanism of action. GLP-1 receptor agonists stimulate insulin secretion while simultaneously inhibiting the release of glucagon from α -cells. This along with delayed gastric emptying improves perioperative glycemic control, an important factor in reducing infection risk. Overall, GLP-1RA therapy appears safe for patients undergoing emergent cholecystectomy, with no increased risk in major gastric complications. Although postoperative constipation was higher among GLP-1RA users, constipation is a known side effect of the medication. Surgical stress may amplify this effect, but further research is needed to clarify the connection between the two. Additional studies comparing emergent to non-emergent cholecystectomy patients on GLP-1RAs would help determine whether these trends are persistent across patient populations.

Statins vs Ezetimibe After Ischemic Stroke: Comparative Risk of Cognitive Decline

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Background:

Strokes affect more than 795,000 people annually in the United States and remain a leading cause of long-term disability and mortality. Current AHA guidelines recommend high-intensity statin therapy for secondary prevention after ischemic stroke, prompting interest in their potential downstream effects on cognition. However, a subset of patients cannot tolerate statins due to statin-associated myopathy or comorbid renal or hepatic dysfunction and are transitioned to non-statin therapy. Statins exert pleiotropic anti-inflammatory and vascular effects with mixed evidence regarding cognition, whereas ezetimibe lacks comparable secondary effects, raising the question of whether therapeutic choice influences post-stroke cognitive outcomes. Clarifying how these therapies differ in their cognitive impact remains important for clinical decision-making, particularly in post-stroke populations. This study compares the risk of post-stroke cognitive decline between statin and ezetimibe monotherapy.

Methods:

We conducted a retrospective cohort analysis using the TriNetX research network. Adults ≥ 18 years with ischemic stroke were identified using ICD-10 code I63, with the first recorded I63 diagnosis defined as the index event. Patients with any cognitive impairment diagnosed before the index event were excluded. Two exposure cohorts were defined based on lipid-lowering therapy initiated within 0–90 days after stroke. The statin cohort included patients receiving atorvastatin, rosuvastatin, simvastatin, pravastatin, lovastatin, fluvastatin, or pitavastatin. The non-statin cohort included patients receiving ezetimibe, with exclusion of any statin exposure during this window. Cognitive outcomes included mild cognitive impairment (G31.84), cognitive symptoms (R41), Alzheimer's disease (G30.9), and vascular dementia (F01), assessed from +90 days to +5 years after index. Propensity score matching (1:1) was performed on demographics, vascular risk factors, baseline brain-health conditions, and concurrent medications, yielding 2,169 patients per group.

Results:

Before matching, the ezetimibe cohort was older and exhibited a higher burden of vascular comorbidities, including hypertension, diabetes, atrial fibrillation, ischemic heart disease, and chronic kidney disease, and had higher baseline lipid levels. After 1:1 propensity score matching (n=2,169 per group), cohorts were well balanced across demographic and clinical variables, with residual lipid differences reflecting expected pharmacologic variation.

Across all cognitive outcomes examined, there were no meaningful differences between statin and ezetimibe monotherapy. There was no significant difference in mild cognitive impairment (HR 1.154, 95% CI 0.516–2.581, $p = 0.339$), cognitive symptoms (HR 0.929, CI 0.710-1.215, $p = 0.176$), or Alzheimer's disease (HR 1.320, CI 0.558-3.125, $p = 0.067$). A statistical signal for vascular dementia (HR 0.935, 95% CI 0.445-1.966, $p=0.006$) was inconsistent with effect estimates and limited event counts.

Conclusion:

Among adults with ischemic stroke receiving lipid-lowering therapy, statin and ezetimibe monotherapy showed comparable long-term risks of cognitive decline after propensity score matching. Individual cognitive outcomes demonstrated no consistent differences, and an isolated statistical signal for vascular dementia was not supported by effect estimates or event frequency. Overall, neither therapy showed a differential association with post-stroke cognitive outcomes.

A Decade in Review of PALS: Surgical Oncologic Consultations and Patient Dispositions from 2014 to 2024

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Presenting Author: Henry Sorto

University of New Mexico

Introduction:

This study aims to quantify and differentiate Physician Access Line Service (PALS) surgical oncology consults that the University of New Mexico Hospital (UNMH) receives and their dispositions for future resource accommodations for UNMH, as well as the referring facilities.

Methods:

Retrospective chart review of 1307 patient consults. Data was collected on provider, facility, referring provider, diagnosis, time to decision, and patient disposition. Univariate analyses were performed. A review of patient-specific data was conducted to determine subsequent interventions.

Results:

Between 2014 and 2024, there was a gradual year-over-year increase in the number of PALS consultations, apart from 2019, which was impacted by the COVID-19 pandemic's effect on the healthcare system. Additionally, there was considerable variation among facilities requesting consults across the state, exemplified by a decrease in internal UNM Hospital consults from 79% in 2014 to 4% in 2024. Lastly, there was a steady rise in the proportion of consults accepted by UNMH as patients transferred to the hospital, from 12% in 2014 to 25% in 2024.

Conclusions:

In conclusion, UNM Hospital's physician access line serves as an invaluable resource to rural communities in New Mexico and the region. UNM Hospital's role as a safety net hospital is gradually increasing in this region despite significant challenges posed by the COVID-19 pandemic, inevitable financial and staffing constraints, and serving a population whose social determinants of health place them at high risk for chronic and/or more advanced disease.

Exploring Diabetes-Related Comorbidities and Contributing Determinants Among Hispanic Populations in the United States

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Background

U.S. Hispanic populations face a disproportionately high burden of type 2 diabetes (T2D) and its comorbidities, including cardiovascular disease, hypertension, depression, and neuropathy. These disparities arise from both genetic and environmental factors. Barriers such as food insecurity, limited healthcare access, cultural stigma, and acculturation stress complicate disease management. Genetic studies highlight ancestry-specific risk factors and shared biological pathways, while environmental exposures such as rurality and labor-intensive work increase chronic disease risk. This study aimed to identify the most prevalent comorbidities associated with T2D among U.S. Hispanics and examine the genetic and environmental determinants contributing to these disparities.

Methods

A systematic literature review was conducted using PubMed with MeSH terms including “Hispanic Americans,” “Diabetes Mellitus, Type 2,” and “Comorbidity.” Filters were applied to include studies from the past five years, in English, on humans, and limited to systematic reviews or meta-analyses. From 3,533 results, 50 studies were selected based on relevance and methodological quality. Data were synthesized following PRISMA guidelines to identify major biological, social, and environmental determinants of diabetes-related comorbidities.

Results

Comorbidities are strongly influenced by social drivers of health (SDOH), including poverty, food insecurity, and limited access to care. Cardiovascular disease and hypertension were the most prevalent comorbidities, often linked to systemic disparities in prevention and treatment. Depression and anxiety were also common, exacerbated by acculturation stress and economic hardship, with genetic studies suggesting shared biological mechanisms. Emerging epigenetic evidence indicates that early life adversity may biologically embed chronic disease risk. Despite advances in research, healthcare systems remain ill-equipped to address SDOH. Innovative models integrating legal, social, and clinical services—along with predictive analytics—show promise in mitigating these disparities.

Conclusions

Diabetes-related comorbidities in Hispanic populations are shaped by a complex interplay of biological, environmental, and social determinants of health. Addressing these disparities requires culturally responsive care, inclusive research, and multi-sector collaboration targeting both medical and structural inequities to achieve equitable health outcomes.

Birth Cohort Trends in the Relationship Between Diabetes and Mortality in Mexico

Authors: Erik Sanchez-Perez, Brian Downer

Presenting Author: Erik Sanchez- Perez

Background:

The prevalence of diabetes among middle-aged and older adults in Mexico has nearly doubled since the year 2000. This increase is primarily due to healthcare reforms that promoted diabetes screening. Insulin use and other treatments have also increased during the same period. Early diagnosis and treatment can reduce diabetes mortality risk. However, it is unclear if the increased diagnosis and treatment of diabetes in Mexico have reduced the mortality risk associated with diabetes in older adults.

Methods:

We used the Mexican Health and Aging Study to compare the association between diabetes and 5-year mortality in two independent cohorts of adults aged 60-69 in 2001 (1932-1941) and 2012 (1943-1952). The final sample included 3,694 participants in 2001 and 4,769 in 2012. Demographic variables included age, gender, education, living in an urban community, and having health insurance coverage. Self-reported health conditions included diabetes, hypertension, stroke, and respiratory disease. We used cox-proportional hazard regression models that included an interaction term for diabetes by cohort and adjusted for demographic and self-reported health characteristics.

Results:

Overall, diabetes was associated with 2.56 times higher mortality (95% CI=2.18-3.00). The 2012 cohort did not have significantly different mortality risk compared to the 2001 cohort (HR=0.91, 95% CI=0.77-1.07). The association between diabetes and mortality for participants in the 2001 cohort (HR=2.52, 95% CI=1.95-3.26) was not significantly different from the 2012 cohort (HR=2.58, 95% CI=2.09-3.17).

Conclusions:

Our results indicate that diabetes continues to be a major risk factor for mortality in Mexico despite the increase in screening and treatment. These public health efforts have not yet translated into reduced mortality risk, highlighting the need for improved treatment access, glycemic control, and policy interventions to mitigate diabetes burden in older Mexican adults.

Examining Louisiana Parents' Awareness of and Attitudes Towards Obesity

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Presenting Author: Teresa H. Schauer

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Background:

Pennington Biomedical Research Center and the State of Louisiana have partnered to launch the Greaux Healthy public service initiative focused on prevention and treatment of childhood obesity in Louisiana. According to The State of Childhood Obesity, a project by the Robert Wood Johnson Foundation, Louisiana has the third highest childhood obesity rate in the United States at 23.1% (1). As the home environment acts as a key facilitator in childhood obesity prevention and treatment, it is vital to better understand parental perspectives regarding childhood obesity.

Methods:

As part of the Greaux Healthy initiative, a marketing firm administered a survey to parents across Louisiana gauging their awareness and attitudes towards childhood obesity to inform the dissemination of Greaux Healthy products and public health messages. Parents of children 0-17 living in Louisiana completed a 32-item survey instrument through a nationwide online survey platform from March 10-24, 2025. Participation was voluntary and parents were sampled at random. Demographic data were collected from survey questions. Parents were also asked questions evaluating their perceptions of the seriousness and harmfulness of six pre-selected childhood health issues (mental health, obesity, smoking/vaping, diabetes, allergies/asthma, heart disease/high blood pressure). Data regarding sources of healthcare information, which ones were most trustworthy, and the role of social media in communicating healthcare information were also collected.

Results:

A total of 619 parents completed the survey. Most of the parents were Caucasian (73.7%) and women (80.9%). There was a distribution of ages, including 25-34 years (28.0%), 35-44 years (39.3%), and 45-50 years (28.0%). Parents ranked obesity, smoking/vaping, and mental health, respectively, as the top three most harmful health issues impacting teenagers and children today. Most parents (91.3%) felt that childhood obesity is preventable, and 83.0% felt schools should play a role in addressing this issue. To combat obesity, it was recommended by most respondents (68.30%) to focus on practical diet and exercise tips. The internet (54.0%) and doctors (53.5%) were the top two named sources of important healthcare information.

Conclusion:

The results from an online survey of Louisiana parents identified high awareness of and concern for child obesity. These results will inform the delivery of evidence-based interventions, resources, and tools by Greaux Healthy to families across Louisiana.

1. Ages 6-17. State of Childhood Obesity. (2024, December 16). <https://stateofchildhoodobesity.org/demographic-data/ages-6-17/>

Pulse4Life: A Community-Based Primary Care Model to Enhance Cardiovascular Risk Identification and Referral in the Latino Community

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Background:

Cardiovascular disease (CVD) disproportionately impacts marginalized communities, where social determinants such as limited access to healthcare, food insecurity, environmental exposures, and low health literacy heighten risk. In Houston's East End, these disparities are especially evident in neighborhoods like Pecan Park, a predominantly Hispanic community facing barriers to preventive care. Pulse4Life is a community-driven, academically supported initiative designed to address these inequities through early detection, referral, and culturally responsive education. Anchored in a 3P model—Population, Partnership, and Prevention—the program provides bilingual cardiovascular screenings, patient navigation, and coordinated referrals to the University of Houston Family Care Center through its partnership with Mission Milby, a trusted community health organization. By integrating clinical services with an understanding of social determinants, Pulse4Life promotes health equity while training medical students in cardiovascular screening, community outreach, and culturally competent care, creating a sustainable model that future cohorts can continue.

Objectives:

This project aims to improve access to preventive cardiovascular care within underserved communities by establishing a streamlined referral pathway connecting at-risk individuals to primary care services. Community-based screenings including blood pressure, BMI, carotid ultrasound, ankle-brachial index, and funduscopy seek to identify early CVD risk factors before progression to advanced disease. The initiative also aims to strengthen student training through hands-on experience.

Methods:

Pulse4Life's operational framework emphasizes early risk identification, continuity of care, and community empowerment. Screenings will be held at the Mission Milby Community Center and include clinical evaluations—blood pressure, BMI, carotid ultrasound, ankle-brachial index, and fundoscopic exam—supplemented by Social Determinants of Health (SDOH) screening using the PhenX Toolkit, focusing on healthcare literacy and food insecurity. Data will be collected and managed using REDCap and integrated PhenX-based SDOH measures to ensure standardized and secure information tracking. After screening, referrals to primary care will be streamlined, and key metrics will be monitored: number of individuals screened, follow-up completion rates, identification of previously undiagnosed CVD risk factors, and correlations between health outcomes and SDOH indicators.

Results:

Pulse4Life is entering its implementation phase, with initial screenings planned for Summer 2026. Early engagement with community leaders and residents has shaped a culturally responsive referral pathway tailored to the needs of the East End's predominantly Hispanic population. A structured workflow has been developed to support appointment scheduling and continuity of care with bilingual providers. Community feedback has emphasized strong interest in understanding screening results and reinforced the importance of bilingual education in building trust and improving health literacy. Ongoing evaluation will assess follow-up adherence, retention, and long-term engagement to determine the program's impact on access to preventive care.

Conclusions:

Pulse4Life offers a community-centered model to reduce the impact of CVD through integrated screening, referral, and culturally tailored education. By combining community partnership and student training, the program establishes a sustainable model designed to improve long-term access and outcomes in underserved populations while cultivating future clinicians committed to health equity.

CGRP Monoclonal Antibodies vs β -Blockers in Migraine With Aura: Cardiovascular and Cerebrovascular Outcomes

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Background:

In the United States, migraines affect an estimated 11.7–14.7% of the population, and up to 30% of patients report aura symptoms. Calcitonin gene-related peptide (CGRP) plays a central role in migraine pathophysiology by dilating cerebral and dural vessels, promoting the release of inflammatory cytokines from mast cells, and transmitting nociceptive signals from the intracranial vasculature to the central nervous system. Traditional migraine preventives, such as β -blockers, topiramate, and tricyclic antidepressants (TCAs), act primarily by reducing neuronal excitability and modulating neurotransmitter systems. Emerging CGRP receptor monoclonal antibodies (CGRP-mAbs) have demonstrated improved adherence, greater reductions in monthly migraine days, and fewer adverse effects compared with topiramate. However, case reports have linked CGRP-mAbs to ischemic stroke and myocardial infarction (MI). To date, no large-scale comparative studies have evaluated whether CGRP-mAb therapy alters the risk of MI or ischemic stroke relative to traditional β -blocker preventives. This study aimed to determine whether initiation of CGRP-mAbs, compared with β -blockers, is associated with differences in the risk of MI or ischemic stroke among adults with migraine with aura.

Methods:

A retrospective cohort analysis was performed using the TriNetX Research Network, including 111 health care organizations. Two cohorts of adult patients with ≥ 2 diagnoses of migraine with aura were constructed: (1) patients initiating β -blocker therapy (propranolol, metoprolol, or timolol) without prior exposure to CGRP-mAbs or other preventive agents, and (2) patients initiating a CGRP-mAb (erenumab, fremanezumab, galcanezumab, or eptinezumab) without prior exposure to β -blockers or other preventives. Patients with a history of MI or ischemic stroke before index were excluded. Propensity score matching (1:1) was performed across 39 demographic, clinical, and medication variables, yielding 8,863 patients per cohort. Outcomes were assessed over 1,095 days following index.

Results:

After matching, cohorts were well-balanced across all characteristics. Compared with the CGRP-mAb cohort, β -blocker users demonstrated significantly higher 3-year risks of both MI (49 vs. 20 events; 0.6% vs. 0.2%; RR 2.45, 95% CI 1.46–4.12; $p < 0.001$) and ischemic stroke (104 vs. 54 events; 1.2% vs. 0.6%; RR 1.93, 95% CI 1.39–2.67; $p < 0.001$). Odds ratios were similar in magnitude.

Conclusion/Discussion:

After comparison from large real-world propensity-matched cohorts, patients treated with CGRP-mAbs for migraine with aura were associated with significantly lower risks of MI and ischemic stroke over 3 years compared with patients treated with beta-blockers. Although migraine, particularly migraine with aura, is independently associated with elevated vascular risk, the data suggest that preventive treatment choice may meaningfully influence long-term cardiovascular outcomes. These findings support the cardiovascular safety of CGRP-targeted preventive therapy and suggest potential risk reduction relative to traditional beta-blocker therapy. However, these findings should not be overinterpreted as CGRP-mAbs are not cardioprotective agents; the data suggest CGRP-mAbs may be safer than beta-blockers with respect to MI and stroke risk. The absolute event rates remain low overall. Prospective studies are warranted to validate these results and explore underlying mechanisms and reasons.

Cognitive Behavioral Therapy in Heart Failure Depression: Comparative Efficacy and Clinical Outcomes in Randomized Trials

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Background:

Depression impacts between 17-50% of heart failure (HF) patients, and over 50% do not have their depression addressed. The remaining majority who have their depression addressed are treated with SSRI antidepressant medication, with under 20% being treated with CBT. Identifying and understanding the most useful modality for the treatment of depression in HF is essential for optimizing psychiatric care, self-care, and potentially clinical outcomes in this vulnerable population.

Objectives: This systematic review synthesized evidence from Randomized Controlled Trials (RCTs) to assess antidepressants and CBT in the treatment of depression in HF, as well as the resultant clinical outcomes such as mental health-related quality of life (mHRQOL), physical health-related quality of life (pHRQOL), mood, cardiac-related anxiety, rehospitalizations, ED visits, mortality, memory, and insomnia.

Methods:

A comprehensive literature search was conducted through PubMed. The search yielded 144 articles published between 2015 and 2025, of which 24 were RCTs. These trials were screened to 14 RCTs which met the inclusion criteria and were selected for this systematic review, which included a total of 2733 patients. Primary outcomes included depression severity changes, quality of life, rehospitalizations, and mortality.

Results:

CBT interventions were found to have a significant improvement in depression, anxiety, pHRQOL, insomnia, self-esteem, ED visits, and days hospitalized compared to usual care, though this was inconsistent with self-care. CBT was found to significantly improve depressive symptoms compared to a discussion forum. A large RCT found that depressive symptoms decreased by approximately 50% in patients receiving CBT and those receiving antidepressants. Escitalopram was also found to have no improvement in HF patients with depression.

Conclusions:

Across RCTs from the past decade, CBT has shown to consistently improve depressive symptoms, anxiety, physical health-related quality of life (pHRQoL), insomnia, self-esteem, and reduces emergency department visits and days hospitalized versus usual care, while effects on all-cause rehospitalization and mortality are neutral. In contrast, evidence from RCTs suggests that antidepressants provide benefits for patients with heart failure and comorbid depression, but these effects are generally comparable rather than superior to those achieved with CBT in improving depression severity and quality-of-life outcomes. In light of these results and CBT being underutilized in this population compared to antidepressants, providers should consider CBT to optimize a multidimensional and interdisciplinary approach to treat this at-risk population and reduce healthcare and pill burden.

Muscle Strength, Pain, and Life-Space Mobility: A Nativity-Stratified Analysis in Mexican-American Older Adults

Authors: Katelynn Evans, MS; Soham Al-Snih, MD, PhD

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Background

Maintaining mobility is essential for independence, quality of life, and health in older adults. Life-Space Mobility measures how far and how often individuals move through their environment, e.g. from their bedroom to the neighborhood and beyond, and serves as a key indicator of functional independence. Previous research has linked muscle strength and pain to mobility, but few studies have examined how these relationships differ by nativity, particularly among Mexican-American older adults, a rapidly growing and historically understudied population. This study examined the combined effects of handgrip strength and pain on longitudinal Life-Space Assessment (LSA) scores by nativity.

Methods

Using The Hispanic Established Population for the Epidemiological Study of the Elderly (2010; 2011-2016), this retrospective cohort study analyzed data from 651 community-dwelling Mexican-American older adults living in the southwestern United States. Participants were stratified by nativity (U.S.-born vs foreign-born) and further categorized by handgrip strength (high vs. low) and pain status (yes vs. no), resulting in four groups: high handgrip strength (HHGS) with pain, HHGS without pain, low handgrip strength (LHGS) with pain, and LHGS without pain. Linear mixed models were used to examine the association between these groupings and changes in LSA scores (from 0-5) over time, stratified by nativity and controlling for sociodemographic factors, body mass index, multimorbidity, depressive symptoms, and cognitive function.

Results

Among U.S.-born participants, those with HHGS-No Pain had significantly higher LSA scores over time compared with LHGS-Pain ($\beta = 5.12$, $p = 0.009$). Neither HHGS-Pain ($\beta = 2.47$, $p = 0.118$) nor LHGS-No Pain ($\beta = 1.63$, $p = 0.243$) differed significantly from the reference group after adjustment. Among foreign-born participants, both HHGS-No Pain ($\beta = 6.84$, $p < 0.001$) and HHGS-Pain ($\beta = 5.97$, $p = 0.004$) were associated with significantly greater LSA scores relative to LHGS-Pain, while LHGS-No Pain showed no significant difference ($\beta = 1.21$, $p = 0.362$). These results indicate that higher muscle strength consistently predicts greater mobility, and that pain moderates this relationship differently by nativity: pain exerts a stronger limiting effect among U.S.-born individuals than among foreign-born counterparts.

Conclusions

Muscle strength appears to buffer the negative effects of pain on mobility among Mexican-American older adults, though the nature of this relationship differs by nativity. For U.S.-born individuals, the combination of high strength and absence of pain is key to maintaining mobility, whereas for foreign-born individuals, high strength alone may confer a mobility advantage. These findings highlight the importance of nativity-sensitive interventions, such as targeted strength training and culturally tailored screenings and pain management programs, to preserve mobility and independence in aging Mexican-American populations. Future research should explore underlying social, cultural, and healthcare access factors contributing to these nativity-based differences.

Nerve Blocks and Postoperative Opioid Utilization in Geriatric Hip Arthroplasty: A Propensity-Matched Retrospective Study

Authors: Jonathan Contreras, Tirza Vargas, Wilmer Rodriguez, & Bobby Bobby

Presenting Author: Tirza Vargas

The University of Texas Medical Branch at Galveston

Background:

Optimizing multimodal analgesic strategies is a critical component of perioperative pain management for hip arthroplasty patients. Effective pain control is vital, as it directly influences functional outcomes. Specifically, minimizing postoperative opioid exposure is essential for ensuring respiratory safety and improving recovery trajectories. However, despite the widespread adoption of nerve blocks, their specific impact on opioid consumption in geriatric populations (≥ 65 years) remains under-characterized. This retrospective study compares the outcomes of geriatric hip arthroplasty patients treated with and without nerve blocks.

Methods:

Data were obtained from TriNetX, a global health database containing de-identified patient information. Cohort 1 was defined as patients with hip arthroplasty (Current Procedural Terminology Code [CPT]: 27125, 27130, 27132, 27134) who had received a nerve block preoperatively [CPT]: 64450 (other peripheral nerve or branch block), 64448 (continuous femoral nerve block), 64447 (femoral nerve block), 64445 (sciatic nerve block). Cohort 2 was defined as patients without nerve blocks. Data from healthcare organizations from 2005-2025 were analyzed, with outcomes assessed no more than 180 days post procedure.

Results:

Propensity score matching was performed for age at the event, ethnicity, race, sex, essential (primary) hypertension, and body mass index. After matching, 6,181 patients remained in each cohort, derived from 6,187 patients in cohort 1 and 53,533 patients in cohort 2. Patients in cohort 1, with nerve blocks, experience less overall use of oxycodone (Risk Difference (RD): -0.079, Confidence Interval (CI): -0.096, -0.061), morphine, (RD: -0.013, CI: -0.025, -0.001) and tramadol (RD: -0.043, CI: -0.059, -0.027). However, hydrocodone (RD: 0.066, CI: 0.050, 0.081) was higher among patients who were within the nerve block cohort. However, no statistical differences were found between cohorts for wound disruption, toxic encephalopathy, acute confusion, respiratory failure, hydromorphone usage, and pain.

Conclusions:

This propensity-matched study of a geriatric population demonstrates that nerve block administration significantly alters patterns of opioid analgesic use. The use of nerve blocks is associated with general lower utilization of several post operative pain management drugs, such as oxycodone, tramadol, and morphine. Overall, there was no significant difference in respiratory failure, wound disruption, toxic encephalopathy, acute confusion, hydromorphone usage, and pain. These findings helped underscore the role of regional anesthesia in supporting effective postoperative pain management while decreasing the use of several opioids, particularly in older adults who are at a higher risk of delirium, functional decline, and cardiopulmonary complications. Therefore, medication regimens should be considered in further research on the effects of holistic recovery, encouraging more individualized perioperative pain management strategies.

RELATIONSHIP BETWEEN PENICILLIN EXPOSURE IN THE FIRST 3 MONTHS OF LIFE AND THE DEVELOPMENT OF ASTHMA BY AGE 5: A RETROSPECTIVE STUDY

Author: Francheska Quintanilla

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Background:

Recent literature using large cohort studies and meta-analyses describe the first year of life being the critical window for the infant's immune development and gut microbiome composition. Antibiotic exposure during early infancy causes disruptions in the gut microbiome which reflects immune dysregulation, making children susceptible to developing allergic and respiratory conditions like asthma. There is limited data on the timing of exposure and class specific effects of penicillin, restricting targeted antibiotic stewardship in children.

Educational objective/hypothesis:

The purpose of this study is to describe the association between early infant antibiotic exposure and the risk of asthma in childhood, stratified by the timing and class of penicillin, and apply findings to support antibiotic stewardship and help expand on asthma prevention strategies. By examining these patterns of antibiotic use in early infancy and their association with asthma, we expect to identify opportunities to reduce unnecessary exposure to penicillin agents while promoting effective infection management.

Methods:

We collected de-identified data from Texas Children's electronic health system and identified children exposed with systemic antibiotics between ages 0-3 months. Children were assigned as receiving either broad-spectrum penicillin agents (cefotaxime, ceftriaxone) or narrow-spectrum penicillin agents (penicillin V, ampicillin). Counts of asthma diagnoses by age 5 were defined by ICD-10 codes J45.x. Data analysis involved descriptive statistics to specify prescribing patterns and asthma prevalence.

Results:

Among 16,100 children with exposure to penicillin in early infancy, 30% received at least one broad-spectrum penicillin between years 2020-2025. The overall prevalence of asthma in patients exposed to either class of penicillin was 12%. Children who received broad-spectrum antibiotics demonstrated a higher prevalence of developing asthma (13%) than patients who received narrow- spectrum penicillin (8%).

Conclusions:

The data confirmed a positive causal relationship between antibiotic exposure during 0-3 months of age and the diagnosis of asthma. These early findings can provide foundational insights that can potentially inform current antibiotic stewardship efforts to encourage optimization of antibiotic prescribing practices in early infancy to minimize unnecessary exposure to penicillin. Expanded patient level data analysis will involve a logistic regression model and subgroup analyses to evaluate precise interactions amongst multiple variables like respiratory infection frequency, family history of allergic diseases and asthma, maternal smoking during pregnancy, breastfeeding duration, and method of feeding.

Comparative Risk of Fractures in Youth Treated with Amphetamine- vs Methylphenidate-Based Stimulants for ADHD

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Background:

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder commonly diagnosed in children and adolescents and effectively managed with central nervous system stimulant medications, such as methylphenidate and amphetamine-based stimulants (1). Prior studies have shown that stimulant use may be associated with increased bone resorption, reduced bone mineral density, and a higher risk of stress fractures (2-4). While each stimulant class has been individually explored, few studies have directly compared methylphenidates to amphetamines concerning fracture risk.

Methods:

We conducted a retrospective cohort study using the TriNetX research network. Two mutually exclusive cohorts were constructed using ICD-10 diagnosis codes and VA drug class codes. Both cohorts included patients diagnosed with ADHD. The first cohort included patients treated with methylphenidate-based stimulants without exposure to amphetamine stimulants. The second cohort included patients treated with amphetamine-based stimulants without exposure to methylphenidate. Patients with fractures prior to starting stimulant therapy were excluded. 1:1 propensity matched for demographics and comorbidities yielded 322,902 patients in each cohort. Outcomes included incidence of any fracture and stress fracture after beginning treatment. Risk ratios (RR), odds ratios (OR), 95% confidence intervals (CI), and p-values were calculated.

Results:

Fractures occurred in 14,427 patients (4.5%) taking amphetamines compared to 13,636 patients (4.2%) taking methylphenidates, a statistically significant increase in risk (RR=1.058, OR=1.061, $p<0.001$). Stress fractures were rare and occurred in 301 patients (0.1%) taking amphetamines compared to 332 patients (0.1%) taking methylphenidates (RR=0.907, OR=0.907, $p=0.218$).

Conclusion:

Amphetamine use was associated with a statistically significant increase in fracture risk compared to methylphenidate. No difference was observed in the risk of stress fracture between patients taking either stimulant class. Overall, the absolute risks of fracture and stress fracture among stimulant users remained low. Given the modest reduction in fracture risk, our findings suggest that methylphenidate may be preferable for athletes or individuals at higher risk for fracture. Further prospective studies are needed to confirm our results.

A Survey-Based Evaluation of a Neighborhood Produce Program Addressing Food Insecurity

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Background:

The Finca Tres Robles Neighborhood Produce Program serves families in Houston's East End by providing biweekly distributions of fresh food (produce, meat, grains, fruits, and vegetables) at no cost. The program serves 60 low-income families within a one-mile radius of the farm.

Methods:

An evaluation survey was administered to 15 heads of household by two independent surveyors, who served as transcribers, to collect demographic data, participant experiences, health status, dietary habits, and food security status based on U.S. Department of Agriculture criteria. The research objectives were: (1) to identify food insecure households in the Finca Tres Robles Neighborhood Produce Program and recommend potential program improvements; (2) to quantify the consumption of fruits, vegetables, and protein foods after enrollment and receipt of at least two food deliveries in the program; and (3) to assess the ways in which the program facilitates access to locally-sourced foods and its impact on health status and dietary habits. Surveyor notes were reviewed and coded for recurring themes to develop a codebook, and quantitative data were summarized as frequencies and percentages.

Results:

Of the 15 households surveyed, the average age of household heads was 51 years (range: 21–77), with 93.3% identifying as female. Participants' countries of origin included Mexico (40%), Nicaragua (33.3%), El Salvador (20%), and others from the United States, Honduras, and Guatemala. The average household size was three; however, 33.3% were single-person households and 53.3% had no children. Among all surveyed, 80% were found to be food insecure. Dietary intake data showed average daily consumption of 1.25 cups of fruit (range: 0–3 cups), 1.83 cups of vegetables (range: 1–4 cups), 4.05 ounces of meat (range: 0–12 oz), about 2 eggs (range: 0–4), and 1.08 cups of beans (range: 0.25–2.5 cups). Participants reported increased confidence in cooking healthy meals (80%) and improved dietary habits, including smaller portion sizes and the introduction of new fruits and vegetables. Nearly half (46.7%) rated their health as “much better now,” and 40% reported “much better” chronic disease management compared to before joining the program. One participant noted, “I have noticed healthy changes—I feel better. My diabetes is more controlled, HbA1c 10.7 to 6.4 by eating more fruits and vegetables.” Participants expressed gratitude and initially reported no criticisms but later indicated interest in increased choice and variety in the food boxes, specifically more fruits and fewer meats. Additional desired items included milk, rice, and broccoli, and several participants requested more frequent deliveries.

Conclusion:

The produce program effectively reached food-insecure households, high participant satisfaction, and improved dietary behaviors as well as perceived health. Participants reported greater access to fresh foods, improved diet quality, and enhanced chronic disease management. Community-based food insecurity programs like the Neighborhood Produce Program reduce nutrition inequities and support chronic disease prevention by improving access to healthy, locally sourced foods in low-income neighborhoods. This community based model can be adapted and scaled to develop similar initiatives in other urban areas.

Diagnostic Discordance in Flank Pain: From Pyelonephritis to Endocarditis

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Background:

We report a diagnostically challenging case of suspected pyelonephritis that was ultimately managed as MSSA endocarditis with emboli. This case underscores diagnostic vigilance when radiographic and laboratory data conflict.

Methods:

Clinical information was obtained through chart review of the patient's electronic medical records which included history, diagnostic and radiologic findings, and treatment course. The patient was evaluated by the primary team. Written informed consent was obtained from the patient for publication of this case report.

Case:

We present a 39 year old male with a past medical history of type 2 diabetes mellitus, diabetic gastroparesis, tobacco use, and remote cocaine use (last reported snorting 3 months ago) that presented with three days of severe upper abdominal pain radiation to both flanks, nausea and vomiting unresponsive to ondansetron, and fever with chills. He stated that he reused his insulin needles often and had what he believed to be a spider bite in his right armpit that had scabbed over. He was febrile to 102.9°F, tachycardic, and had right costovertebral angle tenderness. His CT abdomen/pelvis was read as right pyelonephritis with inferior pole infarct, but urinalysis showed proteinuria and microscopic hematuria without pyuria or bacteriuria. Empiric piperacillin-tazobactam was initiated.

After 48 hours, 2/2 blood cultures grew *S. aureus*. Vancomycin was administered and cardiology was consulted. A transthoracic echocardiogram (TTE) showed preserved left ventricular fraction without valvular vegetation; however, the transesophageal echocardiogram (TEE) showed a left atrial appendage thrombus without valve involvement. This, combined with the renal infarct, raised suspicion for septic emboli affecting the kidney. *S. aureus* was further found to be MSSA and a six-week course of IV nafcillin was started with anticoagulation with a repeat TEE planned in 4 weeks. Potential entry points could have been insulin needle reuse, axillary lesion, or remote cocaine exposure.

Discussion:

This case showcases the importance of avoiding anchoring bias when imaging and UA are discordant. Urinalysis showed high specific gravity, proteinuria, and microscopic hematuria without pyuria or bacteriuria which does not line up with classical pyelonephritis findings. Additionally, as soon as MSSA was found in blood cultures, empiric antibiotics were de-escalated to narrow spectrum nafcillin. *S. aureus* bacteremia (SAB) requires TEE even with a negative TTE, given TEE's higher sensitivity. Identifying an atrial thrombus led us to anticoagulation and reinforced the diagnosis of complicated bacteremia with presumed endocarditis.

Conclusion:

A diabetic patient admitted for presumed pyelonephritis was actually found to have MSSA bacteremia with embolic renal infarcts and a left atrial appendage thrombus on TEE. In SAB with discrepant urinalysis and organ infarcts, always prioritize infective endocarditis workup with TEE and treat complicated bacteremia with specific anti-staphylococcal therapy for the strain and source/thrombus control.

Cardiovascular Outcomes and Healthcare Utilization Differences in Hispanic Breast Cancer Patients Treated with Immune Checkpoint Inhibitors

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Background:

Immune checkpoint inhibitors (ICIs) are increasingly used in the treatment of breast cancer, yet cardiovascular (CV) toxicity and healthcare utilization differences across ethnic groups remain poorly defined. Hispanic patients historically face structural barriers to care, including reduced access to outpatient services and greater reliance on emergency departments, raising concerns for potential disparities in ICI-related outcomes. We aimed to evaluate CV outcomes, mortality, and healthcare utilization in Hispanic vs. non-Hispanic breast cancer patients treated with ICIs in a large real-world dataset.

Methods:

We conducted a retrospective observational cohort study using the TriNetX Research Network. We identified female adults aged 18–90 years with a diagnosis of breast cancer (ICD-10: C50) who initiated ICI therapy (avelumab, durvalumab, ipilimumab, nivolumab, atezolizumab, or pembrolizumab). Patients were categorized as Hispanic or non-Hispanic based on recorded ethnicity. Propensity score matching (1:1) was performed across 40 covariates—including demographics, comorbid conditions, smoking history, and prior chemotherapy or radiation—to generate two balanced cohorts (n = 767 per group). Outcomes were evaluated from 1 day to 2 years following the index ICI exposure. The primary endpoint was a composite major adverse cardiovascular event (MACE), defined as myocardial infarction (MI), stroke, heart failure (HF), or all-cause death. Secondary outcomes included individual cardiovascular events, all-cause mortality, hospitalizations, and emergency department (ED) visits. Hazard ratios (HRs) and risk ratios were calculated from the matched cohorts to estimate relative risk across outcomes.

Results:

Mean follow-up time was similar between groups (Hispanic 475.5 days vs. non-Hispanic 473.6 days). At two years, Hispanic patients experienced a significantly lower incidence of major adverse cardiovascular events (MACE) compared with non-Hispanic patients (19.5% vs. 25.3%; RR 0.77, 95% CI 0.64–0.94). All-cause mortality was also reduced in the Hispanic cohort (15.9% vs. 22.8%; RR 0.70, 95% CI 0.57–0.86). No meaningful differences were observed in individual cardiovascular outcomes, including myocardial infarction (2.2% vs. 2.5%), stroke (2.7% vs. 2.0%), heart failure (4.3% vs. 3.7%), or arrhythmias (4.2% vs. 5.1%) (all $p > 0.40$). In contrast, healthcare utilization was significantly higher among Hispanic patients, who had increased rates of all-cause hospitalization (44.5% vs. 36.8%; RR 1.21, 95% CI 1.03–1.41) and nearly double the risk of emergency department visits (35.3% vs. 18.6%; RR 1.90, 95% CI 1.53–2.35).

Conclusions:

In this large real-world cohort of breast cancer patients treated with ICIs, Hispanic patients demonstrated significantly lower rates of MACE and all-cause mortality, suggesting no increased CV toxicity and possibly greater overall therapeutic benefit. Despite these favorable clinical outcomes, Hispanic patients exhibited markedly higher hospitalization and ED utilization, underscoring persistent structural and access-related disparities in post-treatment care. These findings highlight the need for equity-focused supportive care and cardio-oncology interventions to reduce potentially avoidable acute-care utilization while preserving the effectiveness of ICI therapy in Hispanic populations. Future studies should explore the drivers of health care utilization in this setting and assess whether patterns differ by immune-related adverse events (irAEs), social determinants of health, treatment delivery factors, or other population-specific characteristics.

Postpartum Cerebrospinal Fluid Leak After Intrathecal Catheter Removal: A Case Report

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Introduction and Relevance

Cerebrospinal fluid leakage after a neuraxial block is a rare but dangerous complication. It is most likely to present as a post-dural puncture headache, but chronic external leakage through the catheter site is a rare occurrence. Chronic leakage carries the risk of infection, meningitis, and of pseudomeningocele. Given the overlap between expected post-delivery symptoms and neurological complications postpartum patients are especially difficult. In this case, a postpartum patient developed a chronic CSF leak after an inadvertent dural puncture and the subsequent removal of an intrathecal catheter.

Brief Description of the Case

A gravida 1 para 1, 23-year-old woman with a history of seizures and tetrahydrocannabinol use disorder presented for trial-of-labor-after-cesarean. An intrathecal catheter was placed for analgesia during labor and left in for 24 hours. She had a headache that improved transiently with fluids and Esgic. The patient experienced recurrence of headache, new tingling of the arms, and continued clear fluid dripping from puncture wound on lower back the following day. A protein and glucose strip was used to test drainage, which was reactive for both. Neurological exam was intact for strength and sensation. There was also a significant component of pneumocephalus noted during her course which likely exacerbated her symptoms.

Management

The anesthesiology team discussed the case with neurosurgery and obstetrics/gynecology to determine an appropriate course of action. Sterile prep and infiltration with 1% lidocaine were performed. A 3-0 Vicryl figure-of-eight was placed, which was tolerated by the patient with improvement in symptoms. Piperacillin-tazobactam and vancomycin were given, later changed to clindamycin 450 mg by mouth every 8 hours for 5 days at the time of discharge. She continued Esgic every 6 hours as needed for headache control.

The patient experienced worsening symptoms 3 days after discharge, so she was given an epidural blood patch. 20 ml of autologous blood were drawn via a 20-gauge peripheral IV from the left wrist and injected into the epidural space. Following the blood patch, the patient reported approximately 70% improvement in her headache and did not experience any further complications.

Conclusions

This case demonstrates an atypical presentation of chronic CSF leak after intrathecal catheter removal in the postpartum setting. While a headache is more commonly seen, overt external leakage should raise suspicion for chronic CSF loss and infectious complication. Awareness and early recognition of this rare problem is essential to optimizing outcomes in obstetric patients.

Positive Affect and Onset of Cognitive Impairment in Older Mexican Americans: Findings from a Longitudinal Study

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Background:

This study examined the association between positive affect (PA) and the onset of cognitive impairment (CI) among Mexican American adults aged 75 and older with cognitive function in the normal range at baseline (2004/2005).

Methods:

Participants (n=976) were from the Hispanic Established Population for the Epidemiological Study of the Elderly (2004/05-2016). Measures included socio-demographics, language of interview, body mass index, multi-morbidity, negative affect, pain, and falls. Participants who scored below 21 on the Mini-Mental State Examination at follow-up were classified as having CI. PA was assessed using four items from the Center for Epidemiologic Studies Depression scale.

Results:

Participants were categorized into four PA quartiles: 0-<8 (n=129), 8-<10 (n=201), 10-<12 (n=214), and 12 (n=432). Generalized estimating equations were used to estimate the odds ratio (OR) and 95% confidence limits (CL) of CI over time across PA quartiles, controlling for covariates. Participants in the 2nd, 3rd, and 4th PA quartiles had lower odds (OR=0.47, 95% CL=0.32-0.68, OR=0.37, CL=0.24-0.55, and OR=0.31, 95% CL=0.21-0.47, respectively) of developing CI over time than those in the 1st PA quartile.

Conclusions:

Association of higher levels of PA with decreased risk of CI over time suggests a need to develop PA-enhancing interventions. Increasing participation in culturally responsive activities known to boost PA, such as social and community events, stress management practices, culturally meaningful and purposeful activities, and cognitive stimulation, may help mitigate the onset of CI and dementia in older Mexican American adults, a rapidly growing segment of the U.S. older adult population.

Strengthening Care for Immigrant Families: Provider Knowledge and Confidence in Navigating Public Benefits

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As immigrant families become an increasingly growing demographic of the United States, understanding of available health and community resources is crucial towards the future of their clinical care. While providers report feeling unprepared to provide the proper care for children in immigrant families, existing literature has focused more on identifying vulnerabilities and issues faced by them rather than on how educational initiatives can increase provider's knowledge of benefits and counseling strategies. This study evaluated provider knowledge on public benefits for children in immigrant families as well as their self-perceived role in empowering families following an educational intervention.

A cross-sectional survey was conducted for 19 respondents from Baylor College of Medicine healthcare professionals located in Harris county. Healthcare professionals were defined as attending physicians or residents. Participants were recruited through emails shared by medical directors of different clinical sites that contained a link to a pre survey followed by the presentation of an educational flyer and a post survey. All data was collected directly from the respondents on RedCap forms and included provider role, site of employment, department, knowledge based questions, as well as self perceived confidence, importance of provider role, and benefit of additional educational resources using Likert scales.

Out of 19 respondents, 8 completed all components of the survey. From those who completed the survey, 100% were attending physicians with 87.5% being employed with family medicine and 12.5% by internal medicine at 4 different sites of employment. Additionally 87.5% of completed respondents reported that patients have asked about benefits available to them, and 62.5% have had patients express concern about enrolling their children in benefits. Providers' knowledge scores increased following exposure to the educational flyer ($M = 1.38$, $SD = 0.92$ pre; $M = 2.00$, $SD = 0.53$ post). A paired t-test showed this improvement was not statistically significant, $t(7) = 1.67$, $p = 0.14$, 95% CI $[-1.51, 0.26]$, and a Wilcoxon signed-rank test confirmed similar results ($Z = -1.40$, $p = 0.16$). In contrast, providers' self-reported confidence significantly increased after viewing the flyer ($M = 2.63$, $SD = 1.06$ pre; $M = 3.75$, $SD = 0.71$ post), $t(7) = 4.99$, $p = 0.0018$, 95% CI $[0.58, 1.68]$. This result was supported by a Wilcoxon signed-rank test ($Z = -2.21$, $p = 0.027$).

Exposure to a brief educational flyer improved providers' confidence in discussing public benefits with immigrant families and showed a positive trend in knowledge improvement. These findings suggest that even low-intensity educational interventions can enhance provider readiness to support immigrant populations. Although the small sample size limited statistical power, results highlight the potential impact of accessible, targeted educational tools in strengthening provider engagement and promoting equitable care for immigrant children and their families. Future studies with larger and more diverse samples, including medical students and residents, are warranted to better determine when and how such educational interventions may be most effective in clinical training.

A Practical Approach to Exercise and Cognition: A Comprehensive Review of Exercise Strategies for Brain Health in Middle age, Healthy Late Adulthood and Dementia

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Background:

Exercise is increasingly recognized as a modifiable determinant of cognitive health across the adult lifespan. In middle age, exercise contributes to the preservation of muscle mass, metabolic regulation, and cognitive reserve—factors closely tied to long-term vulnerability to cognitive decline. In healthy late adulthood, age-related reductions in muscle and bone mass, slower processing speed, and metabolic inefficiency collectively heighten the risk of developing dementia. Among individuals with dementia, structured exercise has emerged as one of the most promising non-pharmacologic interventions capable of slowing the trajectory of cognitive and functional deterioration. Despite the rapidly expanding literature, the quality, consistency, and dementia-specific applicability of exercise recommendations remain variable. To address these gaps, our group developed a comprehensive, stage-based framework examining exercise and cognition from normal middle age through healthy aging and established dementia, guided by a structured organizational template summarizing available data, clinical benefits, mechanisms, and practical recommendations.

Objectives:

(1) To synthesize current evidence on the cognitive effects of exercise across three life stages—middle age, healthy late adulthood, and dementia; (2) to compare aerobic, resistance, flexibility, and multimodal exercise modalities; (3) to identify neurobiological and behavioral mechanisms linking exercise to improved cognition across the lifespan; (4) to clarify dementia-specific effects, emphasizing slowing rather than reversing decline; and (5) to generate practical, stage-appropriate recommendations for clinicians, caregivers, and community health programs.

Methods:

Using a predefined PICO framework, we conducted a comprehensive search of PubMed, Embase, and Cochrane. The search strategy included: (exercise OR “physical activity” OR “exercise therapy”) AND (dementia OR Alzheimer) AND (“cognitive decline” OR “cognitive impairment” OR “cognitive function”) AND (elderly OR “older adults” OR aged).^{*} We included peer-reviewed studies examining exercise and cognition in: (1) adults aged 40–60, (2) healthy older adults ≥ 60 , and (3) patients with clinically diagnosed dementia. For dementia-specific analyses, studies mixing MCI and dementia were excluded unless results were reported separately. Extracted variables included exercise modality, frequency, intensity, duration, adherence, cognitive domains tested, functional outcomes, and proposed mechanisms. All findings were integrated using the manuscript’s structured template of Overview of Available Data, Potential Clinical Benefits, Proposed Mechanisms, and Practical Recommendations.

Results:

In middle age, both aerobic and resistance training improved executive function, processing speed, and attention, while higher muscle mass correlated with greater cognitive reserve and reduced long-term dementia risk. In healthy late adulthood, moderate-intensity exercise attenuated age-associated metabolic decline, improved cardiorespiratory fitness, preserved functional capacity, and reduced the incidence of cognitive impairment in longitudinal studies. In dementia, structured exercise programs—particularly aerobic or multimodal interventions performed three to five times weekly—consistently yielded stabilization or modest improvement in global cognition, executive function, neuropsychiatric symptoms, and daily functioning. Resistance training additionally enhanced gait, balance, and independence. Across all stages, proposed mechanisms included enhanced cerebral perfusion, improved vascular health, increased neurotrophic signaling (e.g., BDNF), reduced inflammation, better metabolic regulation, and maintenance of muscle mass contributing to cognitive reserve. No evidence supported reversal of established neurodegeneration; however, numerous trials demonstrated clinically meaningful slowing of cognitive and functional decline relative to non-exercising controls.

Conclusion:

Exercise exerts significant cognitive benefits across the lifespan, from strengthening cognitive reserve in middle age to slowing decline in dementia. Aerobic and multimodal programs provide the most consistent effects, while resistance training supports functional independence. These findings support the integration of structured, stage-tailored exercise into routine preventive and dementia care.

Detection of Urinary Amyloid Beta 42 Using MALDI-TOF for Cardiovascular Screening in Hispanic Populations

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Introduction:

Cardiovascular disease (CVD) remains the leading cause of mortality in the United States and disproportionately affects Hispanic populations, who experience higher rates of diabetes, hypertension, and metabolic syndrome. Amyloid beta (A β) peptides, particularly through their vascular deposition, have been implicated in atherosclerosis, endothelial dysfunction, and cardiac amyloidosis. While amyloid beta 40 (A β 40) is more strongly associated with vascular pathology, amyloid beta 42 (A β 42) is highly aggregation-prone, circulates systemically, and undergoes renal clearance. Although A β 42 has been detected in urine using immunologic techniques, cost-effective, non-invasive diagnostic tools suitable for large-scale cardiovascular screening remain limited. Therefore, we hypothesize that Matrix-assisted laser desorption ionization time-of-flight (MALDI-TOF) can detect A β 42 in unprocessed urine as a proof-of-concept platform for urinary amyloid detection relevant to cardiovascular disease screening in Hispanic populations.

Methods:

Recombinant A β 42 was subjected to oligomerization for 24 hours. Three concentrations were tested: undiluted urine, a 1:20 dilution in PBS, and a 1:100 dilution in PBS. Samples were combined with sinapic acid to crystallize the mixture and spiked with oligomerized A β 42. Sinapic acid combined with ethanol was spotted onto MALDI wells. Spiked and unspiked urine samples were added onto coated MALDI plate wells. The Bruker Microflex LT/SH MALDI-TOF MS machine acquired spectra using standard protocols to assess A β 42 peaks across samples. A spectra of peaks were analyzed and compared to synthetic recombinant A β 42. Individual wells containing only recombinant A β 42 were used as a positive internal control to detect the monomeric form of A β 42 at 4535kDa.

Results:

Spectra showed a prominent peak near the expected A β 42 mass (m/z ~4535) in both spiked and unspiked urine samples. The pure urine sample produced a signal compatible with the A β 42-spiked sample, indicating the presence of endogenous A β 42 in the urine. A β 42 peak was detected in all concentrations, indicating the sensitivity of the method.

Conclusion:

MALDI-TOF successfully detected A β 42 in unprocessed urine, supporting its utility as a non-invasive, scalable, and cost-effective platform for amyloid-based cardiovascular biomarker screening. While A β 40 is more directly implicated in cardiovascular pathology, this study establishes a urinary amyloid detection platform that can be directly translated to A β 40 for future cardiovascular-specific screening. Given the disproportionate burden of CVD in Hispanic populations, this approach has strong potential for early detection, risk stratification, and health equity–focused cardiovascular screening initiatives.

Evaluating the Impact of Simulation-Based Training on Family Caregivers of Persons Living with Dementia

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Background:

Most people living with dementia receive care at home, often from nonpaid family members and friends who lack formal training in essential caregiving skills. With an estimated 7 million Americans age 65 and older currently living with dementia, this number is expected to double by 2060, along with the burden on caregivers. This study aims to examine the impact of simulation-based training to enhance a caregiver's ability to provide care and assistance for their loved ones with dementia for Activities of Daily Living (ADL).

Methods:

An experiential design was used to evaluate a 2.5 hour in-person training consisting of video-based instruction, hand-on simulations, and debriefing for caregivers of persons with dementia. A total of 18 nonpaid, older adult caregivers were recruited from dementia education programs provided free in the local community. All caregivers participated in the in-person simulation training and completed pre- and post-surveys assessing their confidence and emotional preparedness to provide care and assistance for their loved one with dementia using a five-point Likert scale for 8 questions. The simulations focused on Activity of Daily Living (ADLs) functions, such as bathing, grooming, toileting, mobility, and transfers. The in-person training was conducted at UNT Health Science Center's Regional Simulation Center located on the campus in Fort Worth , Texas.

Results:

There were 18 participants, with 13 females and 5 males. Most participants (76% n=13) were aged 65 or older, with 18% (n=3) aged 55 to 64, and 6% (n=1) aged 45 to 54. Caregivers were predominantly white (82% n=14), with 12%(n=2) identifying as Black/African American, and 6% (n=1) as Hispanic/Latino. Most caregivers were retired (87% n=13).

Responses to the pre and post survey questions noted improved confidence in assisting with mobility and transfers (33% to 88%), applying effective communication strategies (62% to 94%), comfort in performing personal care tasks for their loved one (33% to 100%), preparedness to be able to provide compassionate care to a bed-bound patient (23% to 70%), improved the caregivers sense of being equipped to support emotional and physical needs of their loved one (50% to 82%). A strong sense of compassion for their loved one with dementia increased (67% to 94%) along with empathy (6% to 29%).

Conclusion:

The use of simulation-based training had a significant impact on the participants' confidence, knowledge, skills and emotional readiness in caring for their family member with dementia. The training was perceived as meaningful and transformative, opening the path for innovative caregiver trainings that utilize hands on simulation training to better prepare caregivers to assist a person with dementia with their ADLs.

Bilingual Community Workshops for Low-Cost Indoor Air Quality Improvement in East Austin

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Background:

Families in East Austin experience disproportionate indoor air-quality burdens due to older housing, poor ventilation, and proximity to major roadways. These conditions contribute to higher respiratory symptoms, asthma exacerbations, and avoidable school and work absences. Low-cost Corsi–Rosenthal (CR) Box air purifiers offer an accessible way to reduce indoor particulate matter (PM_{2.5}), yet adoption is limited by financial barriers, limited awareness, and the lack of culturally and linguistically tailored guidance. This Phase-1 pilot aims to improve indoor air-quality knowledge, increase access to low-cost filtration, and evaluate feasibility and acceptability ahead of a larger-scale implementation study.

Methods:

The project partners with community centers, youth-serving organizations, and East Austin nonprofits to deliver bilingual (English/Spanish) workshops on indoor air quality. Each workshop includes brief accessible education on PM_{2.5}, ventilation basics, and simple home-based strategies, followed by a hands-on demonstration of CR Box assembly and safe operation. Participating households receive take-home consumable kits (MERV 13 filters, assembly supplies) and bilingual printed instructions.

Evaluation consists of:

- (1) a short paired pre/post knowledge survey (5–7 items),
- (2) an acceptability and intent-to-use assessment,
- (3) a community needs assessment (ventilation, barriers, environmental context), and
- (4) feasibility-focused PM_{2.5} spot checks in 2–3 volunteer households using low-cost monitors.

Workshops are scheduled for early 2026, with at least one workshop and initial paired datasets completed before the February poster presentation. Because this is a Phase-1 feasibility and engagement pilot, the goal is to characterize user experience, estimate early knowledge gains, refine logistics, and obtain pilot PM_{2.5} effect-size signals, not to establish statistical efficacy.

Results:

At the time of abstract submission, workshop recruitment, material preparation, and partner confirmations are underway. The first community workshop will occur prior to the February 2026 conference, allowing collection of initial pre/post survey data and qualitative feedback. Anticipated early outcomes include improvements in understanding of PM_{2.5}, increased confidence in using a CR Box, and strong acceptability of the bilingual, hands-on format.

Preliminary qualitative feedback from partner organizations indicates high community interest in low-cost filtration and a preference for simple, visual, bilingual guidance. Families have identified cost of replacement filters, limited space, and uncertainty about safe placement as key barriers, insights directly informing materials and training.

Initial PM_{2.5} spot checks conducted in the first 1–2 volunteer households are expected to provide directional evidence of particulate reduction after CR Box installation. These pilot readings will be used to refine measurement protocols, feasibility workflows, and sample-size assumptions for a subsequent controlled study.

Conclusions:

This pilot demonstrates the feasibility and strong community interest in bilingual, low-cost CR Box workshops as a strategy to advance environmental health equity in East Austin. Early workshop results will provide foundational evidence on knowledge gains, acceptability, practical barriers, and preliminary PM_{2.5} changes, enabling refinement of materials and protocols ahead of a

larger future study. Community-centered, culturally informed approaches to indoor air quality interventions may offer a scalable path to reducing respiratory disparities in vulnerable neighborhoods.

Literature Review: Mortality Among Latinos due to Delays in Surgical Treatment

Authors: Ismael Rodriguez, Jose Condor, Juan Ricardo Floriano Muniz

Presenting Author: Ismael Rodriguez

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Background:

Delays in surgical care are a critical concern contributing to unwarranted morbidity and mortality, particularly among underserved populations such as Latinos. Several studies have documented that Latinos face significant barriers to timely surgical intervention, often resulting in detrimental health outcomes, including death. This literature review aims to synthesize current research on the mortality rates of Latino patients related to delays in surgical treatment, addressing potential socio-economic, cultural, and systemic factors that contribute to this disparity.

Methods:

This literature review employed a systematic approach to identify and synthesize relevant studies regarding mortality among Latino patients due to delays in surgical treatment. A comprehensive search strategy was implemented across multiple electronic databases, including PubMed, Scopus, and Google Scholar. The following keywords and phrases were used in various combinations: “Latino patients,” “delays in surgical treatment,” “mortality rates,” “health disparities,” “socioeconomic factors,” “cultural barriers,” and “language barriers.” The review included qualitative and quantitative studies published in peer-reviewed journals between 2010 and 2025.

Results:

Cultural factors play a significant role in surgical delays among Latino patients. Research conducted by Torres et al. (2021) emphasizes the importance of cultural beliefs and practices, which may deter patients from seeking timely surgical intervention. The perception of surgical care and distrust in the healthcare system can result in delayed presentations, ultimately leading to poorer outcomes.

Language barriers significantly contribute to delays in surgical treatment. Many Latino patients are not fluent in English, which can hinder effective communication with healthcare providers. A study by Vargas et al. (2020) found that patients with limited English proficiency were less likely to receive timely surgical consultations, leading to increased morbidity and mortality rates. Systemic issues within healthcare systems also exacerbate delays in surgical treatment for Latino patients. Disparities in healthcare delivery systems, including differences in referral patterns and access to surgical specialties, contribute to prolonged wait times for procedures. A report by the Agency for Healthcare Research and Quality (AHRQ, 2019) highlighted that Latino patients often experience longer wait times for surgical interventions compared to their non-Latino counterparts.

Research consistently demonstrates a correlation between delays in surgical treatment and increased mortality rates among Latino patients. According to a systemic review by Garcia et al. (2022), patients who experienced delays beyond the recommended timeframes for various surgical procedures showed significantly higher mortality rates compared to those who received timely interventions.

Conclusion:

Delays in surgical treatment among Latino patients are a critical public health issue that contributes to increased mortality rates. Cultural barriers, language differences, and systemic disparities compound the issue, necessitating concerted efforts from healthcare providers, policymakers, and community organizations. By addressing these factors, the healthcare system can improve outcomes for Latino patients and reduce health disparities that lead to death due to delayed surgical care.

Optimizing Hospital Discharges: The Impact of Meds-to-Bed and Unit Based Pharmacists on Readmission Rates and Patient Outcomes

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Introduction:

Inadequate patient education and miscommunication during discharge can lead to increased hospital readmission rates and negatively impact patient outcomes. Initiatives such as the meds-to-bed program and unit-based pharmacists aim to improve patient understanding and access to medications. This study analyzed the readmission patterns at a 304-bed hospital located in central New Jersey to identify contributing factors and evaluate the impact of these programs on medication access and 30-day readmission rates.

Methods:

A retrospective analysis of adult patients (≥ 18 years) discharged from January 2021 to September 2022 was conducted using hospital database systems to evaluate 30-day readmission rates. A force-field framework was applied to categorize macroenvironmental and institutional drivers and barriers to readmission. Patient perspectives on readmission were assessed using customer value hierarchy interviews. A value hierarchy ladder was created to interpret these results.

Results:

We compared readmission proportions using two-sided two-proportion z-tests with a significance level of 0.05 and report 95% confidence intervals. In 2021, this facility recorded 13,066 discharges and 1,187 total readmissions with a readmission rate of 9.08% (95% CI 8.6-9.6). The two most common causes of readmission were unrelated to the primary diagnosis in the original admission (41.0%) and disease progression (36.3%). In 2022, this facility had 9,226 discharges and 827 total readmissions, with a readmission rate of 8.96% (CI 8.4-9.5) with no significant difference between the years ($p=0.76$). The two most common causes of readmissions were unrelated to the primary diagnosis in the original admission (47.0%) and disease progression (29.1%). In 2022 from January-May there were 5,153 total discharges and 483 readmissions for a readmission rate of 9.37% (95% CI 8.6-10.2) similar to 2021 ($p=0.54$). After improved program awareness and deployment of unit-based pharmacists throughout the hospital in June 2022 and September 2022 respectively, the readmission rate in September decreased to 6.99% (95% CI 5.3-8.7), which is the lowest readmission rate of the year and significantly lower than 2021 ($p=0.03$). In 2022, the average number of monthly prescriptions filled increased by 11% from 1,052 (January 2022-July 2022) to 1,170 (August 2022-September 2022).

Conclusion:

Increased awareness of the meds-to-bed program and deployment of unit-based pharmacists led to a reduction in readmission rates, thereby decreasing the number of patients at the hospital for preventable causes. As a result, this improvement increases hospital capacity, reduces ER boarding times, and improves patient care by allowing physicians to manage fewer patients at once. Therefore, a focus on patient-centered medication transitions can enhance hospital satisfaction, efficiency, and profitability.

Barriers to HPV Vaccination in Mexico: Access, Policy, and Public Perception

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Background

Human papillomavirus (HPV) vaccination is one of the most effective strategies for preventing cervical cancer, yet coverage in Mexico has fluctuated significantly due to structural, economic, and sociocultural barriers. Although Mexico was an early adopter of HPV vaccination and initially achieved high national coverage, persistent gaps in vaccine availability, distribution, and public acceptance continue to hinder equitable uptake.

Objective

This review examines the major barriers to HPV vaccination in Mexico—including policy constraints, supply-chain limitations, economic obstacles, and sociocultural beliefs—and evaluates national and international public health strategies that could strengthen HPV vaccine access and coverage.

Methods

A narrative review of peer-reviewed literature, national reports, and global health data was conducted to assess Mexico's vaccination policies, program implementation, regional disparities, pandemic-related disruptions, and determinants of vaccine hesitancy. Comparative analysis with successful HPV vaccination programs in Chile, Argentina, and Brazil was included to identify actionable strategies.

Results

Findings reveal that recurrent vaccine shortages, fragmented procurement systems, and inconsistent federal funding have resulted in more than 6.8 million unadministered doses since program inception. Coverage declined by over 90% during the COVID-19 pandemic and remains uneven across states, with rural and Indigenous regions experiencing the lowest uptake. High private-sector vaccine costs, limited provider counseling, and persistent misinformation—particularly in conservative or religious communities—further reduce acceptance. Despite these challenges, school-based delivery has consistently achieved the highest and most equitable coverage, and recent policy expansions to include boys, adolescents who missed doses, survivors of sexual assault, and individuals living with HIV mark significant progress toward more inclusive vaccination.

Conclusion

Strengthening Mexico's HPV vaccination program requires coordinated policy action, including stabilizing supply chains, reinforcing school-based immunization, investing in provider training, and implementing culturally tailored communication campaigns to counter misinformation. Targeted strategies to reduce geographic and socioeconomic disparities are essential for achieving equitable coverage. By adopting evidence-based approaches used successfully in neighboring Latin American countries, Mexico can enhance HPV vaccine uptake and advance national cervical cancer elimination goals.

Beyond the MRI: Identifying Multidimensional Risk Factors in Adolescent Knee Pain

Authors: James Lalonde, Shannon Kaupp, Arjun Verma, Robert Rutz, and Patrick Massey

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LSU Health Shreveport

INTRODUCTION:

Knee pain in children and adolescents can present diagnostic dilemmas when MRI and rheumatologic evaluations are inconclusive. Several risk factors such as elevated BMI, high level sports, and the female pubescent anatomy have been correlated with pediatric knee pain. The Cumulative Illness Rating Scale (CIRS) has recently been introduced for a multifaceted quantification of comorbidity burden. This investigation was completed to identify risk factors for idiopathic knee pain in adolescents. We hypothesized that psychiatric and metabolic comorbidities may predispose adolescents to persistent knee pain.

METHODS:

Electronic medical records were queried for patients aged 7–17 years who presented with knee pain between 2010 to 2024. Included patients had a normal knee MRI and rheumatologic workup and lacked previous surgeries or traumatic injuries. Patient age, sex, race, insurance type, BMI, activity level, psychiatric history, medications, and pain scores were retrospectively reviewed. CIRS scores were assigned for psychiatric and metabolic domains. Summary statistics were calculated for the patient cohort.

RESULTS:

Of 172 patients identified, 12 were included. In total, 25% of patients had psychiatric diagnoses or medications, and 33% were obese. Minimal physical activity was reported by 25% of patients. Additionally, 58% had CIRS scores of 1 or greater.

DISCUSSION and CONCLUSION:

Adolescents with idiopathic knee pain frequently exhibited overlapping metabolic and psychiatric comorbidities. This patient group had higher rates of obesity than national estimates (33 vs 20%) and higher CIRS scores than national pediatric cohorts. The prevalence of psychiatric comorbidities in this study are in accord with prior studies that have demonstrated strong associations between mental health conditions and persistent musculoskeletal pain.

Impact of Biologics on the Incidence of Bone Fractures in Pediatric Asthma Patients

Authors: Kyanna Ibarra, Daniella Conner, Krish Patel, Guadalupe Jose Rodriguez

Presenting Author: Kyanna Ibarra and Daniella Conner

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Background:

Inhaled corticosteroids (ICS) are the current standard controller therapy for pediatric asthma. In recent years, biologic medications have been introduced as add-on treatments for children with uncontrolled asthma (1). Long-term ICS use has been associated with increased fracture risk in pediatric patients (2). Early safety data on biologics in children are reassuring, and some studies suggest that combining biologics with ICS may reduce fracture risk; however, the long-term skeletal effects of ICS+biologic therapy compared with ICS alone remain incompletely characterized (1). Given their distinct mechanisms of action and the potential to reduce ICS requirements, it is important to understand how biologic add-on therapy modifies fracture risk in children receiving ICS. This study evaluates whether combined biologic and ICS treatment is associated with a lower incidence of fractures compared with ICS monotherapy in pediatric patients with asthma.

Methods:

A retrospective cohort study was conducted using the TriNetX Research Network. Children aged 5–17 years with a diagnosis of asthma and documented ICS use were identified. Two incident-user cohorts were constructed: (1) ICS-only users and (2) ICS plus biologic users (omalizumab, mepolizumab, reslizumab, benralizumab, dupilumab, or tezepelumab). Patients with prior fractures before ICS or biologic initiation were excluded. Propensity score matching (1:1) was performed across 46 demographic, clinical, and medication variables, yielding 5,321 patients per cohort. Outcomes were assessed beginning 1 day after index and followed until first fracture, loss to follow-up, or end of the observation period. The primary outcome was any fracture, analyzed using risk ratios and Kaplan–Meier time-to-event methods with hazard ratios.

Results:

After matching, cohorts were well balanced across asthma severity, comorbidities, and medication exposures. The cumulative incidence of fractures was 3.7% in the ICS-only cohort versus 2.8% in the ICS+biologic cohort (risk ratio 1.30, 95% CI 1.05–1.60; $p = 0.014$). However, the primary time-to-event analysis demonstrated no significant difference in fracture hazard between groups (hazard ratio 0.97, 95% CI 0.78–1.20; log-rank $p = 0.747$).

Conclusion:

The addition of biologic therapy to ICS for pediatric asthma was not associated with a significantly decreased hazard of fractures when compared with ICS alone. The ICS+biologic cohort showed a slightly lower cumulative fracture rate than the ICS-only cohort. However, this difference did not persist when accounting for time-to-event analysis, suggesting that there was no significant difference in fracture risk over time between treatment strategies. These findings provide evidence that use of biologic therapy in addition to ICS does not confer a significant protective effect against fractures in children and adolescents receiving ICS for asthma. Prospective studies with standardized follow-up durations are warranted to better understand the relationship described in these results.

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Surgical Interventions to Address Skeletal Metastasis of Renal Cell Carcinoma: A Case Report

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Background

Being the most common primary renal malignancy, Renal Cell Carcinoma (RCC) accounts for 2-3% of cancers worldwide. 20-35% of these patients suffer metastasis to skeletal structures which can attribute to pains, impending fractures, nerve compressions, hypercalcemia and even pathological fractures. Treatment and management of RCC metastasis to bone is essential to address to improve survival rates of RCC and the quality of life among patients who suffer from debilitating complications of RCC skeletal metastasis such as pathological fractures which occur in 15-30% of patients with such metastasis's. Skeletal structures most affected by RCC metastasis include the spine, pelvis, and ribs with long bone involvement (e.g. femur, humerus) being less common. However, we present a case of RCC metastasis to the femurs bilaterally.

Case Presentation

A 40-year-old male with a past medical history of RCC with metastasis to bone, brain, and lungs presented to the emergency department with a 1-week history severe lift hip pain that was diagnosed as a femoral fracture by another hospital early in the week. Imaging indicated a pathological fracture of the left proximal femoral neck as well as bilateral metastatic femoral lesions.

The patient underwent a left hip hemiarthroplasty for femoral neck fracture, a prophylactic resection and replacement of the proximal right femur due to impending pathologic fracture, and prophylactic curettage and excision with cementation of the right distal femur. Following a course in the hospital following bilateral hip fixations the patient was sent home but regrettably ultimately expired shortly after discharge.

Discussion

This case demonstrates the necessity of early detection and management of RCC. Additionally, it highlights the importance of regular imaging of known bone metastasis, especially in weight-bearing bones, to monitor progression and intervene as necessary with interventions such as prophylactic fixation (e.g. intermedullary nailing, arthroplasty).

Moreover, non-invasive preventative modalities include the utilization of Mirel's Scoring System, to assess fracture risk, and prophylactic bone medication therapies (e.g. bisphosphonates and RANKL inhibitors).

Keywords: [Renal Cell Carcinoma], [Bilateral femoral metastasis], [hip hemiarthroplasty], [prophylactic fixation], [Mirel's Scoring System]

Poxviruses Subvert Wnt/ β -Catenin Signaling Through GSK-3 β to Promote Infection

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Poxviruses such as mpox are re-emerging pathogens that pose a significant disease threat. The glycogen synthase kinase-3 β (GSK-3 β)- β -catenin axis regulates cell growth, Wnt signaling, and immune modulation. When GSK-3 β activity is reduced, β -catenin escapes degradation and enters the nucleus to drive transcription of TCF/LEF target genes. Many viruses exploit this pathway by disrupting the destruction complex, stabilizing β -catenin to enhance replication. Our data reveal the opposite strategy by poxviruses. Vaccinia virus (VacV), a prototypic poxvirus, increases phosphorylated β -catenin and accelerates its degradation. Because β -catenin is critical to Wnt signaling and Wnt signaling contributes to the antiviral response, we reasoned that poxviruses target β -catenin to suppress immunity. We hypothesize that poxviruses utilize host GSK-3 β kinase to tag β -catenin for degradation, inhibit Wnt signaling, and dampen the antiviral response to enhance replication. To test this, we infected normal human dermal fibroblasts with VacV at varying multiplicities of infection and time points, then measured viral titers and protein levels. Parallel cultures received selective GSK-3 β kinase inhibitors. We quantified total and phosphorylated β -catenin by western blot and assessed viral proteins D8 and A14 by immunoblotting. Plaque assays determined the effect of GSK-3 β inhibition on replication. Inhibition of GSK-3 β reversed infection-induced changes: total β -catenin increased, phosphorylated β -catenin decreased, IRF3 is phosphorylated, and viral proteins and plaque formation is decreased. These results show that poxviruses rely on GSK-3 β kinase activity to tag β -catenin for degradation, suppress Wnt/ β -catenin signaling, and evade host antiviral defenses, identifying GSK-3 β as a potential therapeutic target.

Biologic Treatment of Chronic Pansinusitis with Nasal Polyps and Risk of Adverse Ocular Outcomes

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Presenting Author: Noelle Gonzalez

University of Texas Medical Branch

Background:

Chronic pansinusitis with nasal polyps (CPSwNP) is a chronic inflammatory condition of the sinuses that significantly impacts the quality of life through nasal obstruction, facial pressure, anosmia, and recurrent infections (1). For patients with inadequate response to topical or systemic corticosteroids and sinus surgery, biologic therapies targeting key inflammatory pathways have emerged as an important treatment strategy. Biologic therapies including mepolizumab and omalizumab, which are FDA approved for CPSwNP and benralizumab, tezepelumab, depemokimab, and reslizumab, which are still under review, target inflammation and are increasingly being used to treat CPSwNP (2-7). Literature regarding similar and more established biologics, like Dupilumab, highlight potential adverse ocular outcomes including dry eye, conjunctivitis, and keratitis associated with its usage (8). This study evaluates the association between adverse ocular outcomes in patients taking biologics to treat CPSwNP, with matched controls not using biologics. Understanding the potential risks of these treatments can allow for well informed usage of these emerging therapies.

Methods:

Using the TriNetX database, a multicenter, retrospective cohort study was performed. Adults with CPSwNP were categorized into a biologic-treated cohort and a non-biologic control cohort. Biologics included mepolizumab, omalizumab, benralizumab, tezepelumab, depemokimab, and reslizumab. Patients with preexisting diagnoses for each ocular outcome were excluded from that specific analysis. Incidences of conjunctivitis, eyelid rosacea, blurred vision, keratitis, blepharitis, glaucoma, and iridocyclitis within three years of the index event were assessed. Propensity score matching was used to balance demographics and relevant comorbidities between cohorts. Risk ratios (RRs) with 95% confidence intervals (CIs) were calculated, with statistical significance defined as $p < 0.05$.

Results:

A total of 4,401 patients were included in each group after propensity score matching. Biologic-treated patients had an increased risk of conjunctivitis ($p < 0.0001$; RR 1.61, 95% CI [1.26,2.06]) and eyelid rosacea ($p = 0.007$; RR 2.26, 95% CI [1.23,4.15]) compared with controls. Biologic therapy was not associated with an increased risk of blurred vision ($p = 0.59$; RR 0.92, 95% CI [0.67,1.26]), keratitis ($p = 0.63$; RR 0.90, 95% CI [0.57,1.40]), blepharitis ($p = 0.99$; RR 1.00, 95% CI [0.65,1.55]), glaucoma ($p = 0.69$; RR 1.07, 95% CI [0.76,1.53]), or iridocyclitis ($p = 0.83$; RR 0.92, 95% CI [0.40,2.07]).

Conclusions:

This large-scale cohort study demonstrates that biologic therapy for CPSwNP is associated with an increased risk of conjunctivitis and eyelid rosacea but not associated with blurred vision, keratitis, blepharitis, glaucoma, or iridocyclitis. These findings highlight the need for increased patient education, monitoring of symptoms, and multidisciplinary care. Future research should focus on elucidating the underlying mechanism behind these associations and developing methods to mitigate biologic-associated ocular complications in CPSwNP.

Foot Arch and Risk of Charcot Neuroarthropathy in Patients with Type 2 Diabetes

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Presenting Author: Krish Patel

University of Texas Medical Branch

Background

Charcot neuroarthropathy is a progressive condition in which peripheral neuropathy leads to weakening and unnoticed fractures of the foot and ankle, causing severe deformity. While the primary risk factor is diabetic neuropathy, foot deformities such as pes planus (flat foot) and pes cavus (high arch) may change plantar pressure distribution and theoretically influence Charcot risk. The current literature suggests that pes cavus and pes planus exhibit distinct biomechanical and kinematic profiles in diabetic populations, but their relative impact on Charcot risk remains poorly studied. We aimed to determine if pes planus is associated with a greater risk of Charcot foot when compared to pes cavus in patients with type 2 diabetes mellitus.

Methods

We conducted two parallel retrospective cohort analyses using the TriNetX research network, evaluating outcomes in the left and right foot separately. Using ICD-10 codes, patients with type 2 diabetes mellitus were identified and assigned to cohorts based on whether they had a side-specific diagnosis of pes planus or pes cavus. Patients with a prior diagnosis of Charcot foot on the side of the foot deformity were excluded. The index event was defined as the first diagnosis of the relevant deformity on that side. 1:1 propensity score matching was performed within each side-specific cohort to balance demographic and comorbidities relevant to Charcot risk. The primary outcome was the occurrence of Charcot neuroarthropathy on the same side after index. Results from the left and right foot analysis were pooled and risk ratios (RR), odds ratios (OR), 95% confidence intervals (CI), and p-values were calculated.

Results

After matching, the pooled cohorts had 9,066 feet with pes planus and 9,066 feet with pes cavus. Charcot neuroarthropathy occurred in 112 (1.24%) pes planus feet and 41 (0.45%) pes cavus feet, a significant increase in risk ($p < 0.001$). The pooled RR for Charcot in pes planus vs pes cavus was 2.73 and OR was 2.75. Side specific analyses were consistent with these findings, with the left foot developing Charcot in 1.1% of pes planus vs 0.4% of pes cavus (RR=2.55, OR=2.57, $p < 0.001$) and the right foot developing Charcot in 1.3% of pes planus vs 0.5% of pes cavus (RR=2.90, OR=2.93, $p < 0.001$). Despite extensive matching, patients with pes planus remained more likely to have a higher body mass index, suggesting a potential residual confounder.

Conclusion

Incidence of pes planus is associated with a significantly higher risk of developing Charcot neuroarthropathy compared to pes cavus in patients with type 2 diabetes mellitus. These findings suggest that foot arch may identify a subgroup of patients at a higher risk of Charcot foot but further prospective studies are needed to confirm our results and guide targeted interventions.

Ezetimibe vs Statin Therapy and 5-Year Risk of Tendon Disorders in Patients with Hyperlipidemia: A Multicenter Retrospective Cohort Study

Authors: Victor Limon Pedraza, Rafael Montes Hernandez, Isabel Alamo, Guadalupe Jose Rodriguez, Krish Patel, Sarah Schuster

Presenting Author: Victor Limon Pedraza

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Background:

Accounting for over 818 million prescriptions annually, statins are the first-line pharmacologic therapy for adult hyperlipidemia (HLD). Although their benefits and safety are well established, statin use has been associated with myalgias, tendinopathies, and tendon rupture. It remains unclear whether tendon disorders are caused by statin therapy itself or other factors. Comparative studies evaluating the incidence of tendon disorders between statin and non-statin therapies are limited. Current ACC guidelines prioritize statins and reserve non-statins such as ezetimibe for patients with inadequate lipid control or statin intolerance. Assessing tendon-disorder risk with non-statin therapy may improve risk stratification and guide treatment selection for HLD patients at higher risk of tendon complications.

Methods:

A retrospective cohort study was conducted using the TriNetX research network. Adults ≥ 40 years with hyperlipidemia were assigned to two cohorts: ezetimibe monotherapy (no statin or bempedoic acid exposure within 1 year of starting ezetimibe) and statin monotherapy (no ezetimibe or bempedoic acid exposure within 1 year of starting statins). Both cohorts must have received ≥ 12 prescriptions. Patients with prior tendon disorders or tendon repair were excluded. 1:1 propensity score matching for demographics and comorbidities yielded 11,311 patients per cohort. Low-density lipoprotein cholesterol levels remained higher in the ezetimibe group even after matching. Five-year outcomes were Achilles tendinitis, trigger finger, De Quervain's tenosynovitis, rotator cuff tear, biceps tendinitis, biceps rupture, and rotator cuff repair. P-value, risk, odds ratio (OR), and risk ratio (RR) was calculated.

Results:

Trigger finger was diagnosed in 209 patients in the ezetimibe group compared to 256 in the statin group (1.8% vs 2.3%, $p=0.028$). Achilles tendinitis occurred in 57 patients in the ezetimibe group compared to 83 in the statin group (0.5% vs 0.7%, $p=0.028$). De Quervain's tenosynovitis was diagnosed in 31 patients in the ezetimibe group compared to 58 in the statin group (0.3% vs 0.5%, $p=0.004$). Rotator cuff tears were diagnosed in 254 patients in the ezetimibe group compared to 306 in the statin group (2.2% vs 2.7%, $p=0.026$). Rates of biceps tendinitis, biceps rupture, and rotator cuff repair were low and not statistically different between groups.

Conclusion:

In comparison to statin monotherapy, ezetimibe monotherapy is associated with lower five-year outcome rates of trigger finger, Achilles tendinitis, De Querevain's tenosynovitis, and rotator cuff tears in adults with hyperlipidemia. These findings suggest that ezetimibe monotherapy could be a reasonable alternative for hyperlipidemic patients at higher risk of tendon complications or statin-related tendinopathy. Nonetheless, due to the study's retrospective design, residual confounding variables may have affected the data despite propensity score matching. Additional limitations include potential confounding by indication, variation in prescribing patterns, and incomplete documentation of medication adherence. Further prospective controlled studies comparing ezetimibe to statin therapy are needed to confirm the observed results.