14th Annual
Scholarly Activity and Research Program (SARP) Virtual Symposium

April 3rd & April 4th 2024

9:00 AM - 12:00 PM

WebEx

2024 SARP Symposium Schedule & Abstracts

2024 SARP SPRING VIRTUAL SYMPOSIUM

SARP team:

- Dr. Jessica Chacon (Faculty Course director)
- Dr. Nathan Holland (Faculty Course director)
- Dr. Curt Pfarr (Faculty Course director)
- Dr. Sheralyn Sanchez (Course Director)
- Mr. Michael Mercado (Unit Associate Director)

Special thanks to all the judges, timekeepers and support staff for their help and dedication to our students, and to all the students and their mentors for their hard work and scholarship.

Table of Contents:

STUDENT ROSTERS – April 3:

9:00 AM – 9:30 AM

Campbell, Drew	Using Online Radiology Education to Impact Medical Student Performance on GI Anatomy Objectives.
Gardner, Joshua	The Efficacy of Virtual Supplemental Renal Anatomy
Bains, Naina	Change in axial length and keratometry over time in adults being evaluated for cataract surgery
Gonzalez, Devon	Determining the physical, hormonal, and metabolic markers of female adolescents having features of PCOS: A retrospective chart study.
Aboudawoud, Omar	Reemergence of Congenital Syphilis in the United States: A Narrative Review

9:30 AM – 10:00 AM

Gill, Michael A	Progressive Adjunct Biologic Therapies for Peripheral Nerve Regeneration
Najera, Carolina	Tejocote Root's Role in Symptomatic Mobitz Type 1 Heart Block: A Compelling Case Report Accompanied by a Systematic Review on Literature Covering Tejocote Root Toxicity
Eddi, Joachin	The effect of finasteride on prostate gene E2F2
Martinez, Anais	Initial steps towards a rat brain atlas of the female brain: from the MPO to beyond

10:00 AM – 10:30 AM

Okafor, Euchariachristy	How Adverse Childhood Experiences affect different aspects of Attention Deficit Hyperactivity Disorder
Nguyen, Kim N	El Paso Children's Safe Sleep Quality Improvement Project
Mada, Sanjana	Hair cortisol levels among individuals seeking prenatal health care in the US-Mexico border region.
Perkins, Mariah	Role of G0S2 as a negative regulator of mitochondrial metabolism in Acute Myeloid Leukemia (AML)
Hernandez, Carlos	A High Proportion of Orthopaedic Hand Trauma Transfers are Unnecessary

10:30 AM – 11:00 AM

Okopie, Obaro	Medical School Attrition: COVID-19 or Not?
Salama, Ibrahim	Use of Circular External Fixators on Adolescent Tibia Fractures
Mansour, Sara	Evaluation of TTUHSC EP-HEAT Myth Busters events
Rereddy, Rohan	Management Strategies of Trichobezoars in the Pediatric Population: A Qualitative Review of the Literature
Torres, Robin	How a Pandemic can Change the Utilization of Emergency Departments for Non-Emergent Concerns: A Survey Study

11:00 AM – 11:30 AM

Emerick, Katherine	Caregivers' Perspectives regarding Pierre Robin Sequence

STUDENT ROSTERS – April 4:

9:00 AM – 9:30 AM

Ikeler, Jordan	To have practicals or to not have practicals? That is the question
Holguin, Simon	Comparison of Body Composition of NCAA Division1 Women's Soccer Student Athletes by Player Position Using DEXA Scan
Floresca, Ryan	Clinicopathologic analysis of Covid-19 associated thrombi in the setting of large vessel occlusion: A prospective case-control study.
Dworkin, Emily	Pulmonary Blastoma in Young Adult Patient: A Case Report with Systemic Literature Review
Bharadwaj, Keshav	Busting myths in healthcare: Establishment of a bilingual health education platform in a border community and its impact on medical students

9:30 AM – 10:00 AM

Lopez Valdez, Nohemi	Evaluating Food Insecurity at a Medical Student-Run Clinic on the Texas-Mexico border
Palfreeman, Matthew	When embryology meets the clinical: the case of the kidney with 5 ureters
Tiula, Kira	Prophylactic anticoagulation use associated with decreased mortality compared to therapeutic anticoagulation use in Hispanic patients hospitalized for COVID-19
McWilliams, Andrea	Examining Parental Education Level and Knowledge of Female Reproductive, Sexual, and Preventative Health in a US-Mexico Border City
Downey, Alyssa	Assessing the potential impact of women's health educational seminars on the El Paso community

10:00 AM – 10:30 AM

Lucker, Joseph	Retention through Didactics of Mass Casualty Incident Triage
Trinh, Kaitlynn	A qualitative analysis of patterns of communication style errors in medical students and junior residents in early training
Trevino, Danielle	Investigating the Role of Common Herbal Teas for Gastrointestinal Ailments in El Paso, Texas
Montgomery, Andrew	Systematic Review of the Multimodal Care of the Diabetic Foot Ulcer
Khan, Ahmed	Characterization of Collagen Depostion around the Human Iris

10:30 AM – 11:00 AM

Mohan, Vamsi	Plastic Multilayer Closure: Orthopedic Surgeons and Plastic Surgeons Achieve Comparable Outcomes
Wolf, Tyler	Serratus Anterior Nerve Block in Conjunction with Mastectomy and the Need for PostOperative Narcotics: A Prospective Control Trial (Serratus Anterior Nerve Block in Conjunction with Mastectomy and the Need for Post-Operative)
Trinh, Benjamin	The Cost of Hospitalized Orbital Cellulitis Infections in Texas, 2016-2020
Sanchez, Diego E	Distal tibia physeal fractures: a scoping study into cost-analysis.
Nguyen, Phong T	Effectiveness of HMG-CoA reductase inhibitors on inflammation and metabolic markers in the US-Mexico border Hispanic population

11:00 AM – 11:30 AM

Zaidi, Syed	Upgrade of Fibroepithelial Lesions to Phyllodes Tumors; Benign, Borderline, and Malignant

ABSTRACTS
April 3
9:00 a.m. – 12:00 p.m.

Name: Campbell, Drew
Mentor Name: Heather Balsiger
Project Title: Using Online Radiology Education to Impact Medical Student Performance on GI Anatomy Objectives.
Group: 1
Date: 4/3/2024
Time: 9:00 a.m.

Abstract:

There has been great interest in implementing online medical education modules in recent years, driven in part by the COVID-19 pandemic and popularity of virtual platforms. Perhaps no subject has undergone more significant challenges during this time than gross anatomy. This has required the use of innovative approaches to teach medical students the interpretation of clinical imaging, thereby preparing them for the clerkships. Evaluating the efficacy of novel teaching approaches can help educators fill in knowledge gaps. METHODS. Mandatory online modules were developed to teach radiological anatomy to 1st year medical students in the gastrointestinal unit. Each lab included a lab pre-test, clinical-case post-test, and an imaging module post-test. Final assessment was a practical exam with four imaging-specific question. Total live anatomy instruction was one hour per week, coupled with three hours of asynchronous materials. SUMMARY. Reported scores included pre-test questions (82%), clinical case quizzes (80%), post-test questions (85%), practical exam (82%) with imaging-specific questions at 90%. CONCLUSION. Average scores on the radiology post-test were significantly higher than the pre-test ($p < .05$), indicating that asynchronous radiology modules can be effective for teaching 1st year medical students. Overall, the average scores for all assignments and exams were strong, indicating that medical programs with reduced in-person anatomy instruction can still be effective in teaching anatomy.

Name: Gill, Michael A
Mentor Name: Dr. Gil Gontre, MD
Project Title: Progressive Adjunct Biologic Therapies for Peripheral Nerve Regeneration
Group: 1
Date: 4/3/2024
Time: 9:30 a.m.

Abstract:

Optimal outcomes after peripheral nerve injuries (PNI) continue to be a challenge to the upper extremity surgeon. Autologous nerve grafting is the current gold standard for these injuries, however, even with modern advancements, these procedures may result in chronic disability, economic burden, and reduction of quality of life. There is an array of primary and combinational adjunctive biologic and biomimetic non-invasive therapies that attempt to improve outcomes in combination with surgical repair. The purpose of our study was to present an updated analysis of PRP and neurotrophic factors for peripheral nerve injuries for researchers, surgeons, and clinicians. To review the current literature, I performed a search of Pubmed, Embase, Web of Science, and clinicaltrials.gov for studies published from 2012 to 2023. I included articles that used PRP or neurotrophins as adjunct treatments for traumatic or iatrogenic peripheral nerve injuries in humans, without restriction on study participants, language, or outcome measurements. The 757 articles screened produced 4 case studies, 1 controlled study, and 1 randomized clinical trial, all of which used PRP as an adjunct therapy to surgery. PRP improved outcomes such as muscle strength and sensation. This review was limited by the dearth of evidence for PRP or neurotrophins in human subjects.

Name: Okafor, Euchariachristy
Mentor Name: Sarah L. Martin
Project Title: How Adverse Childhood Experiences affect different aspects of Attention Deficit Hyperactivity Disorder
Group: 1
Date: 4/3/2024
Time: 10:00 a.m.

Abstract:

Background: Adverse Childhood Experiences (ACEs) have been well documented to affect mental and physical health in adulthood. However, our understanding of the co-occurrence of Attention Deficit Hyperactivity Disorder (ADHD) in pediatric populations with existing ACEs remains limited. We must consider not only what different types of ACEs affect different illnesses, but also the amount of experiences, the duration, and if a dose dependent relationship exists. Methods: We conducted an analysis using the National Survey on Children's Health data from 2020-2021, which relies on parent-reported information. Variables that were related to prevalence, severity and treatment for ADHD were stratified using the CAHMI website for number of ACEs. Results: The prevalence and severity of ADHD of none, increased as number of ACEs increased. Overall, the number of patients who received medication and or behavior treatment for their ADHD was greater than those with ADHD who did not, regardless of the number of ACES. Conclusion: These values can be extrapolated to predicted United States prevalence of ADHD in this age group to be increasing and likely to follow patients into adulthood as well. The results of the study call for a deeper dive into what specific adverse experiences contribute to ADHD, and if the presence of certain experiences in a one racial group predisposes a child to ADHD and other related neurodevelopmental diseases. The hope is that future research can be used to tailor psychological and pharmaceutical therapy plans that are targeted to patients' unique upbringing and needs.

Name: Okopie, Obaro
Mentor Name: Avi Kopstick and Cynthia Perry
Project Title: Medical School Attrition: COVID-19 or Not?
Group: 1
Date: 4/3/2024
Time: 10:30 a.m.

Abstract:

Medical school attrition has far-reaching implications for both students and medicine in general. Though various factors contribute to attrition, the novel coronavirus had a significant impact on medical education. This study examines the impact of the pandemic on attrition rates from entry year 2016 to 2020 at Paul L. Foster School of Medicine (PLFSOM). The hypothesis for this study was that students in entry years 2018 to 2020 would experience higher levels of attrition. The hypothesis was tested using a predictive logistic regression model. The results suggest that Entry Year (EY) is a critical factor, with EY 2019 and 2020 demonstrating significantly elevated attrition rates. Other factors for attrition considered in the analysis were socioeconomic status, race/ethnicity, and sex. Socioeconomic status (SES) and race/ethnicity were found to have minimal influence on attrition, while sex exhibited a slightly lower attrition rate among female students, aligning with broader trends in medical education. This study highlights the need for further research, qualitative insights from students, and the development of support systems to assist medical students during challenging periods. As the healthcare landscape evolves, addressing the unique challenges posed by crises like COVID-19 is essential to promote the well-being of medical students and sustain a robust healthcare workforce.

Name: Emerick, Katherine
Mentor Name: Houriya Ayoubieh
Project Title: Caregivers' Perspectives regarding Pierre Robin Sequence
Group: 1
Date: 4/3/2024
Time: 11:00 a.m.

Abstract:
Background: Pierre Robin Sequence (PRS) is a rare triad of congenital anomalies consisting of micrognathia, airway obstruction, and glossoptosis. There is limited availability of patient-centric information about PRS and the Orthodontic Airway Plate (OAP) as a treatment option. The aim of this study was to survey family caregivers of patients with a diagnosis of PRS who have utilized the OAP treatment method to better understand their experiences and educational needs.
Methods: An electronic survey was deployed to the OAP Facebook group. Thematic analysis was done on open ended questions.
Results: Eight caregivers completed the survey. Caregivers chose the OAP treatment for their children based on their own research and networking. Difficulties encountered included lack of physician knowledge about OAP, lack of educational resources and insurance hurdles. They also described stressors that are unique to the care for children with PRS treated with OAP.
Conclusion: Results from this survey highlight the importance of having comprehensive educational information and resources for caregivers and medical providers and will inform the second step of this project which is the creation of educational videos for patients.

Name: Gardner, Joshua
Mentor Name: Diana Pettit
Project Title: The Efficacy of Virtual Supplemental Renal Anatomy
Group: 2
Date: 4/3/2024
Time: 9:00 a.m.

Abstract:
As curriculum continues to shift towards a more significant online component, consideration must be made of the impact on student learning and retention. One area that has notably benefited from this online shift is anatomy education. The emergence of virtual anatomy education, especially during the peak of the COVID-19 pandemic, has gained increasing attention and popularity as a powerful tool for instructing both students and healthcare professionals.

This study aims to explore the relationship between technology and instruction in the context of anatomical education, with a specific focus on the PLFSOM renal anatomy course. Through our investigation, we seek to contribute to more effective, engaging, and comprehensive methods of teaching anatomy that leverage the potential of virtual platforms while addressing current gaps and concerns.

While recognizing the immense potential of virtual platforms in anatomy education, we also acknowledge the need for ongoing improvements and adaptations to meet the evolving challenges in this dynamic field. By embracing technology and refining our educational strategies, we can work towards more effective, engaging, and holistic approaches to anatomical education that benefit both students and educators.

Name: Najera, Carolina
Mentor Name: Dr. Chanwit Roongsritong
Project Title: Tejocote Root's Role in Symptomatic Mobitz Type 1 Heart Block: A Compelling Case Report Accompanied by a Systematic Review on Literature Covering Tejocote Root Toxicity
Group: 2
Date: 4/3/2024
Time: 9:30 a.m.

Abstract:

The clinical presentation and diagnosis of Tejocote root toxicity causing Mobitz Type 1 remains a scarcely clinical phenomenon, often resulting in delayed diagnosis and treatment. This case report highlights a 30-year-old female presenting with a constellation of symptoms, including fatigue, dizziness, chest pressure, myalgias, nausea, vomiting, and peripheral tingling. Significantly, the patient had been using Tejocote root as an over-the-counter laxative acquired from Mexico. Laboratory findings revealed detectable Digoxin levels in her bloodstream, while an electrocardiogram (EKG) indicated sinus bradycardia with Mobitz Type 1 heart block. The patient was treated with a single dose of atropine 0.5 mg IV push. A repeat EKG before discharge showed resolution of the Mobitz type 1. This case underscores the potential cardiovascular repercussions of Tejocote root consumption and emphasizes the importance of heightened clinical awareness, especially in regions where such herbal supplement usage is prevalent.

Name: Nguyen, Kim N
Mentor Name: Fatima Gutierrez
Project Title: El Paso Children's Safe Sleep Quality Improvement Project
Group: 2
Date: 4/3/2024
Time: 10:00 a.m.

Abstract:

Background
Despite the new recommendations for safe sleep practices from the American Academy of Pediatrics (AAP), many of these guidelines are not being followed in a hospital setting. It has been shown that parents and caregivers emulate these patterns at home from what they see being practiced while in the hospital. Furthermore, there has been limited research about SIDS prevention in western Texas.

Objectives
To study safe sleep practices in infants while in a hospital setting in El Paso, Texas. The aims of this study are to increase knowledge and improve safe sleep practices for infants while in a hospital setting.

Methods
The study was conducted at El Paso Children's Hospital from June 2021 to April 2022. Data was collected twice weekly during this time frame utilizing a standardized data tool which involved the patient's age and sleep position and environment. Baseline data was collected for the first month. A total of three interventions were completed during the course of the study. We calculated changes in safe sleep practices over the duration of the study.

Results
We collected 192 audits over the 11-month duration of the study. At baseline, only 11 (22%) of 50 of the sleeping infants were observed to follow AAP recommendations for safe sleep practices. At the conclusion of the study, we observed an improvement of safe sleep practices in 10 (47.62%) of 21 audits.

Conclusion
This quality improvement project highlights the importance of adherence to safe sleep practices in the hospital setting. Healthcare providers play a critical role in modeling safe sleep practices for families of infants. Continued efforts to educate and reinforce safe sleep practices are essential to ensure that hospitals are adhering to SSP and modeling these practices for families.

Name: Salama, Ibrahim
Mentor Name: Dr. Ahmed Thabet
Project Title: Use of Circular External Fixators on Adolescent Tibia Fractures
Group: 2
Date: 4/3/2024
Time: 10:30 a.m.

Abstract:

Treating tibial fractures in skeletally immature patients offers unique challenges. Rigid intramedullary fixation poses risks of premature physeal closure. Flexible nails are not suitable for obese patients, unstable, or non-diaphyseal fractures. Plate osteosyntheses has potential wound healing difficulties and post-operative weight bearing restrictions. Minimally invasive circular external fixation (CEF) allows immediate weight bearing, early range of motion of nearby joints and the use of computer software for adjusting post operative fracture alignment. The purpose of the study was to evaluate outcomes as well as cost for adolescent tibia shaft fractures treated with CEF.

This was an IRB approved multicenter retrospective case series of adolescent patients with tibial shaft fractures treated with CEF aged 10-17 years between 2010 and 2021. Other treatment methods were excluded. Patient demographics, radiographic, functional outcomes, and financial data were investigated.

Trauma registry identified 352 cases of adolescent tibia fractures. Further screening showed 38 of cases treated with CEF. The average patient age was 14 years, with 76% (29/38) being male. The average duration of CEF treatment was 4 months, and patients were followed up for 7 months. twelve (31%) were open fractures, and 21 (55%) of the patients with CEF treatment developed pin site infections. The average RUST score was 10. All fractures healed with less than 10 degrees of deviation in all directional planes. Open fractures were associated with higher energy mechanisms of injury ($p<0.001$), additional operative procedures ($p=0.008$), and larger sagittal deviation (10.30 ± 0.42, $n=2$; 4.45 ± 3.35, $n=8$; $p=0.049$). Larger coronal deviation degrees were linked to complications ($5°\pm2$, $n=4$ versus $2°\pm1.$, $n=7$; $p=0.037$). There was a statistically significant difference in RUST scores based on proximal physis maturity, with a mean of 10 in the open fracture group and 9 in the closed fracture group ($p=0.027$). The median and interquartile ranges for the total cost of the procedures were $75 k and $26 k, respectively.

CEF for adolescent tibial shaft fractures offers unique advantages for adolescent patients. Throughout this multicenter study, CEFs were shown to provide full weight bearing and early range of motion with minimal complications. Pin site infections were the most common complication and correlated positively with secondary procedures. CEFs allowed for minimal angulation or translation in all patients with no cases of nonunion or decreased range of motion.

Circular fixation for adolescent tibial shaft fractures resulted in successful pain free osseous union without increased complications or need for secondary procedures.

Name: Bains, Naina
Mentor Name: Surendra Basti
Project Title: Change in axial length and keratometry over time in adults being evaluated for cataract surgery
Group: 3
Date: 4/3/2024
Time: 9:00 a.m.

Abstract

Cataracts are among the major contributors to global vision loss and blindness. In preparation for cataract surgery, patients undergo ocular biometry in order to quantify parameters that are considered when determining which intraocular lens (IOL) to implant. Current clinical practices favor repeating these biometric measurements in cases where the fellow eye undergoes cataract surgery six months after the original measurement were taken. The purpose of this single-site study was to evaluate changes in ocular biometric parameters commonly used in IOL calculations, axial length (AL) and keratometry (K), over time. Inclusion criteria consisted of patients above 35 years of age with IOL Master 700 biometry measurements taken over 6 months apart between January 1, 2016, and September 15, 2020. Patients were excluded if they had any prior intraocular surgery, other than cataract surgery. Biometric data from 201 patients (402 eyes) with measurements up to four years apart was retrospectively analyzed. Over the mean of 21.5 months between biometries, there was a statistically insignificant change of 0.04mm in AL (95% CI, 0.03 - 0.06, p=0.10), and 0.01D for K (95% CI, -0.03 - 0.04, p=0.50). Patients who underwent biometry between 6 and 12 months, 1-2 years, 2-3 years, and 3-4 years apart did not demonstrate statistically significant changes in AL (ΔAL) or K (ΔK) among any of the time points compared to baseline measurements. Patients were further stratified by degree of myopia and although patients with longer eyes (AL >26.5mm) had larger deviations from baseline, the ΔAL remained statistically insignificant. These results suggest that frequent biometry measurements in preparation for fellow eye cataract surgery may not be clinically necessary, easing the burden on surgeons, patients, and healthcare systems. Future studies with larger sample sizes and longer intervals between biometry are warranted to validate these findings and refine modern clinical practices.

Name: Eddi, Joachin
Mentor Name: Churchill Ihentuge
Project Title: The effect of finasteride on prostate gene E2F2
Group: 3
Date: 4/3/2024
Time: 9:30 a.m.

Abstract:

We investigated the effects of Finasteride on E2F2 gene expression (DNA methylation) and its effects on prostate cancer development. Previous studies have shown that finasteride affects multiple gene expression. It can either upregulate or downregulate them. For this study, we planned to culture central cells of prostate cells in a growth medium containing DMEM with 10% fetal bovine serum (FBS). We divide the cells into control and experimental groups. The experimental group will be treated with 0.5 µM solution of finasteride and the control group will be treated with normal media for 14 days. It has been shown in literature that downregulation of E2F2 gene increases the risk of prostate cancer. For this study we hypothesize that finasteride will upregulate E2F2 gene thereby reducing the risk of prostate cancer. Result from this study can help us understand the genomic effects of finasteride on prostate cancer and could help in future treatments for prostate cancer.

Name: Mada, Sanjana
Mentor Name: Dr. Katherine Serafine
Project Title: Hair cortisol levels among individuals seeking prenatal health care in the US-Mexico border region.
Group: 3
Date: 4/3/2024
Time: 10:00 a.m.

Abstract

Maternal stress is associated with a range of adverse health outcomes such as gestational diabetes and preeclampsia. Pregnant individuals living in border communities might further experience unique instances of heightened stress due to complexities related to immigration and border policies. To explore this, we collected medical information, including data obtained with HIPAA release, from 176 pregnant individuals in the El Paso region. Participants also had the voluntary opportunity to provide hair samples and self-reported surveys assessing sociodemographic variables, health history and measures of emotional distress. This study only accounts for participants health history and cortisol levels. Among the 176 participants, a subset of 62 participants with viable hair samples were assessed. We also examined the incidence of conditions including type I and II diabetes, gestational diabetes, preeclampsia, and COVID-19 contraction during pregnancy. Hair cortisol was analyzed using an enzyme-linked immunosorbent assay (ELISA) kit. The ELISA revealed no statistically significant differences across the groups. However, as compared to normal reference ranges (17.7 to 153.2 pg/mL) from the literature, several participants exhibited high cortisol levels. This elevated stress marker might be attributed to other factors, such as immigration status and perceived stress levels, which are still under investigation. These findings highlight the importance of managing stress-related conditions during pregnancy, as they could have significant implications for both maternal and fetal health. We should address these problems, especially in border communities where unique challenges might exacerbate maternal stress.

Name: Mansour, Sara
Mentor Name: Jessica Chacon
Project Title: Evaluation of TTUHSC EP-HEAT Myth Busters events
Group: 3
Date: 4/3/2024
Time: 10:30 a.m.

Abstract

a. PURPOSE
The Texas Tech University Health Sciences Center El Paso Health Education and Awareness Team (EP-HEAT) was established in 2020, focusing on disseminating bilingual health education material to the community. EP-HEAT consists of TTUHSC El Paso students, faculty, and promotoras, also known as Community Health Workers. These events strive to increase healthcare awareness and connect the community with healthcare resources. EP-HEAT developed events that focus on identifying and dispelling myths in healthcare. Additionally, these events allow students to interact directly with the community and serve as healthcare educators to better prepare them for the community-facing aspects of being a physician and developing a professional identity.
b. METHODS
To enhance the opportunity for students to serve as educators for the community, EP-HEAT established the bilingual “In the Hot Seat with EP-HEAT: Dispelling Myths in Healthcare,” commonly referred to as Myth Busters events. Students work with promotoras to identify healthcare issues relevant to the community, solicit questions from the local community, and organize the Myth Buster event to dispel health misconceptions with the help of an expert. Community members who attended the Myth Buster events received a survey to obtain demographic data, identify the motivation behind attendance, and evaluate the benefit and effectiveness of the event.
c. RESULTS
To date, seven events are included in this study with 154 total responses. Our results showed that 83% of our attendees identified as Hispanic, with 55% older than 46. Eighty-seven percent of attendees felt comfortable teaching the information they learned at events to friends and family, suggesting the students have successfully served as educators.
d. CONCLUSION
Dispelling myths is instrumental for communities with limited access or knowledge of healthcare and diseases. Medical students need to become proficient in interacting with the district, particularly in underserved areas, and allowing them to act

Name: Gonzalez, Devon
Mentor Name: Dr. Pallavi Dubey
Project Title: Determining the physical, hormonal, and metabolic markers of female adolescents having features of PCOS: A retrospective chart study.
Group: 4
Date: 4/3/2024
Time: 9:00 a.m.

Abstract

This study sought to determine the physical, hormonal, and metabolic markers of Mexican-Hispanic female adolescents with features of polycystic ovarian syndrome. PCOS disproportionally plague Hispanic females compared to their non-Hispanic counterparts and is associated with higher rates of cardiovascular disease, infertility, and insulin resistance. The goal was to determine demographic and laboratory markers in females ages 11 to 18 that are associated with an active PCOS diagnosis, features of PCOS including irregular menstruation and hyperandrogenism, when compared to the age-matched Mexican-Hispanic controls from the NHANES 2017-18 database. We performed a retrospective chart review from TTUHSC El Paso's Ob/Gyn and Pediatric clinics EHR database and abstracted a total of 2885 complete charts for subjects meeting the inclusion criteria, and of those, 377 included females under the age of 18 years. 105 subjects had a polycystic ovaries diagnosed on ultrasound while the other 272 subjects had features of PCOS like hyperandrogenism and oligomenorrhea but not Polycystic ovaries. Statistical analysis included descriptive statistics for the various variables, a t-test to determine differences between the two groups for the continuous variables, and a chi-square test for the categorical variables. Findings revealed that subjects were more likely to have a significantly higher systolic blood pressure, diastolic blood pressure, and BMI both with a PCO diagnosis and with PCOS features ($p < 0.001$). Additionally, subjects had significantly elevated triglyceride and LDL levels with a decrease in fasting insulin, laboratory values which correlate with an earlier onset of metabolic syndrome. Hormonally, subject's total testosterone was elevated while sex hormone binding globulin levels were significantly depleted, both patients with a formal PCOS diagnosis and those with PCOS features. Therefore, there is possible value in screening female adolescent patients with elevated vital signs for further metabolic co-morbidities to allow for early intervention to prevent the development and progression of PCOS, knowing the elevated risks for future infertility and cardiovascular disease in adult women with the condition.

Name: Martinez, Anais
Mentor Name: Dr. Arshad M. Khan - UTEP
Project Title: Initial steps towards a rat brain atlas of the female brain: from the MPO to beyond
Group: 4
Date: 4/3/2024
Time: 9:30 a.m.

Abstract:

High-resolution brain mapping allows researchers to study brain structure and how it relates to brain function. By mapping datasets to a standardized reference atlas equipped with stereotaxic coordinates, a reference framework for interrelating datasets between subjects and across experiments separated by space, time, and discipline becomes possible. Unfortunately, existing reference brain atlases are predominantly created using male animal subjects and thus fail to accurately represent sex-based differences in brain anatomy and function. This has led to an incomplete and potentially skewed understanding of neural processes and brain-related disorders that hinder the development of effective prevention, diagnostic and treatment strategies for conditions that disproportionately affect women. As such, it is necessary to develop a reference space that accurately depicts sex-based differences in the brain for a more accurate representation of data sets within the field of neuroscience. This study aimed to initiate the development of a standardized rat brain atlas of the female rat brain, beginning with a characterization of the medial preoptic area (MPO), a well-established sexually dimorphic brain region within the mammalian brain. Guided by a systematic review of the literature for cytoarchitecture evidence of MPO structure, preliminary steps were made towards generating high-resolution, wide-field maps of the MPO using the adult, female, Sprague-Dawley rat as an animal model. As a proof of concept, the generation of standardized reference maps with stereotaxic coordinates should allow for direct comparisons between data sets currently mapped to the Swanson rat brain atlas of the adult male Sprague-Dawley rat, and thus improve our understanding of the role the brain plays in human health and disease between the biological sexes.

Name: Perkins, Mariah
Mentor Name: Anna Eiring
Project Title: Role of G0S2 as a negative regulator of mitochondrial metabolism in Acute Myeloid Leukemia (AML)
Group: 4
Date: 4/3/2024
Time: 10:00 a.m.

Abstract:
As research continues to push forward, the genomic landscape of cancer has become the next frontier in targeted therapies and management. In the context of Acute Myeloid Leukemia (AML), we set out to investigate the hypothesis that G0S2 acts as a negative regulator of metabolism, thus influencing the disease's progression. Assessing publicly available data from The Cancer Genome Atlas, we discovered that G0S2 mRNA is significantly downregulated in AML compared to normal mononuclear cells, with a more pronounced reduction in AML patients with mutated FLT3+. Further experimental investigations revealed that ectopic G0S2 expression impairs the survival of primary AML and induces apoptosis, with a notable effect in FLT3+ AML. Importantly, this ectopic G0S2 expression was associated with a reduction in the expression of electron transport chain complexes III and V, indicative of G0S2's involvement in the regulation of energy metabolism. This study sheds light on the multifaceted role of G0S2 in AML, suggesting its potential as a therapeutic target for AML by interfering with cellular metabolism and promoting programmed cell death.

Name: Rereddy, Rohan
Mentor Name: Dr. Sarah Walker
Project Title: Management Strategies of Trichobezoars in the Pediatric Population: A Qualitative Review of the Literature
Group: 4
Date: 4/3/2024
Time: 10:30 a.m.

Abstract:

Trichobezoars are concretion composed of hair and hair-like material that grow over time becoming symptomatic and posing a risk of various complications like GIT (gastrointestinal tract) obstruction, GIT hemorrhage, and GIT perforation leading to sepsis and possibly death. This condition often presents in the pediatric population, with especially high incidence in young females. This condition is also highly associated with a psychiatric history, presenting co-morbid with trichotillomania and/or trichophagia. In the literature, three methods are commonly described as choices for treatment and management of trichobezoars in the pediatric population: specifically, endoscopy, laparoscopy, and open laparotomy. While extensive review has been done in the past in reviewing which of these methods should be standard of care, in the 13 years since laparotomies have been described as the treatment of choice more practitioners have taken minimally invasive approaches through laparoscopy and endoscopy and have been extremely successful. We present an updated current review of the literature spanning the last 23 years and covering 109 cases. According to our results, while open laparotomies are still widely used and associated complications rates have dropped significantly, minimally invasive approaches, specifically newly innovated laparoscopic methods and techniques have shown great efficacy with no complications. We recommend approaching pediatric treatment of the trichobezoar first through endoscopic evaluation, then if required, definitive treatment through a 1-3 port laparoscopic approach. This is more beneficial to the pediatric population as there is less exposure to open operative risk and significantly better post-operative cosmesis is achieved. We also strongly recommend thorough psychiatric consultation with consistent follow up to prevent relapse/recurrence.

Name: Aboudawoud, Omar
Mentor Name: Pallavi Dubey
Project Title: Reemergence of Congenital Syphilis in the United States: A Narrative Review
Group: 5
Date: 4/3/2024
Time: 9:00 a.m.

Abstract:
Congenital syphilis, a preventable and deadly disease, has witnessed an alarming resurgence in the US in recent years, posing a vital public health challenge. Historically, effective prevention and treatment strategies led to a decline in congenital syphilis, and some believed that it could be eradicated. However, inadequate prenatal care, limited access to healthcare services, and gaps in syphilis screening programs have led to a resurgence of congenital syphilis. In this narrative review, we aim to highlight the key factors contributing to the reemergence of congenital syphilis and its implications on maternal and child health.

Name: Campbell, Kayla
Mentor Name: Ricardo Belmares, Diana Pettit
Project Title: Medical students' perception on radiology education in medical school
Group: 5
Date: 4/3/2024
Time: 9:30 a.m.

Abstract:
The goal of this project is to investigate the perceived efficacy and satisfaction of the radiology education provided during first through fourth years at Paul L. Foster School of Medicine (PLFSOM). The investigation includes utilizing a single electronic survey sent to all medical students at PLFSOM. This survey utilizes Likert Scale questions to evaluate student satisfaction on the radiology education they have received until their current point in medical school as well assessing confidence in interpreting different imaging modalities. Multiple choice questions will also assess students' preferred method of learning radiology and the primary method of teaching radiology at their school. Responses to the survey will be analyzed and used to gauge the satisfaction of medical students with the radiology education in medical school. This data will also be used to guide the allocation of resources to provide resources that students are more apt to use, therefore improving student understanding and confidence in radiology.

Name: Hernandez, Carlos
Mentor Name: Dr. Benjamin Childs
Project Title: A High Proportion of Orthopaedic Hand Trauma Transfers are Unnecessary
Group: 5
Date: 4/3/2024
Time: 10:00 a.m.

Abstract:

The transferring of patients to higher acuity care centers is common in many healthcare systems, including our own. Hand injuries are common pathologies for transfers, with some requiring emergent interventions, while others may not require a higher level of care. This systematic review intends to present existing literature on hand pathology transfer to higher acuity care centers with the primary outcome being the appropriateness of transfer. Secondary and tertiary outcomes of this review include other factors associated with transfers and costs associated with these transfers.
We conducted a systematic review using Google Scholar via Harzing PoP software. We included English language articles from the United States that described the appropriateness of hand transfers. The search produced 273 articles regarding “hand transfers” of which 6 were used for the review with an additional 5 included that were found outside of the software search.
It was found that a significant amount of hand trauma transfers were inappropriate and were associated with uninsured or underinsured patients. Other associated findings involving the appropriateness of transfers were the time of day, and type and complexity of the injury. This may have a significant clinical and financial impact on the patients as well as institutions

Name: Torres, Robin
Mentor Name: Stormy Monks
Project Title: How a Pandemic can Change the Utilization of Emergency Departments for Non-Emergent Concerns: A Survey Study
Group: 5
Date: 4/3/2024
Time: 10:30 a.m.

Abstract:

During the height of the COVID-19 pandemic, a notable decline in patient volume was observed in emergency departments (EDs) nationwide. This study was prompted by the recognition that a significant proportion of ED visits prior to the pandemic were attributed to non-emergent concerns, raising the question of whether patients were refraining from such visits due to health concerns associated with COVID-19 transmission or other factors. To address this inquiry, we conducted a survey that aimed to gauge patients' perspectives on their ED utilization, both during and before the pandemic, specifically concerning non-emergent issues. Our analysis, encompassing data from March 12, 2022, to August 12, 2022, revealed that patients presenting to the ED during this period expressed a preference for continuing to seek care for non-emergent concerns despite the prevailing COVID-19 pandemic. Moreover, more than half of the respondents indicated their intention to persist in using the ED for non-emergent matters even after the pandemic subsides. Remarkably, our investigation did not reveal a significant difference in patient attitudes toward ED utilization before and after the pandemic. These findings provide valuable insights into patient behavior and preferences during a public health crisis, offering important considerations for healthcare policy and practice.

ABSTRACTS
October 12
9:00 a.m. – 12:00 p.m.

Name: Ikeler, Jordan
Mentor Name: Dr. Diana Pettit
Project Title: To have practicals or to not have practicals? That is the question
Group: 6
Date: 4/4/2024
Time: 9:00 a.m.

Abstract:
This is a survey-based study that investigates the Foster School of Medicine's Class of 2025 and Class of 2026 medical student opinions regarding their pre-clerkship anatomy course curriculum and method of testing. The aim of this study is to understand how the implementation of anatomy practical for testing anatomical concepts impacted medical student knowledge and understanding of said concepts as well as how it compared to the previous curriculum set up. Results showed that the Class of 2025, composed of students who experienced both versions of the anatomy curriculum, have a somewhat favorable to favorable opinion of the changes made to the anatomy course. Results showed that the Class of 2026, composed of students who have only experienced the anatomy curriculum with practical exams in place, have a strongly favorable opinion of the anatomy course. Both classes did state some changes that they feel would improve the course even further including changes to the pre-lab work, focusing more on high-yield structures, and providing more concise study material. This study is important to analyze the impact the change in curriculum is having on student satisfaction and mastery of anatomical concepts. Further study regarding this topic would be to correlate student opinion on the new testing method to anatomy exam scores on summative exams before and after the implementation of the anatomy practicals.

Name: Lopez Valdez, Nohemi
Mentor Name: Dr. Maureen Francis
Project Title: Evaluating Food Insecurity at a Medical Student-Run Clinic on the Texas-Mexico border
Group: 6
Date: 4/4/2024
Time: 9:30 a.m.

Abstract:

Food insecurity is defined as inability to access nutritious food due to household socioeconomic hardship. In the United States, it is estimated that 13.5 million households (10.2% of total households) were food insecure at one point during 2021. During that same year, the El Paso County in Texas had a food insecurity rate of 15%. Food insecurity is an important social determinant of health that has been associated with numerous negative health outcomes, including worse general health in children and higher rates of depression in children and adults. Previous studies measuring food insecurity at student-run free clinics and federally qualified health centers across the nation have revealed critical food insecurity rates ranging from 46% to 83% in underserved patient populations. The purpose of this study was to (1) measure the prevalence of food insecurity at a student-run free clinic on the Texas-Mexico border, (2) evaluate patient demographics as it relates to food security, and (3) assess patient thoughts towards food security screening. The study consisted of a cross-sectional survey study conducted at the Medical Student Run Clinic (MSRC) in El Paso, Texas. Food security status was measured using the 10-item United States Department of Agriculture (USDA) Food Security Survey module, and patient attitudes were evaluated using the “Food Insecurity in Primary Care: Patient Perception and Preferences” survey by Kopparapu et al. All adult patients presenting to the clinic for a medical visit were invited to participate in the study. Survey responses were analyzed using descriptive statistics. Our study found a food insecurity rate of 44% among the MSRC patient sample. Survey responses also showed that most patients had a positive perception toward food security screening, including that they would feel better understood and comfortable sharing the truth when asked about access to food. This study highlights the significant health disparity of food insecurity present in underserved communities and encourages clinical providers to regularly screen and address this social determinant of health during routine medical visits.

Name: Lucker, Joseph
Mentor Name: Neha Sehgal
Project Title: Retention through Didactics of Mass Casualty Incident Triage
Group: 6
Date: 4/4/2024
Time: 10:00 a.m.

Abstract:

Mass Casualty Incidents (MCI) are events that result in patient surges that threaten to overwhelm local healthcare capacities [1]. During these events, patients may be triaged in the field by Emergency Medicine Services (EMS) to prioritize and optimize treatment. Since these events may occur at any time and without warning, it is critical that Emergency Medicine (EM) residents be able to quickly identify triage criteria and re-triage patients in the hospital.
A didactic model was used to evaluate its utility in teaching residents how to properly interpret triage tags and how to re-triage patients once in the hospital. Quantitative quizzes were used before and after the didactic lesson to evaluate performance on these applications. The results of this study did in fact show that didactics are a useful modality to teach EM residents how to interpret and triage patients during a MCI. Due to the unpredictable nature of an MCI, it is imperative that all resident physicians in the emergency department be well versed in this skill.

Name: Mohan, Vamsi
Mentor Name: Laura Monson -
Project Title: Plastic Multilayer Closure: Orthopedic Surgeons and Plastic Surgeons Achieve Comparable Outcomes
Group: 6
Date: 4/4/2024
Time: 10:30 a.m.

Abstract:
Since 2015, the plastic multilayer closure (PMC) has been gaining traction over other techniques, including orthopedic surgeon closure (OSC), as the preeminent method of incision site closure following spinal fixation in pediatric neuromuscular scoliosis (NMS). Traditionally, orthopedic surgeons performed both the surgical repair and OSC, however, PMC involves both plastic and orthopedic surgery in a two-stage process. Following fixation, plastic surgeons mobilize the paraspinal muscle flaps over the spinal hardware, creating a protective, tension-free closure with significantly decreased rates of postoperative wound complications compared to OSC. While associated with highly favorable outcomes, PMC requires more extensive surgical expertise and longer operative times. From 2016 to 2019, our institution implemented a perioperative protocol designed to decrease postoperative complication rates in NMS patients. Through rigorous preoperative patient optimization, strict adherence to intraoperative protocols, and diligent postoperative observation, surgeons performing OSC may be able to attain postsurgical outcomes on par with those seen following PMC.

Name: Zaidi, Syed
Mentor Name: Dr. Chambers MD
Project Title: Upgrade of Fibroepithelial Lesions to Phyllodes Tumors; Benign, Borderline, and Malignant
Group: 6
Date: 4/4/2024
Time: 11:00 a.m.

Abstract:

Fibroepithelial breast lesions present a significant diagnostic challenge in clinical practice due to their wide range of pathology. This spectrum can include benign fibroadenomas all the way to potentially malignant phyllodes tumors. Given the complexity involved, the current standard of care requires the use of surgical excisional biopsy to obtain definitive characterization of these lesions. This study aimed to investigate the rate at which benign fibroepithelial lesions progress to phyllodes tumors after surgical excision in the greater El Paso area. Additionally, it sought to determine whether the occurrence of upgraded lesions differs significantly from what is generally accepted in medical consensus. By evaluating the rate at which these tumors occur, it is possible to determine if some patients can opt for surveillance instead of undergoing the need for surgical excision.
We conducted a retrospective chart review of 118 patients with 128 fibroepithelial lesions identified via core needle biopsy between 2015 and 2021 in the El Paso area. These were subsequently excised and histologically examined. Our findings revealed that 65.08% (n=82) of lesions remained classified as benign fibroadenomas, while 34.92% (n=44) were upgraded to phyllodes tumors, of which 28.57% were benign, 5.56% borderline, and 1.59% malignant. Our data suggest that the rate of upgraded lesions is similar to what has been seen in prior studies, indicating that the current standard of care is appropriate. Future research should focus on identifying histological markers that predict the likelihood of upgrade, potentially sparing select patients from unnecessary surgical intervention. This study underscores the importance of surgical excisional biopsy in the accurate diagnosis of fibroepithelial breast lesions, while also highlighting the need for further research to refine patient selection for this invasive procedure.

Name: Holguin, Simon
Mentor Name: Jennifer Mitchell, M.D.
Project Title: Comparison of Body Composition of NCAA Division1 Women's Soccer Student Athletes by Player Position Using DEXA Scan
Group: 7
Date: 4/4/2024
Time: 9:00 a.m.

Abstract:

This project was designed to use dual-X-ray absorptiometry (DEXA) data to determine whether statistically significant differences exist in the body composition of NCAA Division 1 female soccer student-athletes based on their player position. The body composition data focused on body fat percentage and lean mass of the pelvis and lower extremities. Fundamentally, sparse research exists on this topic. This study was designed to analyze data previously compiled on student-athletes with the goal of seeking potential insights which might be utilized by those involved in their health and training. The research subjects were student-athletes from a university women's soccer team who had voluntarily opted to receive DEXA scans intermittently over the course of their collegiate careers on the same machine owned by the university. Data was compiled only from sophomores and above because these players had at least one year of collegiate strength and conditioning training which would likely increase lean body mass and enhance muscle to fat ratios. A total of 35 players were categorized into forward (n = 11), midfielder (n = 14), goalkeeper (n = 2), and defender (n = 8). Height, weight, total fat percentage, total lean mass, pelvic lean mass, right leg lean mass, and left leg lean mass were recorded for each participant. IBM SPSS was used to run one-way ANOVA tests on the data.
The hypothesis was that midfielders would have the lowest body fat and highest lean mass because they have been shown in previous studies to run the most throughout a match. However, the only statistical differences noted were in pelvic lean mass with midfielders having higher values than forwards and goalies also having higher values than forwards. This data is significant in that it may contribute to adjusting training protocols and further observing relationships between physique traits and athletic performance. A larger sample size would be needed to verify the noted data relationships.

Name: Palfreeman, Matthew
Mentor Name: Dr. Ricardo Belmares
Project Title: When embryology meets the clinical: the case of the kidney with 5 ureters
Group: 7
Date: 4/4/2024
Time: 9:30 a.m.

Abstract:
Anatomical anomalies have their origin in embryology and quite often they have very little effect on the person even when they become adults or enter senescence. In this case, a 72-year-old female cadaver had a kidney with 5 ureters. We know that duplication of ureters is relatively uncommon but has been reported in many instances. The reports of duplication usually come to light because complications, such as obstruction or urinary incontinence, arise. Triplication of ureters is a rarer finding but there are multiple case reports all with similar complications. There have been very few reports in the literature of one patient or cadaver having a kidney with five (5) ureters. The case report, “Five Ureters: A Case Report” by C. Peterson and M.L. Silbiger, was published in The Journal of Urology in 1968. Documentation of five (5) ureters is a very rare occurrence and worth documenting.
In this case, there is a 72-year-old female cadaver with her left kidney projecting 5 ureters to later combine to form a single ureter. Little is known about her clinical history and if this anomaly had any impact on her health. Due to the scarcity of reports on this type of anomaly in the literature, one goal of presenting this anomaly is to generate discussion and investigate if anyone else has seen or known about this anomaly. It would also help to evaluate any possible clinical implications.

Name: Trinh, Kaitlynn
Mentor Name: Moataz Ragheb
Project Title: A qualitative analysis of patterns of communication style errors in medical students and junior residents in early training
Group: 7
Date: 4/4/2024
Time: 10:00 a.m.

Abstract:

Objective: Competency in communication with patients is indispensable for all physicians to develop rapport and improve patient healthcare outcomes. This study aims to identify communication deficits in medical students and first-year psychiatry residents while conducting patient interviews during their early clinical training.

Methods: A total of ten interviewers, including five third-year medical students and five psychiatry interns, participated in the study. The authors recruited all participants via email. The authors conducted a descriptive analysis of qualitative data to assess the interviewers' interactions with a simulated patient. Two independent researchers analyzed the interviews using a structured observational sheet, and transcripts were used for coding to identify communication patterns. Areas of observation and scoring included behaviors of the interviewers in terms of volume, tone, clarity, changeability of voice, active listening, using open-ended questions, empathic responses, body language, and cultural sensitivity.

Results: Communication challenges were identified in students and residents when interacting with patients expressing grief and trauma. The three major communication patterns include 1) Avoidance, defined as quickly moving on to the following medical question after the patient expresses grief or sadness during the interview without addressing the patient's remarks; 2) disengagement, characterized by disconnected body language; and 3) the absence of empathetic responses, including verbal and nonverbal cues.

Conclusions: Recognizing these subtle communication deficits in early trainees, developing general guidelines addressing these patterns, and integrating them into the home institution curriculum can improve communication competency in students and residents and, ultimately patient satisfaction.

Name: Wolf, Tyler
Mentor Name: Karinn Chambers
Project Title: Serratus Anterior Nerve Block in Conjunction with Mastectomy and the Need for PostOperative Narcotics: A Prospective Control Trial (Serratus Anterior Nerve Block in Conjunction with Mastectomy and the Need for Post-Operative)
Group: 7
Date: 4/4/2024
Time: 10:30 a.m.

Abstract:

Background. The expected increase in persistent post-operative pain following breast surgery in the context of increases in opioid abuse has emphasized the need for assessment of alternative pain management therapies. Among the most promising modalities are pre-operative or intra-operative nerve blocks. The primary objective of this study is to determine whether an ultrasound-guided serratus anterior nerve block is effective in reducing the use of opioid pain medications after mastectomy with and without reconstruction.
Methods. Patients undergoing bilateral or unilateral mastectomy were randomized into two groups: one group receiving a pre-operative nerve block in the deep and superficial planes of the serratus anterior muscle and a second group receiving the standard multimodal pain regimen. Patients' utilization of post-operative narcotic medications were noted for one year following surgery. Results were analyzed using descriptive statistics.
Results. Fifty-one patients were enrolled in the study, of them 26 were randomized to the serratus anterior nerve block group, while 25 were treated with standard multimodal pain therapy. Of these patients 16 also underwent reconstruction. Three of the patients undergoing reconstruction required narcotics, 2 of these patients received the serratus anterior nerve block.
Conclusions. The study did not demonstrate a difference in either the primary or secondary outcomes for patients receiving the ultrasound-guided nerve block compared to the standard pain management regimen.

Name: Floresca, Ryan
Mentor Name: Dr. Alberto Maud/ Dr. Faheem Sheriff
Project Title: Clinicopathologic analysis of Covid-19 associated thrombi in the setting of large vessel occlusion: A prospective case-control study.
Group: 8
Date: 4/4/2024
Time: 9:00 a.m.

Abstract:

Acute ischemic stroke secondary to large vessel occlusion is among the most serious complications associated with COVID-19 infection resulting in worse morbidity and mortality. We sought to study the association between COVID-19 infection and large vessel occlusion thrombus pathology to better define the etiopathogenesis of this atypical cause of stroke. Thrombi were collected during mechanical thrombectomy and stained using hematoxylin and eosin. Blinded analysis of pathology was prospectively performed by a board-certified neuropathologist. Red blood cell, fibrin, and white blood cell predominance was ascertained. Concomitant peripheral blood counts and clinical and imaging data were collected and analyzed. All samples underwent performance of reverse transcription polymerase chain reaction for SARS-CoV2.
Between January 2020 and February 2022, a total of 952 acute ischemic stroke admissions were seen at the University Medical Center of El Paso, TX. Of these, 195 patients (20.5%) had large vessel occlusions and underwent mechanical thrombectomy and 53 patients had thrombus collected and analyzed. Seven patients (3.6%) tested positive for SARS-CoV2. COVID-19 positive patients were more likely to be younger (mean 57.4 years; P=0.07), male (85.7%; P=0.03), and have red blood cell predominant thrombi (85.7%; P=0.03). There was a statistically significant association between peripheral neutrophil count and white blood cell lysis in the overall cohort (P=0.015), who did not differ according to COVID-19 status.
Thrombi retrieved from patients who were COVID-19 positive and had stroke demonstrated red blood cell predominance. This was significant because it was suspected COVID-19 thrombi would be fibrin-rich, but in fact were RBC-rich. This can lead to possible treatment options in the future for therapies focused on improving RBC deformability. Our requires further investigation using appropriate immunohistochemical techniques in a larger cohort of patients

Name: Tiula, Kira
Mentor Name: Dr. Dihowm
Project Title: Prophylactic anticoagulation use associated with decreased mortality compared to therapeutic anticoagulation use in Hispanic patients hospitalized for COVID-19
Group: 8
Date: 4/4/2024
Time: 9:30 a.m.

Abstract:

The Hispanic population has been disproportionately affected by the COVID-19 pandemic which has highlighted the notable health disparities in minority populations. Although respiratory failure is the major cause of death from COVID-19, coagulopathies and thromboembolic events also account for deaths due to the virus. The updated guidelines by NIH recommend the use of anticoagulants for hospitalized patients with COVID-19. Previous studies have not found that there is a significant difference in mortality in patients who received prophylactic versus therapeutic anticoagulants. This retrospective cohort study analyzed 1478 Hispanic patients hospitalized in El Paso, Texas due to COVID-19 and revealed that prophylactic anticoagulants were associated with a 59% decreased risk of death (RR: 0.41, p-value <.001) and a 15% reduced risk of ICU transfer (RR: 0.848, p-value =0.031) compared to therapeutic anticoagulants. Although the paper discusses possible confounding factors that could have affected these results it also underscores the need for further research in more controlled and larger-scale studies in specific minority populations.

Name: Trevino, Danielle
Mentor Name: Dr. Rebecca L. Campos
Project Title: Investigating the Role of Common Herbal Teas for Gastrointestinal Ailments in El Paso, Texas
Group: 8
Date: 4/4/2024
Time: 10:00 a.m.

Abstract:

Herbal medicine is defined as utilizing active ingredients derived from whole plants or plant parts such as leaves, stems, roots, seeds, or flowers for therapeutic treatment and prevention. Herbal medicine is a specific type of complementary and alternative medication (CAM) that has become increasingly popular in the United States and developing countries since most of these herbal remedies can provide a cheaper, natural alternative compared to conventional treatment (Lu and Lu, 2014). Also, herbal supplements are often easier to access for uninsured or low-income patients coming from Mexico and other developing countries. Although herbal medicine is deeply rooted in Hispanic culture, dating back to the 16th-century publication of the famous Aztec De La-Cruz-Badiano Codex, herbal remedies are still considered a supplement in the United States and are not regulated by the Food and Drug Administration (Stuart, 2020). With no quality assurance or strict regulations in place to ensure proper manufacturing and preparation of herbal supplements, this creates an opportunity for unsafe, falsely labeled, and low-quality products to make their way into stores and trusted company websites.

Name: Trinh, Benjamin
Mentor Name: Benjamin Trinh
Project Title: The Cost of Hospitalized Orbital Cellulitis Infections in Texas, 2016-2020
Group: 8
Date: 4/4/2024
Time: 10:30 a.m.

Abstract:

Purpose: As hospitalization costs continue to uptrend, optimizing inpatient care and reducing healthcare-related expenses is necessary. Effort toward this aim requires a clear understanding of the direct financial burden of preventable medical conditions, such as orbital cellulitis (OC). This study aimed to provide a profile detailing the demographics and financial cost of surgical management of OC.
Methods: Retrospective cohort study using the Texas Hospital Inpatient Discharge Public Use Data File, 2016–2020. Patients hospitalized for ocular infection were identified using ICD-10-CM codes. Baseline data consisted of demographic information, hospitalization year, risk factors, length of hospital stay, ocular diagnosis, surgical procedure, and total charges incurred.
Results: Between 2016-2020 there were 2,674 patients hospitalized with OC, with 20.08% having undergone surgical management. Of the total cohort, 68.29% were adults, 55.77% were males, and 68.88% were not of Hispanic ethnicity. Multivariate regression analysis revealed that most hospitalized cases were categorized as emergent (69.86%) or urgent (19.97%), with an increased risk of mortality (major-extreme) in adults (41.35%) compared to the pediatric population (15.09%) ($p<.001$). No statistically significant trend was observed in the total number of cases between 2016-2020. The median total charges demonstrated an increased trend, ranging between $30,051 in 2016 and $40,028 in 2020 ($p<0.001$), with an average total cost of $84,949. However, total OC surgical treatment cost was significantly higher for adult populations ($39,458) than for pediatric populations ($30,574) ($p <.001$).
Conclusion: We report that hospitalized patients are more likely to be categorized as emergent or urgent, requiring critical management with or without surgery. Despite the total number of orbital cellulitis hospitalizations remaining stable, the total cost incurred for the management of OC demonstrates a significant positive trend, especially for those requiring surgical intervention

Name: Dworkin, Emily
Mentor Name: Dr. Maharaj
Project Title: Pulmonary Blastoma in Young Adult Patient: A Case Report with Systemic Literature Review
Group: 9
Date: 4/4/2024
Time: 9:00 a.m.

Abstract:

Pulmonary Blastoma is a rare lung tumor, comprising between 0.25-0.5% of all primary lung tumors.

Due to the rarity of this pathology there is no established standard treatment guideline. Surgical resection is the mainstay of treatment for localized malignancy (Luo 2020). Adjuvant use of chemotherapy and radiotherapy has been used on a case-by-case basis. For metastatic disease chemotherapy is necessary, however again due to its rarity there is no guidelines on specific regimens (Tsamis et al). Recent developments with the use of molecular sequencing on tumors has opened up the possibility of treatment-targetable mutations (Tsamis et al). We herein present a case of a 22-year old female diagnosed with biphasic pulmonary blastoma. Review of relevant literature, along with discussion on how our case contributes to our collective knowledge on the subject, will follow.

Name: McWilliams, Andrea
Mentor Name: Dr. Rebecca Campos
Project Title: Examining Parental Education Level and Knowledge of Female Reproductive, Sexual, and Preventative Health in a US-Mexico Border City
Group: 9
Date: 4/4/2024
Time: 9:30 a.m.

Abstract:

The annual women's health examination is a crucial element of preventive care for women, and it plays a vital role in promoting the overall well-being of the El Paso, Texas community. Given the unique demographics and geographical position of El Paso on the US-Mexico border, it is imperative to investigate factors that may present challenges to the awareness and accessibility of women's healthcare. This project specifically focused on examining the influence of parental education levels on the knowledge of female reproductive, sexual, and preventive health among study participants, as well as their knowledge enhancement following an educational seminar. Anonymous pre and post surveys were collected and analyzed to determine whether significant differences existed between participants with low versus high levels of parental education. The results indicated that there were no statistically significant differences in survey responses between these two groups. While this suggests that the El Paso community may already possess a strong understanding of women's health, it is essential to note that a more extensive and representative sample from the El Paso population is required to fully comprehend the impact of parental education levels on women's health awareness. This research is crucial for ensuring that comprehensive and effective education is provided to the community if needed.

Name: Montgomery, Andrew
Mentor Name: Norman Ward M.D.
Project Title: Systematic Review of the Multimodal Care of the Diabetic Foot Ulcer
Group: 9
Date: 4/4/2024
Time: 10:00 a.m.

Abstract:

Gunshot injuries are a growing concern in the United States, garnering global attention from politicians, celebrities, health care professionals, and activist groups. Ballistic injuries can be difficult to treat and pose several challenges to the surgeon. Complications include neurovascular injury, soft tissue damage, infection, and retained foreign bodies. These challenges contribute to the risk of nonunion in addition to other comorbidities such as diabetes, peripheral artery disease, nicotine use and so on. Nonunion is defined as the arrest or delay of fracture repair. It can be classified by etiology: septic, atrophic/oligotrophic, and hypertrophic. These complications require that the underlying cause is addressed. It can result in repeat operations, hardware exchange and an increase in financial burden to the patient. The following patient re-presented to the emergency department (ED) with pain at his fracture site and radiographic evidence of hardware failure and minimal bone callus, indicating nonunion of the fracture. After airway complications delayed his revision surgery, the implant fully broke by the next operation date. Surgical exploration revealed the plastic wadding of the shotgun shell embedded in the fracture site encased in hypertrophic bone. It was proposed that this foreign body significantly impacted this patient's progression to hypertrophic nonunion. We set out to search for what degree foreign bodies contribute to nonunion in gunshot fractures.

Name: Sanchez, Diego E
Mentor Name: Benjamin Childs
Project Title: Distal tibia physeal fractures: a scoping study into cost-analysis.
Group: 9
Date: 4/4/2024
Time: 10:30 a.m.

Abstract:

Objectives: The purpose of this study is to assess existing cost analyses of pediatric distal tibial physeal fractures and how existing literature regarding this fracture pattern assesses cost.
Design: Scoping review.
Main outcome measurement: Cost, cost reduction, cost effectiveness, Salter-Harris, initial fracture displacement, adherence to Ottawa Ankle Rules, number of attempts to reduce the fracture, follow-up characteristics.
Results: Two searches were completed: "distal tibial physeal fracture teen" and "((pediatric) OR (children) OR (adolescent)) AND ((ankle) OR (physeal)) AND ((fracture) OR (injury)) AND (radiography) AND (cost)" which resulted in 106 total starting records with 7 articles including cost analysis. There was not sufficient information to create an estimate for cost. From the articles we had reviewed we summarized key findings that would lead to operative treatment of distal physeal tibial fractures as well as screening tools to find high risk fractures.
Conclusion: Of 41 relevant studies, only seven mentioned pediatric physeal ankle fracture costs. Most of these studies mentioned decreasing cost by reducing the need for imaging. There is a lack of research regarding the cost or cost-effectiveness of distal tibial physeal fractures. Based on other surgical interventions, the cost can be decreased through lower complication rates, decreased LOS, decreased readmissions, and a cost-effective based decision tree to better educate physicians and patients. There appears to be little communication between orthopaedics and emergency medicine.

Name: Bharadwaj, Keshav
Mentor Name: Jessica Chacon
Project Title: Busting myths in healthcare: Establishment of a bilingual health education platform in a border community and its impact on medical students
Group: 10
Date: 4/4/2024
Time: 9:00 a.m.

Abstract:

The TTUHSC El Paso Health Education and Awareness Team (EP-HEATTM) has had an ongoing project (Busting Myths in Healthcare) that consists of collaborations between the El Paso community, Promotoras (Community health workers), medical students, and community healthcare experts to identify and dispel myths in healthcare utilizing bilingual talk-show style question and answer sessions. Previous studies analyzed the project's impact on the El Paso community, but questions persisted about programs impact on medical student professional development.
Medical students that participated in Busting Myths in Healthcare project were emailed an anonymous Qualtrics survey to assess if student professionalism, communication, networking, and teambuilding improved after participating in the events. Surveys consisted of questions related to demographics, Likert – like questions about professional development, and open-ended reflections on participation experience, challenges, and feedback for quality improvement. After analysis of surveys, we found that participation improved medical student professional development, team building, communication skills, networking, and medical students' ability to relate with the El Paso community.

Name: Downey, Alyssa
Mentor Name: Dr. Rebecca Campos
Project Title: Assessing the potential impact of women's health educational seminars on the El Paso community
Group: 10
Date: 4/4/2024
Time: 9:30 a.m.

Abstract:

Women’s health is a difficult topic to discuss, particularly among Hispanics. Low health literacy and anxiety regarding annual examinations further increase disparities in this population. The city of El Paso, Texas, a predominantly Hispanic population, continues to suffer with high rates of STI infections and teen pregnancies. Fortunately, several educational programs have proven to be effective in bridging gaps in medical knowledge throughout the United States with the hopes of decreasing these adverse events. This study aimed to evaluate the impact of presentations on the knowledge of college students regarding women’s health and the annual women’s health examination in El Paso, Texas. Pre- and post-surveys were administered before and after the presentation, respectively, to assess any changes in participant knowledge. Scores were assigned to each survey response and compared by subtracting the score pre-survey from the score post-survey. Mean score improvement was 3.64 with a P value <0.001. The results of this study demonstrate that educational presentations are effective in improving knowledge of participants. Future efforts should include a much larger number of participants from various education backgrounds and examine further individual barriers to healthcare.

Name: Khan, Ahmed
Mentor Name: Dr. Ricardo Belmares
Project Title: Characterization of Collagen Depostion around the Human Iris
Group: 10
Date: 4/4/2024
Time: 10:00 a.m.

Abstract:

Primary Open Angle Glaucoma (POAG) is a lifelong ocular disease that progressively worsens, eventually leading to vision loss, and is the second leading cause of blindness worldwide after cataracts (but is nonetheless the leading cause of irreversible blindness). The disease affects over 57 million people globally (Allison, 2021). Studies have shown just how underdiagnosed glaucoma is (Shaik 2014)(Heijl 2013). It has been demonstrated that in glaucoma, there are fibrosis and extracellular matrix (ECM) changes in the trabecular meshwork (TM) around the iris. The TM is responsible for draining the aqueous humor, a fluid that fills the anterior segment of the eye and is produced by the ciliary body, so that the pressure of the eye remains stable. The collagen deposition and fibrosis into the TM blocks the drainage of the aqueous humor, increasing the intraocular pressure of the eye, which transmits throughout the entire eye and into the optic nerve (Belmares 2018). The ECM changes in the TM that occur in glaucoma, normal aging, along with a large population of undiagnosed patients, emphasize the importance of describing the TM histologically. Although studies have attempted to visually describe the TM, here, we attempt to visualize the extent and pattern of collagen distribution in the TM throughout the complete circumference of the anterior segment of the iris coronally, as this has previously not been seen.

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Mentor Name: Alok Dwivedi, Ph.D, Munmun Chattopadhyay, Ph.D
Project Title: Effectiveness of HMG-CoA reductase inhibitors on inflammation and metabolic markers in the US-Mexico border Hispanic population
Group: 10
Date: 4/4/2024
Time: 10:30 a.m.

Abstract:
HMG-CoA reductase inhibitors (statins) are commonly used for dyslipidemia management to reduce the risk 37 of cardiovascular disease (CVD). High-sensitivity C-reactive protein (hs-CRP) is an emerging systematic low-grade 38 inflammatory marker associated with atherosclerotic CVD development. Despite racial/ethnic disparities in the use 39 and response of statins and the anti-inflammatory effects of statins, the effectiveness of statins on inflammation and 40 metabolic markers is unknown among Hispanics. We performed a retrospective cohort study using 150 adult patients 41 scheduled for an annual physical exam at a family medicine clinic between January 1, 2021, and December 31, 2021. 42 Effect size with a 95% confidence interval (CI) was estimated using adjusted regression analyses. Among 150 patients, 43 52 (34.67%) received statins. Patients who received statins had significantly reduced median hs-CRP (1.9 vs. 3.2, 44 p=0.007), mean low-density lipoprotein (LDL-C) (101.18 vs. 124.6, p<0.001), and total cholesterol (172.6 vs. 194.5, 45 p<0.001) concentrations compared to those who did not receive statins. In the propensity-scores matched analysis, 46 lower concentrations of log-transformed hs-CRP (regression coefficient [RC], -0.48; 95%CI: -0.89, -0.07), LDL-C 47 (RC, -19.57; 95%CI: -33.04, -6.1), and total cholesterol (RC, -23.47; 95%CI: -38.96, -7.98) were associated with statin 48 use. In addition, hepatic steatosis (adjusted relative risk [aRR]=0.25; 95%CI: 0.08, 0.78, p= 0.017) was significantly 49 lower among patients with the use of statins. Our study suggests that HMG-CoA reductase inhibitors may help reduce 50 inflammation among Hispanic patients with dyslipidemia and hypertension. These findings have useful implications 51 for preventing risk and disparities associated with cardiovascular and other inflammatory-induced diseases among the 52 fastest-growing US Hispanic minorities.