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Advocate Aurora Scientific Day

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Conference Proceedings: Select Abstracts Presented at the 2024 Advocate Aurora Scientific Day

This abstract supplement includes findings presented through oral or poster presentations at the 50th annual Scientific Day event held on May 22, 2024. Scientific Day provides both an in-person and virtual forum for sharing of research, quality improvement, and case studies conducted by faculty, fellows, residents, and other health professionals associated with Illinois-based Advocate Health Care and Wisconsin-based Aurora Health Care. (*J Patient Cent Res Rev.* 2024;11:237-274.)

ORAL PRESENTATION SESSION I

Abdominal Aortic Aneurysm Ultrasound Screening Initiative at a Large, Multicenter, Single Healthcare System: A Focus on Screening Volume and Prevalence

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Background: An abdominal aortic aneurysm (AAA) is an aortic enlargement of 3.0 cm or greater. Most AAA are asymptomatic until rupture with high mortality rates after rupture. A true estimate of AAA prevalence is unclear due to lack of screening and underutilization. Ultrasound (US) is the primary AAA screening method with sensitivity between 94-100% and specificity between 98-100%. In 2019, the USPSTF updated the recommended AAA screening guidelines to include a "B recommendation" for 1-time AAA US screening in asymptomatic 65–75-year-old men who have ever smoked. A USPSTF systemic review concluded that 1-time AAA screening in men 65 years or older was associated with decreased AAA-related mortality and rupture. Given mortality risk after rupture, asymptomatic presentation, and prevalence uncertainty, there is immense value in increasing appropriate AAA screening and better understanding AAA prevalence rates.
Purpose: Our objective was to report on the volume and outcomes of AAA US screening at a single, large healthcare system after implementation of a system-wide screening program.
Methods: Since 2017, AAA US screening exams were given a standardized imaging exam code, and all studies at a single, large healthcare system were queried from Powerscribe360 using the same exam code. All queried studies were then reviewed based on aortic diameter and study limitations. Prior to 2017, 3 imaging exam codes were used to pull exams from Powerscribe360.
Results: From 2017-2020, 11,684 AAA US screening studies were performed, 10,259 (80%) male and 1,425 (20%) female. Seven hundred forty-three (6%) had abdominal aortic diameter > 3.0 cm, and 10,941 (94%) had abdominal aortic diameter < 3.0 cm. More specifically, 622 patients (5%) had AAA between 3.0-3.9 cm, 77 (0.7%) between 4.0-4.9 cm, and 44 (0.4%) ≥ 5.0 cm. Eight hundred twelve (7%) of US screening studies were limited due to bowel gas/body habitus. Of those 812, 54 (7% of limited studies and 0.5% of all studies) were reported as indeterminate, nondiagnostic, or required additional imaging. From 2014-2017, 1,798 AAA US screening studies were performed, 915 (51%) male and 883 (49%) female.
Conclusion: Over 3 years, many patients underwent AAA US screening after implementing a standardized screening program. The volume of US screening significantly increased compared to the 3-year period before standardization (nearly 10,000 more screenings). AAA prevalence was about 1 in every 16 screened (6%). Finally, AAA US screening was very rarely (1 out of every 200) nondiagnostic or indeterminate.

Absinthe Minded: The Forgotten Phenobarbital

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Background: A majority of the 6% of US adults with alcohol use disorder experience alcohol withdrawal (AWD). We use the subjectively scored Clinical Institute Withdrawal

Assessment for Alcohol revised (CIWA-Ar) to follow withdrawal symptoms and reflexively give benzodiazepines (BZDs), despite well-known risks. Although historically used, phenobarbital (PB) treatment has fallen out of favor despite no studies demonstrating inferiority. Our project evaluated the use of PB and BZD in AWD to compare lengths of stay, death rates, and other clinical outcomes.

Purpose: This study aimed to identify quantifiable benefits with the usage of PB for treatment of AWD and spur interest in future studies regarding specific uses and benefits over BZD therapy (eg, lack of side effects and complications).

Methods: This retrospective cohort study included patients aged 18-75 admitted to ASMC or ASLMC between 01/01/21-10/01/23 for AWD that received PB and/or BZD and had at least one CIWA-Ar score. Data were obtained by research analytics and manual chart review. Patients were sorted into two groups: those treated only with BZD ("BZD group") and those treated with PB with or without BZD ("PB group"). Descriptive statistics were calculated, and Mann Whitney U and one tailed t-tests were used to test for statistical significance as appropriate.

Results: 322 patients met study eligibility criteria: 278 (86%) in the BZD group and 44 (14%) in the PB group. Mean age was 49.3 years for the BZD group and 44.4 years for the PB group. The median length of stay (LOS) was significantly shorter for the BZD group (4.92 days, IQR 3.08-8.74) compared to the PB group (6.44 days, IQR 3.33-14.64; p=0.028). The PB group had a much higher rate of patients admitted to the ICU (80%) compared to the BZD group (23%), and ICU LOS was significantly longer in the PB group (6.92 days, IQR 2.79-12.19) compared to the BZD group (3.67 days, IQR 2.02-5.48; p=0.006). There was no significant difference in the death rate between BZD group (1.8%) and PB group (4.5%; p=0.20).

Conclusion: Our project did not find positive impacts on LOS for patients that received phenobarbital. Benzodiazepine patients had significantly shorter total LOS and ICU LOS. Death rates between the two groups were not statistically significant. Further analyses of the patients included in this study may help parse out whether differences in LOS were due to medications received or other factors.

The Impact of Prehabilitation on Hospital Admissions: A Pilot Study

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Background: Prehabilitation (prehab) programs have become an increasingly common aspect of therapy that takes place prior to orthopedic procedures in an attempt to improve postoperative outcomes and functional capacity. Evidence has demonstrated that prehab is effective for total joint procedures and has a positive impact on functional status following these major surgeries. Prehab programs have also been shown to reduce the length of hospital stays; however, current literature does not address whether prehab impacts postoperative hospital admissions.

Purpose: To determine if prehabilitation prior to undergoing hip surgery impacts same-day hospital admission rates.

Methods: A retrospective pilot study was conducted with 64 patients (Prehab = 24 and No Prehab = 40) who underwent either a hip labral reconstruction, gluteus medius repair, or a microfracture surgery of the hip between 2021 – 2022. Patient characteristics and surgical outcomes were collected via manual chart review. Data were analyzed to determine group differences using tests based on the distribution of data [eg, independent t-tests, Mann-Whitney U tests, chi-square tests, or Fisher's exact (cell size < 5) tests], as appropriate.

Results: Out of the 64 patients in the pilot study, 24 (37.5%) underwent prehabilitation prior to undergoing hip surgery and 40 (62.5%) patients did not. Results indicated time under anesthesia (minutes) for those who underwent prehabilitation (Mdn=94.5) was statistically significantly lower than those who did not (Mdn=105.0) prior to hip surgery (U=268.5, p=0.003). Time from surgery to discharge (hours) for those who underwent prehabilitation (Mdn=5.6) was statistically significantly lower than those who did not (Mdn=22.4) prior to hip surgery (U=265.5, p=0.003). There was a significant relationship between prehabilitation and admission unit, with higher proportions discharged the day of surgery (outpatient/same day) in the prehab group compared to those with no prehab (75.0% vs. 37.5%, p=0.017). Inpatient admissions were lower in the prehab group compared to those with no prehab (16.7% vs. 40.0%, p=0.058); however, these differences did not reach statistical significance.

Conclusion: Patients who underwent prehabilitation prior to hip surgery had lower hospital admission rates compared to patients who did not receive prehabilitation. Larger, more robust studies are needed to confirm these findings.

Implementation and Evaluation of the Pathway Platform: A Digitally Enabled Care Pathway to Improve Depression Management in Primary Care

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Background: The Pathway Platform is a digitally enabled health-technology with an app interface for patients that can also integrate with electronic health records (EHRs) and web-based portals for healthcare providers. This platform was designed to improve measurement-based care (MBC) and shared decision-making (SDM) among patients with major depressive disorder (MDD) and primary care providers (PCPs).
Purpose: To implement and evaluate the use of the Pathway Platform in a primary care setting to understand its application in improving depression management, patient-provider engagement, and MDD-related clinical outcomes.
Methods: In this real-world, longitudinal, observational study, data from participants aged ≥18 years diagnosed with MDD and with an antidepressant start or change were collected 6 months retrospectively (pre-implementation) using electronic health records (EHRs; control cohort), and 6 months prospectively (post-implementation) using EHRs and the Pathway Platform (Pathway Cohort). Primary outcome was to assess MBC by comparing 6-month utilization of 2- or 9-item Patient Health Questionnaire (PHQ); additional outcomes compared MDD remission and response, healthcare resource utilization, and patient-provider engagement between cohorts.
Results: The Pathway cohort included 89 patients (80% female) and 24 PCPs; the control cohort included 90 patients (58% female). EHR documentation of ≥2 PHQ assessments over 6 months was significantly higher among Pathway participants vs controls (55% vs 39%, p=0.03). Pathway participants were more likely to receive ≥1 medication change/switch (52%) vs controls (42%) and significantly less likely to have referrals to behavioral health (9%) vs controls (23%; p<0.05). Pathway participants exhibited significant improvement in patient-provider engagement as reported by 13-item Patient Activation Measure scores at 6 months vs baseline (p=0.0004) and demonstrated greater improvements in MDD outcomes with remission and response rates of 45% and 35% vs 29% and 29% in the control cohort, although differences were not statistically significant.
Conclusion: The Pathway Platform improved PCP utilization of MBC, and Pathway patients demonstrated improved patient-provider engagement and MDD outcomes. The Pathway Platform provides a promising approach for improving MBC, SDM, and treatment outcomes for patients with MDD.

Community Members' View of Clinical Trials in a Midwestern Healthcare System: A Mixed-Methods Study

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Background: Clinical trials are interventional research studies that assess new treatments or procedures on people who volunteer to participate. They are critical for determining whether these treatments or procedures are safe and effective. However, research suggests that racial and ethnic minorities are underrepresented as clinical trials participants which leads to reduced generalizability of findings and disparities in health outcomes.
Purpose: To identify barriers and solutions to increasing diversity in clinical trials at Advocate Aurora Health (AAH) from the perspective of community members.
Methods: This study incorporated semi-structured interviews and surveys to community members located in Illinois and Wisconsin to better understand their experiences and perceptions of clinical trials, as well as their suggestions for improving diversity in clinical trial participation. Community members who self-identified as people of color or Hispanic were included in the analysis. Social support theory constructs, thematic analysis of coded transcripts, and quantitative analysis of survey data were used to identify barriers and solutions to participating in clinical trials among community members.
Results: 75 community members participated in the study. The top three clinical trial participation barriers listed by community members were: 1) lack of information awareness at 69.3%, 2) lack of trust in care team at 65.3% and 3) anxiety about participating at 44.0%. The top three solutions to increasing community member participation in clinical trials presented by community members included: 1) educating patients on research opportunities and improve trust between healthcare system and the community served both at 94.6%, 2) increase the healthcare system's presence in the community at 89.3% and 3) provide more education on disease and treatments at 82.6%.
Conclusion: A primary finding of this study is the importance of enhancing trust between people of color and the healthcare system. This is a complex and interrelated issue, but there are tangible steps that can be implemented to help achieve this goal, such as creating research-related recruitment materials and webpages more representative of potential participants. Increasing awareness and understanding of the available clinical trials and what they involve may also boost the participation of different groups, as well as improve the communication and relationship between providers and patients. Finally, providing effective and efficient translation services for potential participants who prefer a language other than English will be crucial.

JUDGED 3-MINUTE ORAL PRESENTATION SESSION I

One-Year Follow-up Data on Improving Rates of Pediatric Developmental Screening at Family Care Center and Family Practice Center

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Background: The prevalence of developmental delay in American children aged 3 to 17 is estimated at 15%, yet only 3% of those aged 3 and under receive early intervention services indicating missed opportunities for timely support. This can lead to long-term challenges in various areas of development. The American Academy of Pediatrics recommends developmental screening during 9-month, 18-month, and 30-month office visits, and autism spectrum disorder screening at 18-month and 24-month office visits, with standardized instruments such as the Ages and Stages Questionnaire (ASQ-3) and the Modified Checklist for Autism in Toddlers-Revised with follow-up (MCHAT-R/F). However, screening rates at Aurora St. Luke's Family Practice Center (FPC) and Aurora Sinai Family Care Center (FCC) were low in 2022.
Purpose: The purpose of this project is to increase rates of pediatric developmental and autism screening at FPC and FCC sites.
Methods: Educational interventions were implemented to raise awareness and improve screening rates. These included distributing and displaying educational materials, conducting didactic sessions, and updating staff with the clinic screening protocol. The project focused on patients aged up to 36 months seen between January 27, 2023, and January 27, 2024. Screening data were extracted from Epic, with the numerator being the screenings performed and the denominator being the total eligible patients, per each site and screening type. Pre- and post-intervention screening rates were compared with Chi-square analysis. A focus group was conducted near the end of the intervention to elicit provider feedback.
Results: Our data showed a statistically significant increase in ASQ and MCHAT-R screening rates at FCC, increasing from 3.2% to 33.7% ($p<0.0001$) and from 13.1% to 49.7%, respectively ($p<0.0001$). FPC's ASQ rate improved from 3.4% to 8.7% ($p<0.05$). FPC's MCHAT-R screening rate improved from 15.8% to 31.1%, approaching but not meeting statistical significance ($p=0.05$).
Conclusion: There were statistically significant improvements in developmental screening rates at both clinics and autism screening rates at FCC. However, overall screening rates remained sub-optimal. Barriers to screening identified by focus groups included time constraints, clinic flow issues, language, and cultural differences. These findings suggest that while provider education is beneficial for improved screening, there is a need for further studies to optimize screening practices in our clinical settings.

Patients' Preferred Place of Death: Documenting Preferred Place of Death at the Vince Lombardi Palliative Cancer Clinic

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Background: Discussions regarding end-of-life (EOL) are often challenging. Palliative care providers are trained to ease these conversations and help patients navigate through such difficult journeys. The Kaiser Family Foundation conducted a survey in the US regarding views on aging and EOL; 69% of participants reported talking about death is normally avoided but 92% of participants reported feeling somewhat comfortable talking to a health care provider regarding EOL wishes. In 2006, a study conducted at Marie Curie Hospice Edinburgh reviewed documentation of preferred place of death (PPD) for 164 patients in hospice from November/2005 to March/2006. This study found 29% had no documented PPD; of those with documented PPD, 60% expressed home as their PPD; and 31% of patients with home as their PPD died at home. These studies and others

highlight the importance of having conversations regarding EOL care and wishes. Our study aimed to review how often our outpatient palliative care providers are documenting PPD, how PPD is currently documented in patient charts, and how many people with PPD listed as home died at home.
Purpose: The purpose of this study was to collect data to better understand ongoing clinical practice and identify areas of education for palliative care providers to improve communication skills and documentation of patients' preferences at EOL.
Methods: This was a retrospective QI study. We reviewed charts of deceased adult cancer patients seen by the outpatient palliative care team within the Vince Lombardi Cancer Clinic at Aurora Sinai Medical Center from 07/01/19 to 07/30/23. The study team manually extracted data. Descriptive statistics such as frequencies and percentages were calculated as appropriate.
Results: Of the 82 patients included in this study, only 12 (15%) had a PPD documented; 11 of these 12 indicated PPD was home. All PPD documentation was found within outpatient palliative care notes, but there was no consistency regarding location within the note template. Of the 11 patients with PPD documented as home, 5 (45%) died at home.
Conclusion: A gap in communication between patients and outpatient palliative care providers exists when it comes to identifying PPD. Lack of a designated space within the current note template to document PPD could be a culprit. Educating providers and modifying note templates to enhance consistent documentation may facilitate difficult conversations and improve accessibility of crucial information for honoring patients' EOL wishes.

The Impact of COVID-19 on Hypertrophic Cardiomyopathy Patients: Causes, Predictors, and Outcomes of 30-Day Readmission

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Background: The coronavirus disease 2019 (COVID-19) has led to significant global morbidity and mortality. Its impact on patients with hypertrophic cardiomyopathy (HCM) remains unclear.
Purpose: We examined the causes, predictors, and inpatient mortality of 30-day readmission in HCM patients following index COVID-19 hospitalization.
Methods: In a retrospective study using the National Readmission Database 2020, we collected data on HCM patients who were admitted with the principal diagnosis of COVID-19. The primary outcome was the all-cause 30-day readmission rate. Secondary outcomes were common causes of readmission, in-hospital mortality, and resource utilization.
Results: In 2020, a total of 1503 HCM patients (mean age 67 years, 49% female) were hospitalized for COVID-19. Among them, 1216 (80.9%) were discharged alive, and 180 (14.8%) were readmitted within 30 days. In-hospital mortality for readmissions remained relatively unchanged compared to index admissions (15% vs 19%, p=0.34). The most common cause of readmission was COVID-19 infection (38%), followed by other infections (11%) and acute kidney injury (4%). The most common cardiac cause for readmission was paroxysmal atrial fibrillation (2%). The mean length of stay for readmissions was lower than for the index admission (7.8 vs 9.9 days, p=0.43). The mean hospital charges associated with readmissions were $84,976, and the total hospital charges were $15.2 million. The mean hospital cost associated with readmissions was $24,603, and total hospital costs were $4.4 million. A higher Charlson comorbidity index score was the main independent predictor of higher readmission rates.
Conclusion: This study sheds light on the significant burden of COVID-19 on patients with HCM. Despite efforts to reduce readmission rates, a considerable percentage of patients experienced readmission within 30 days, primarily owing to COVID-19 infection. Close follow-up after post-discharge could prevent such readmission, and the associated high mortality rate.

Obstetrics Team Satisfaction, Communication and Readiness for Emergencies Through Dedicated Simulations: Quality Improvement Project

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Background: Post-partum hemorrhage (PPH) encompasses over 50% of all obstetric emergencies worldwide and is estimated to be the cause of 25% of maternal deaths. Detailed review of the PPH literature has shown improvement in clinical outcome measures after implementation of simulation training. Analysis of teamwork behaviors pre and post simulations showed significant improvement in team dynamics.
Purpose: A quality improvement (QI) initiative at Advocate Lutheran General Hospital aiming to address gaps in PPH

management through focused interventions.
Methods: Collaborating with a multidisciplinary team comprising nurses, residents, and faculty from the Obstetrics and Gynecology department, our study assessed the comfort level of healthcare professionals in systematically managing PPH. A standardized vignette designed by the project's author was created to facilitate systematic management of PPH, simulating a true obstetric emergency. Pre- and post-simulation surveys were employed to measure participants' perceptions of teamwork dynamics and preferences regarding simulation logistics, including location, timing, and role assignment.
Results: Data analysis, conducted by utilizing statistical methods including Fisher's exact test, was performed to explain any significant differences in pre- and post-simulation survey responses. Results have demonstrated statistical significance in the following areas: improvement in management of PPH on the unit ($p=0.007$), the rate of satisfaction in management of PPH ($p<0.001$), and familiarity of participants with their role specifically in managing PPH ($p<0.001$). However, there was no significant difference in the rating of PPH simulation benefit to the unit pre- and post-activity ($p>0.9$).
Conclusion: Overall, the study demonstrated significant benefits in the confidence and understanding of PPH management of staff, residents and students. Future directions of this project could focus on including clinical improvements in the current management of PPH at ALGH and foster buy-in for expansion of in-situ simulations for clinical staff.

Applying Kern's 6-Step Approach to Integrate a Novel Hands-On Medical Device Curriculum Into a Pediatric Residency Program

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Background: There has been an exponential increase in the number of children dependent on medical technology in the past decade. However, studies have shown that medically complex children continue to face disability-based discrimination in medicine which leads to gaps in care, poor patient experiences, and poor health outcomes. Further, residents lack standardized training in this area and consequently do not feel prepared to provide adequate care to this vulnerable population.
Purpose: We aimed to pilot a novel longitudinal hands-on curriculum for pediatric residents on the care for medically complex children dependent on technology using Kolb's experiential learning theory and assess learner driven outcomes.
Methods: We used Kern's six-step approach to develop and evaluate a longitudinal multidisciplinary curriculum for residents on the use of medical devices matched to the Accreditation Council for Graduate Medical Education's (ACGME) Pediatric Milestones. The curriculum consisted of 10 educational workshops (inhalers, code cart, feeding tubes, tracheostomies, chest tubes, VP shunts, diabetes supplies, IVs/pumps, central lines, and specialized car seats) led by content experts and designed with the goal of enhancing knowledge, skills, and competency. We studied the impact of the curriculum through pre-post learner evaluations matched to historical controls. Mann-Whitney and Wilcoxon signed-rank tests were used to compare group differences for non-normally distributed continuous variables.
Results: Pediatric interns (n=13) participated in 1-5 of the 10 workshops as part of their routine education during the 2023-2024 academic year. Prior to the intervention, residents identified the largest opportunity for improvement in education regarding the use of the code cart, IVs/pumps, and specialized car seats. After the educational intervention, there was statistically significant improvement in resident self-assessed skills for 6/10 workshops. However, when compared to an end of year historical control of non-exposed residents, there was minimal difference seen.
Conclusion: Residents continue to identify gaps in their training regarding dedicated education on medical devices, however, also appear to have self–assessed skill improvement throughout the academic year. Urgent attention is needed to understand the potential impact of similar curricula on ACGME competencies and patient level outcomes to minimize these known health inequities.

Impact of Social Determinants of Health on Primary Adherence of Oral Anticoagulants Among Patients With Newly Diagnosed Atrial Fibrillation at a Large Health System

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Background: Oral anticoagulants (OAC) have been shown to reduce the risk of stroke among patients with atrial fibrillation (AF). However, adherence to these medications remains suboptimal.
Purpose: We focused on primary OAC nonadherence (PNA) and its associations with patient characteristics—

specifically social determinants of health routinely collected in electronic health records (EHR).

Methods: This retrospective cohort study used EHR data linked to prescription fill data from a large, integrated Midwestern community healthcare system. Adult patients with an incident AF diagnosis from 2020 to 2021 and a first documented OAC prescription (assigned as the index visit) were included. PNA was defined as failure to fill an initial OAC prescription within 30 days. Clinical outcomes included 1-year mortality, first stroke, and first bleed after first OAC prescription.

Results: Among 8,679 eligible patients, 46% were female, 82% were non-Hispanic White, and the mean age was 71.3 ± 12.1 years. Twenty-one percent were primary nonadherent. In multivariable logistic regression models, the odds of PNA were greater among patients who were non-Hispanic Black, older (≥75 years), male, lacking commercial insurance, not employed/retired, and referred to social work. In multivariable Cox proportional hazards models, PNA was associated with an increased risk of mortality (hazard ratio, 1.69; 95% CI, 1.42-2.01).

Conclusion: These results reveal clear and consistent disparities in PNA among patients with a new AF diagnosis. There is a need to develop and test interventions for targeting primary nonadherence that are adapted to and implemented in disadvantaged patients, among whom nonadherence is highest.

One Room at a Time: Improving Whiteboard Completion on Family-Centered Rounds

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Background: Whiteboards (WBs) in patient rooms are used by medical teams to enhance communication with families and their use has been shown to improve patient satisfaction with care. At Advocate Children's Hospital Park Ridge (ACH-PR), the physician team is responsible for updating the following portions of WBs during daily rounds: resident name, attending name, daily plan, and discharge goals. In a baseline audit only 38.7% of WBs were completely updated.

Purpose: We aimed to increase the percentage of WBs that are fully updated by the physician team during family centered rounds from 38.7% to 80% by March 2024 for English speaking families admitted to the hospitalist teaching service at ACH-PR.

Methods: In this quality improvement study, Plan-Do-Study-Act (PDSA) cycles were enacted focusing on provider education and increasing marker availability. WBs were randomly audited for completeness following daily rounds several times each month. Run charts were created to evaluate for special cause variation, and statistical significance was determined using the Chi-squared test. As a balancing measure, physician team members were surveyed at study completion to evaluate if they felt interventions negatively impacted rounding efficiency.

Results: WB completion for each section was compared pre and post initiation of interventions. Completion rates increased for all sections during the study period, though significant change was only identified for daily plan and discharge goal sections (overall completeness 38.7% to 55.9%, p=0.97; resident name 61.2% to 78.5%, p= 0.56; attending name 64.5% to 72.0%, p=0.64; daily plan 48.3% to 80.6%, p=0.0005; discharge goals 48.3% to 74.2%, p=0.008). In December 2023, >80% of WBs were completely updated, meeting our aim. Sustainability was not achieved as overall completeness dropped to 25% for the months following study completion. Based on provider satisfaction surveys the interventions were felt to improve the team's workflow without detriment to learning or efficient rounding.

Conclusion: Provider education and interventions to improve marker availability successfully improved completion of several WB sections during daily rounds however this project has not yet achieved sustainability. Future PDSA cycles could target sustaining marker availability, incorporating WB training into monthly learner inpatient orientation, and providing targeted individual level provider feedback.

GENERAL POSTERS

Clinical Interpretation of Genetic Variants in the Evaluation and Management of Thoracic Aortic Aneurysm and Dissection

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Background: Thoracic aortic aneurysm and dissection (TAAD) is a genetically heterogeneous disorder prevalent in 1% of the general population with a quarter of fatalities occurring suddenly.

Purpose: We aim to elucidate the clinical implications of

genetic variant interpretation in assessing disease severity and progression in TAAD patients.

Methods: Consecutive TAAD patients with aortic root and/or ascending aortic aneurysms seen for specialized care between 2011 and 2020 were screened for mutations in aortopathy gene panels. Serial echocardiography, family history of TAAD and management information were collected retrospectively and analyzed. Patients were categorized into: Pathogenic Mutation, Variant of Uncertain Significance (VUS), and No Mutation groups.

Results: A total of 407 patients were included in this study. The mean age was 53.7±15 years; 64.4% were female, and 38% had a known family history of TAAD. A total of 37 (9.1%) had pathogenic gene variants and 147 (36.1%) had VUS. The average aneurysm diameter was 5.0 mm larger in patients with pathogenic mutations compared to patients with no mutations ($p<0.001$), irrespective of age and gender. In 162 unoperated TAAD patients with serial echocardiographic measurements, aneurysms associated with pathogenic mutations grew at a significantly higher rate (1.36 mm/year, 95% CI: 0.77-1.95) than aneurysms in VUS, and no mutations (0.83 mm/year and 0.89 mm/year, respectively $p<0.001$). Importantly, aneurysms were 20% more likely to require surgical intervention for every mm increase in diameter. However, when considered individually, the highest growth rates were found in VUS.

Conclusion: While aneurysms associated with VUS genes demonstrate average growth rates comparable to those in patients with no mutations, close follow-up and genetic counseling in this group are recommended for assessing pathogenicity on a case-by-case basis. This study highlights the importance of early familial gene testing in TAAD to develop individualized preventive and therapeutic criteria.

Characteristics of Patients With Lung Uptake on N-13 Ammonia Positron Emission Tomography Myocardial Perfusion Imaging

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Background: Lung uptake may be seen on N-13 Ammonia Positron Emission Tomography (PET) Myocardial Perfusion Imaging (MPI), which may compromise the quality of the perfusion images and image interpretation by the reading cardiologist.

Purpose: We aimed to evaluate various patient characteristics that could help identify these challenging cases, which could subsequently be used for quality improvement in the nuclear lab.

Methods: From 873 patients who underwent N-13 PET MPI between 01/03/22-01/30/23, we identified 102 patients (11.7%) who had increased lung uptake reported by the interpreting physician. From the same total cohort, we identified 102 matched controls without increased lung uptake. We collected patients' characteristics from the electronic medical record, N-13 PET MPI, and echocardiographic parameters and compared the prevalence of those characteristics in the study cohort vs the control cohort.

Results: Using a univariate analysis, patients with the following characteristics were more likely to have lung uptake. Patients who were current smokers (26 vs 10%, p=0.002), had chronic obstructive pulmonary disease (COPD) (37 vs 22%, p=0.01), pulmonary hypertension (PHTN) (30 vs 14%, p=0.004), end-stage renal disease (ESRD) (13 vs 3%, p=0.003), history of bypass surgery (25 vs 14%; p=0.028), or systolic heart failure (27 vs 11%, p=0.002). Patients with more dilated left ventricles, especially moderately (9 vs 1%; p=0.042), and at least moderate tricuspid regurgitation (TR) (9 vs 2%; p=0.004) on echo were also more likely to have lung uptake on N-13 PET. There were no significant differences between the groups in N-13 PET parameters. Using a multivariate regression analysis, patients with the following characteristics were more likely to have lung uptake on N-13 PET: patients who were current smokers (OR 3.254, p=0.03) and patients with end stage renal disease (OR 4.3, p=0.0413).

Conclusion: Patients undergoing N-13 PET MPI who are current smokers, have ESRD, COPD, PHTN, HTN, systolic heart failure, a more dilated left ventricle, or have a higher degree of TR are more likely to have increased lung uptake on their imaging. We hope to analyze these results and additional data further to generate a simplified predictor that could be used to screen patients before N-13 PET MPI who might benefit from an alternative imaging strategy such as SPECT imaging with Technetium-99 or using a tracer such as Rubidium 82.

Reducing First-Year Nurse Turnover in the Emergency Department: A Simulation-Based Onboarding Program

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Background: High first-year turnover rates among emergency department (ED) nurses pose significant challenges to patient care and hospital staffing.
Purpose: This study evaluated the effectiveness of a simulation-based onboarding program focusing on high-risk ED scenarios for new nurses with an aim of improving new graduate retention in a large tertiary care center.
Methods: 31 first-year ED nurses participated in a three-scenario simulation session in our simulation center. The program included a high-risk/high-volume scenario, a ST- Elevation Myocardial Infarction progressing to third degree AV-block, and two high-risk/low-volume scenarios, including pediatric trauma with airway management and a precipitous delivery in the ED. Prior to program implementation, the first-year nurse turnover rate was 21.4%. Participants completed the Simulation Effectiveness Tool (SET-M) to evaluate their learning experience.
Results: Following the program, the first-year ED nursing turnover rate dropped from 21.4 to 6.7%. This represents a 69% reduction in turnover. Twenty-six of 31 participants completed the SET-M evaluation, and 100% of respondents agreed that they are "better prepared to respond to changes in my patient's condition," are "more confident in my ability to prioritize care and interventions," are "more confident in providing interventions that foster patient safety," and are "more confident in my ability to report information to the healthcare team." Ninety-six percent of respondents agreed that they had the opportunity to practice their clinical decision-making skills.
Conclusion: These findings suggest that simulation-based onboarding programs may be an effective strategy for reducing first-year nurse turnover in the ED setting. Turnover for a single nurse may cost a hospital $46,000, and high nursing turnover may cost a hospital system up to $7.2 million a year. This program provided new nurses with a safe and controlled environment to practice critical skills, improve confidence, and gain familiarity with complex situations, potentially leading to increased job satisfaction and improved retention.

Multiple Courses of Dexamethasone Do Not Lead to Improved Outcomes in Premature Infants

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Background: Steroids are used routinely in the NICU due to their effect of improving overall lung function, and to minimize the risk of an infant developing bronchopulmonary dysplasia (BPD). This is primarily driven by their favorable anti-inflammatory effects, though these medications are not without their risks. Steroids are associated with several side effects, both in the short and long term, including hyperglycemia, hypertension, immunosuppression and neurodevelopmental delay among others.
Purpose: Dexamethasone, through the DART (Dexamethasone: A Randomized Trial) protocol in particular, is a popular choice for its favorable outcomes in treating BPD. However, it is thought to be implicated in many of the adverse side effects above in large part due to its potency. It therefore falls to providers to decide on the appropriateness of use, weighing risks and benefits.
Methods: This study was a single center retrospective chart review. It included patients who were born at Advocate Christ Medical Center and who were admitted to the Oak Lawn campus's NICU. Patients were primarily stratified based on whether they had received one or more than one round of DART therapy. The two categories were then compared on several outcomes including length of stay and days on ventilator among others. Statistical analysis was done using Mann-Whitney U test.
Results: The Mann-Whitney U test was used to compare the median and interquartile ranges of the length of steroid administration between patients who required a tracheotomy at discharge, and those who did not. In this case, the P-value was <0.05, indicating a statistically significant mean difference between the patient groups. On the other hand, the Mann-Whitney U Test was unable to be calculated for the types of steroids against the motor and cognitive Bayley Scores due to the number of different steroid types and the number of cells between variables. For tracheotomy vs steroid type, a Fisher's exact test was used, demonstrating a p-value of >0.05, indicating that there was not a statistically significant association between tracheotomy requirement at discharge and type of steroid used.
Conclusion: Our most interesting finding demonstrated that multiple rounds of DART therapy in our patient population was not associated with decreased time on invasive ventilation with statistical significance. There was also a correlation with multiple rounds of DART and poorer Bayley scores for motor and cognition, though this was not statistically significant.

The Impact of Worksite-Based Yoga on Burnout Among Intensive Care Nurses

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Background: Intensive care unit (ICU) nurses are at high risk of compromised health and well-being secondary to stressful work environments. Healthcare organizations are recognizing their duty to deploy activities at the worksite to improve employees' well-being and patient outcomes. St. Luke's Medical Center in Milwaukee, WI, strives to

be a destination jobsite; however, the rate and severity of burnout among ICU nurses is adversely affecting their health, performance, intent to stay, patient outcomes, and costs. The skills and training of doctorally prepared nurse leaders can aid in implementing and sustaining evidence-based interventions at the worksite. High quality evidence demonstrates that worksite yoga is a safe and effective evidence-based intervention to mitigate symptoms and severity of burnout among healthcare professionals. This outcome may translate into improved employee job satisfaction, productivity, patient experience, and patient outcomes, while reducing turnover, medical errors, and healthcare costs.

Purpose: To implement worksite yoga, an evidence-based intervention, which was not currently offered or utilized at St. Luke's Medical Center, to mitigate the symptoms and severity of occupational burnout among ICU nurses.

Methods: The knowledge-to-action translational science model was utilized to educate stakeholders and ICU nurses about occupational burnout and the potential return on investment from utilizing a worksite yoga studio to reduce the symptoms and severity of burnout. Seven ICU nurses volunteered their time to engage in nine weekly 60-minute yoga sessions, onsite at St. Luke's Medical Center, by a certified instructor, from 05:45-06:45am, with a pre- and post-intervention Maslach Burnout Inventory-Human Services Survey for Medical Professionals questionnaire.

Results: Paired t-tests indicated that statistically significant reduction was observed between pre- and post-assessments in emotional exhaustion (EE) ($p=0.003$) and depersonalization (DP) ($p=0.049$). While scores increased in personal accomplishment ($p=0.05$), the difference was not significantly different. Observed improvements in EE and DP were large in effect magnitude.

Conclusion: While exercising caution in interpreting results secondary to design-related limitations and small sample size, this worksite yoga intervention effectively reduced symptoms and severity of burnout, offering a broad and promising return on investment.

Long-Term Follow-Up of Autologous Bone Marrow Transplant for Relapsed or Refractory Hodgkin's Lymphoma

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Background: Classical Hodgkin's lymphoma is a monoclonal lymphoid neoplasm classified by the presence of Reed-Sternberg cells. It represents approximately 10% of all lymphoma cases diagnosed in the United States and is associated with high cure rates of up to 80%. Despite the incorporation of novel agents in front line therapy, up to 40% of patients with advanced-stage disease and 10% to 15% with limited-stage disease may relapse and require additional treatment. High dose chemotherapy with autologous stem cell transplantation (ASCT) is still the standard of care for patients with relapse Hodgkin's Lymphoma. The most commonly used conditioning regimens are cyclophosphamide, carmustine (BCNU) and etoposide (CVB) or carmustine (BCNU), etoposide, cytarabine and melphalan (BEAM). The cure rate with ASCT is 60-70% in relapse disease and 30% in those with refractory disease, indicating a significant portion of patients still at risk for relapse or progression after autologous hematopoietic stem-cell transplantation.

Purpose: To improve cure rates with autologous stem cell transplant for relapse Hodgkin's lymphoma and recognize and manage long-term complications of transplant therapy. To illustrate this in clinical practice, we wish to report long-term outcomes for patients treated with ABMT at our institution.

Methods: We retrospectively reviewed the records of the 36 patients with relapsed Hodgkin's Lymphoma that were treated with high dose chemotherapy and autologous hematopoietic stem cell transplantation (AHSCT) at Advocate Lutheran General Hospital from 1992 to 2022.

Results: From 1992 to 2023, 36 patients with relapsed Hodgkin's lymphoma were treated with AHSCT. These patients were followed over the course of a 30-year time period with determination of complete, partial, or no response. Of the 36 patients, 15 (41.7%) were treated with CEM and 21 (58.3%) were treated with BEAM. In 2018, brentuximab was included in the BEAM regimen as a post-transplant consolidation therapy for 13 (36.1%) of the 21 patients (61.9%). Of the 15 patients treated with CEM, 9 (60.0%) achieved a complete response (CR) and of the 20 patients treated with BEAM, 16 (80.0%) achieved a CR. The actual 15-year disease free survival (DFS) and overall survival (OS) are 55.0% and 61.0%, respectively.

Conclusion: The results reported herein are similar to outcomes previously reported with the exception being that we are reporting longer follow-up 15-year DFS and OS as opposed to 10-year survival.

Neonatal Outcomes Following the Use of Gastroesophageal Reflux Medications: A Retrospective Review

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Background: Gastroesophageal reflux disease (GERD) is common in the neonatal population, but the efficacy of anti-reflux medications in symptomatic neonates is controversial. These medications carry risks like QT prolongation, reduced gastric pH, and increased abdominal infection risk. Research does not support a correlation between reflux and apneic/bradycardic episodes. Recent studies suggest shorter hospital stays with reduced unnecessary anti-reflux medication use.
Purpose: Our goal is to assess the impact of PPI (proton pump inhibitors) and H2-blocker (histamine type-2 receptor antagonists) use on NICU course, length of stay and apnea/bradycardia events.
Methods: In a single-center retrospective cohort study, 100 infants admitted to Advocate Christ's NICU from December 2018 to December 2021 were evaluated. The study included infants diagnosed with reflux and apnea/bradycardia, as well as those prescribed a PPI and/or H2-blocker identified through ICD-10 coding in the EMR. For infants without these diagnoses, randomization for enrollment was optimized using a random number generator. Excluded from the study were infants born at external facilities and those who were deceased during their NICU admission.
Results: In infants prescribed reflux medications (n=22), increased aspiration, longer hospital stays (mean 55 vs. 18 days), and higher bradycardia episodes ($p<0.02$) were observed. Medication did not reduce aspiration risk (14.3% pre-medication vs. 23.8% post-medication) but it significantly reduced bradycardia episodes ($p<0.001$).
Conclusion: Our data indicate that reflux medications have limited impact on neonatal outcomes. Infants on anti-reflux medications experience longer lengths of stay and increased aspiration rates, suggesting no improvement in physiological symptoms associated with aspiration. The reduction in bradycardic episodes after initiating anti-reflux medications may be attributed to infant growth and maturation, as they outgrow conditions like apnea of prematurity. Anti-reflux medications continue to exhibit limited efficacy, particularly in reducing length of stay and mitigating aspiration risk in infants. Infants initiated on reflux medications initially had higher episodes in bradycardic episodes, followed by a subsequent reduction. Further research is needed to assess the impact of reflux medications on the rate of reduction of apneic and bradycardic episodes in NICU-admitted infants. Ongoing investigations into GERD and the marginal benefits of anti-reflux medications are essential to inform interventions, reduce medication costs, and minimize potential adverse effects.

Drug Interactions With Cannabidiol (CBD): A Review of Reports to the FDA Adverse Event Reporting System (FAERS)

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Background: Cannabidiol (CBD) is a commonly used over-the-counter chemical product derived from marijuana plants legal or conditionally legal in all 50 states. The FDA has approved a purified form of CBD to treat rare types of seizures. CBD can be purchased over the counter for the treatment of pain, anxiety, insomnia and other conditions. In-vitro studies have shown CBD inhibiting multiple cytochrome p-450 enzymes including CYP2C9, CYP2D6, CYP3A, and CYP2C19. An estimated 26% of Americans use CBD, but little is known about interactions between CBD and other medications. The aim of our research is to describe CBD-related drug-drug interactions to improve patient safety.
Purpose: Having a better understanding of drug-drug interactions between CBD and other medications can help improve patient safety.
Methods: Publicly available data were obtained from the Food and Drug Administration (FDA) Adverse Event Reporting System (FAERS) database. Cases were obtained with the search terms "cannabidiol" and "CBD." Cases where CBD was used to treat epilepsy were excluded and only reports of "drug interaction" and "toxicity of various agents" from healthcare professionals were included. Case reports were obtained from the FDA via the Freedom of Information Act. Naranjo Adverse Reaction Drug Probability scale was used to evaluate potential interactions and then compared to published literature.
Results: The database recorded over 13,800 adverse events related to CBD from January 2014 to October 2022. Duplicates were removed and potential drug toxicity or interactions were filtered. Forty cases met our criteria. The most commonly occurring drugs with potential interactions with CBD were warfarin, tacrolimus, tofacitinib, and clobazam. Naranjo scores were determined under the assumption of an interaction between CBD and the suspected drug, leading to 1 definite interaction with tacrolimus (10) and three probable interactions including two with Warfarin (5, 7) and one with valproic acid (6). Our study also isolated several potential drug interactions with CBD that have yet to be well reported. These included aripiprazole,

dihydrocodeine, sildenafil, fosaprepitant dimeglumine, tofacitinib, and tramadol/paracetamol.

Conclusion: CBD is metabolized by liver enzymes, specifically CYP3A4 and CYP2C19, and can inhibit other subtypes of CYP450 leading to potential drug interactions. Well-documented interactions include warfarin, clobazam, and tacrolimus. Our study identified several previously unreported drug interactions with CBD.

A Prospective Observational Analysis of the Use of Transesophageal Lung Ultrasound During Resuscitative Transesophageal Echocardiography

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Background: Transesophageal lung ultrasonography (TELUS) is an emerging modality for evaluating critically ill patients undergoing transesophageal echocardiography (TEE) guided resuscitation. TELUS allows for ultrasound evaluation of the thoracic cavity when barriers such as body habitus, subcutaneous emphysema, or external medical equipment are present. There is a lack of research regarding the use of TELUS during resuscitative TEE.

Purpose: The primary objective is to evaluate the usage pattern of TELUS on patients undergoing resuscitative TEE across a health system. Secondary objectives include patient demographics, exam indications, findings, and changes in management.

Methods: Data were collected from a prospective, observational, multi-center registry enrolling patients within the same health system who had TEE performed as part of resuscitation efforts for cardiac arrest, respiratory failure, procedural guidance, and shock. Only patient exams that obtained TELUS views were analyzed. Data were collected from March 2022 through February 2024. Statistics are descriptive.

Results: 92 TEE studies were performed; 19 included TELUS evaluation (21%). All TELUS studies were performed at a single institution in the intensive care unit (ICU) by critical care attending physicians. Patients had an average age of 65 years (range 43–84, median 66); 11 were males (58%) and 8 were females (42%). Past medical history included COPD (8, 42%) CHF (5, 26%) and pulmonary hypertension (3, 15%). Indications for TEE included in-hospital cardiac arrest (1, 5%), out-of-hospital cardiac arrest (1, 5%), hemodynamic monitoring (3, 15%) and undifferentiated shock/hypotension (14, 75%). 3 patients were found to have abnormal left ventricular ejection fraction (15%) and 10 (53%) were found to have decreased right ventricular function. Common findings on TELUS included B-lines (15, 79%), pleural effusions (3, 15%), consolidations (8, 42%) and A-lines (2, 10%). Overall, the TEE exam findings led to changes in management in 14 out of 19 patients (74%).

Conclusion: Transesophageal lung ultrasound can provide important diagnostic information for critically ill patients undergoing resuscitative TEE. In this study, the most common indication for TELUS was undifferentiated hypotension in the ICU. Further research is needed to evaluate the use of TELUS imaging outside of the ICU and whether it contributes to changes in management.

How Do Clinical Nurses Implement "What Matters to You" for Hospitalized Older Adults?

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Background: The Age Friendly Health System (AFHS) evidence-based 4Ms framework (What Matters, Medication, Mentation, & Mobility) is a national initiative to support healthcare systems to implement reliable, high-quality, age-friendly care and reduce harm and hospital-associated complications. The "What Matters to You" (WMTY) component refers to the process of engaging clinicians in assessing and aligning patient-specific health goals and preferences to deliver patient-centered care. Limited empirical evidence exists to guide the role of clinical nurses in using the

"What Matters" concept. Research Questions: How do age-friendly hospitals implement the WMTY process by clinical nurses? What is the impact of the WMTY process from the perspective of implementers and clinical nurses?
Purpose: To gain an in-depth understanding of the knowledge, perceptions, and experiences of nurses who implement the WMTY concept with hospitalized older adults.
Methods: A qualitative study design was employed. Virtual 90-minute focus groups (n=7) were conducted by an experienced moderator using an interview guide with a convenience sample of consenting implementers (n=7) and clinical nurses (n=28) who work on medical surgical units in six Midwestern hospitals committed to implementing the 4M model. Data were inductively coded and categorized by two reviewers and iteratively analyzed to identify themes.
Results: Participants had diverse characteristics. Many (86%) reported previous geriatric training. Perceptions were influenced by role, site, training, use beyond admission, and leader involvement. Six themes emerged: 1) Committed to being 'patient-centered' to give care that matters; 2) Assessing WMTY on admission despite awkwardness and competing priorities; 3) Helping patients to "feel better" and "go home' 4) Acting on WMTY 'in the moment' (vs. plan of care); 5) Recognizing when patient preferences don't align with goals; 6) Making WMTY actionable at the bedside. Outcomes were mixed.
Conclusion: The current WMTY process is focused on supporting nurses to ask the WMTY question with nurses taking actions 'in the moment'. The findings suggest that changes are needed to enhance training and communication, optimize the timing of the question, and do more to align the care plan with patient preferences. Additional research is needed to understand how to engage patients and ensure that their goals/preferences are fully evaluated and integrated into their plan of care.

Predictors of Success of GPOEM for Gastroparesis

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Background: Gastric Per Oral Endoscopic Myotomy (GPOEM) has been shown to be a safe and effective procedure for gastroparesis. The success rate appears to be modest based on the current definition of success, defined as gastroparesis cardinal symptom index (GCSI) score reduction of ≥1 point from baseline. We evaluated our series to assess the predictors of a successful response.
Purpose: To identify the predictors of a successful response after GPOEM from our cohort of patients.
Methods: We performed a retrospective evaluation of a prospectively collected cohort of patients who underwent GPOEM in a multi-disciplinary setting at Aurora Medical Center Kenosha between 01/2020 and 09/2023. We defined success as GCSI score reduction of ≥1 point from baseline. Univariable and multivariable logistic regression analyses were performed. A $p<0.05$ was considered statistically significant.
Results: A total of 97 patients underwent 99 GPOEMs during the study period from which complete information was available on 80 (82%) patients. In our cohort, GPOEM resulted in the mean relative reduction of GCSI by 51% (±49.18%) [absolute mean reduction: 1.55 (±1.325)] and the relative mean 4-hour solid phase gastric emptying (GES) increased by 41% (±40.67%) [absolute mean increase: 22.84% (±26.435%)] compared to baseline ($p<0.0001$). There was a statistically significant reduction in all the GCSI sub scores and the prokinetics drug usage ($p<0.0001$). When defined as GCSI ≥1 reduction, overall success rate was 60%, and 76% in diabetics. On univariable analyses, high GCSI scores, high bloating sub scores and faster gastric emptying post GPOEM had statistically significant success rates. However, none of the factors achieved statistical significance on multivariable analyses. GPOEM procedure was very safe with 4% rate of complications (inadvertent mucosal injury) that were all successfully managed during the incident procedure without requiring any subsequent interventions.
Conclusion: Overall, GPOEM is a safe and effective procedure for gastroparesis resulting in significant reduction of symptoms and improvement in gastric emptying, but success continues to be around 60% based on the current definition. Although strong indicators of success were noted, no independent predictors of success were identified likely due to small sample size. Larger studies are needed to better define the patient selection criteria to improve the success rate.

CASE REPORT/SERIES POSTERS

Platelet-Rich Plasma for Treatment of Chronic Recalcitrant Plantar Fasciitis: A Case Series

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Introduction: Plantar fasciitis is a debilitating condition of the foot which causes heel pain and discomfort and can interfere with activities of daily living if severe. In chronic cases, patients may have persistent difficulty walking and can experience significant compromise in quality of life. Numerous treatment options exist for treating plantar fasciitis; however, none has been identified as superior. Many conservative treatments are aimed at reducing inflammation for immediate relief, however preliminary studies suggest that for patients with chronic plantar fasciitis and for those seeking more long-term relief, platelet-rich plasma (PRP) may be superior. PRP is a pro-inflammatory regenerative treatment which harnesses autologous natural growth factors to help repair and restore the integrity of the plantar fascia. **Description:** Three patients were identified from Foot and Ankle Institute records who underwent platelet-rich plasma treatment for plantar fasciitis under Dr. Darshan Nagesh from January 2022 – December 2022. Clinically, all 3 patients presented with plantar heel pain including post-static dyskinesia. All 3 patients failed at least 5 conservative treatment measures and continued to have persistent pain after multiple years. The PRP procedure involved extraction and double centrifuge of 15 mL of autologous whole blood via the Arthrex ACP Max PRP system followed by ultrasound-guided injection at the medial calcaneal tuberosity of the affected foot. Patients were instructed to avoid all anti-inflammatory medications post-operatively. All 3 patients had notably improved VAS (Visual Analog Scale) scores and functional status as well as early return to work following PRP injection with no recurrence to pre-PRP severity to date. **Discussion:** Preliminary studies and cases suggest PRP is safe and effective in treating recalcitrant plantar fasciitis which has not responded to other conservative treatments. It may be superior to anti-inflammatory conservative treatments for long-term pain resolution and for chronic cases, however more long-term studies are needed to compare PRP to the current standard of care as well as to other regenerative treatments.

Mycobacterium Avium Complex Vertebral Osteomyelitis and Retroperitoneal Abscess in an Immunocompetent Patient: A Case Report

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Introduction: *Mycobacterium Avium* Complex (MAC) is a well-established bacterium that is a common cause of pulmonary disease in healthy individuals, with the potential to disseminate in immunocompromised states. As a Mycobacterium, it is challenging to distinguish MAC from tuberculosis in disseminated disease and given major differences in treatment regimens, must therefore be confirmed using either PCR or Next-Generation Sequencing. Furthermore, disseminated MAC disease is most commonly seen in patients with human immunodeficiency virus (HIV), with reports that up to 40% of MAC infections in HIV patients will become disseminated. In contrast, isolated MAC vertebral osteomyelitis is rarely seen in the absence of immunodeficiency, with 30 or fewer cases to date being published in literature. **Description:** We report a case of MAC retroperitoneal abscess and vertebral osteomyelitis in the lumbar spine of an immunocompetent 29-year-old man from Tanzania who presented with progressive back pain and right-sided leg paresthesia. Initial imaging showed a large retroperitoneal mass with osseous invasion of the L4 vertebral body. Cultures from IR-guided biopsy initially demonstrated Mycobacterium on acid-fast stain with associated positive QuantiFERON-TB Gold test. Subsequent chest imaging demonstrated no active lung processes. The patient was started on empiric antituberculosis treatment (Rifampin, Isoniazid, Pyrazinamide, and Ethambutol) and underwent T10-Pelvis spinal decompression and fusion. Finalized Mycobacterial PCR cultures from the abscess were positive for MAC. The patient was then started on Azithromycin and treated simultaneously for active tuberculosis and MAC. **Discussion:** Given the rarity of MAC-related vertebral osteomyelitis, particularly in immunocompetent individuals, prompt diagnosis is difficult to ascertain. Finding an early and accurate diagnosis is also challenging because clinical signs and imaging are often indistinguishable from a typical tuberculosis spine infection. As such, providers must instill a widespread differential diagnosis and workup in these rare cases to avoid worsening complications while also improving morbidity and mortality.

Near Occlusion of the Tricuspid Valve by Metastatic Melanoma

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Introduction: Metastatic tumors to the heart can have varied clinical presentations depending on location. We present a case of right atrial (RA) metastatic melanoma with near obstruction of the tricuspid valve resulting in significant hypoxia.
Description: A 34-year-old man with a history of retinoblastoma and astrocytoma presented to the emergency department with 2 weeks of progressively worsening shortness of breath. On examination, he was hypoxic and in respiratory distress. Computed tomography of the chest with contrast showed a large hypoattenuating homogeneous mass in the RA that protruded into the right ventricle and extended to the superior and inferior vena cava. Transthoracic echocardiography (TTE) showed a large (9.1 x 4.6 cm) echo density filling the RA and almost completely obstructing the tricuspid valve. Due to worsening hypoxia, the patient underwent palliative surgical resection of the mass. Intraoperatively, the mass was densely adherent to all walls of the RA. Surgical pathology identified the mass as metastatic malignant melanoma. The patient was started on pembrolizumab and discharged home in stable condition. At his 1-month follow-up, his symptoms had improved, and he had returned to work.
Discussion: Metastases to the heart are more common than primary cardiac tumors. Left-sided cardiac masses are commonly benign, whereas right-sided masses raise suspicion for metastatic disease. Melanoma, lymphoma, leukemia, and breast and lung cancers commonly metastasize to the heart. The size of the RA mass in this patient was significant enough to cause hypoxia and near occlusion of the tricuspid valve. Successful palliative resection of the mass resulted in a large improvement in symptoms. As the incidence of malignant melanoma increases, clinicians need to have a high index of suspicion for cardiac metastasis. Early identification of cardiac metastasis is critical as these cases can often be associated with poor prognosis.

Isolated Anterior Compartment Syndrome and Extensor Retinaculum Syndrome Following Ankle Fracture With Syndesmotic Injury in a Pediatric Athlete: A Case Study

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Introduction: Extensor retinaculum syndrome is an extremely rare complication to occur following trauma to the lower extremity, when the retinaculum begins to impinge on the soft tissue structures due to the edema in the surrounding area. This can lead to pain, restricted vascular flow, edema and loss of motor function distally from the retinaculum. It has been historically discussed in other parts of the body, however seldom on the lower extremity. We present an extensor retinaculum syndrome of a pediatric ankle fracture with complete dislocation of the ankle joint.
Description: A 16-year-old male presented following a traumatic football injury. In the emergency department (ED), the patient had a dysvascular limb prior to reduction. A CTA was ordered and reviewed as normal. Patient was taken to the operating room (OR) for open reduction and internal fixation (ORIF) of right fibular fracture, syndesmosis repair, ankle arthrotomy, talar body microfracture, and deltoid repair. Post-op day 2, the patient was in uncontrolled pain with no motor function to his superficial peroneal, deep peroneal, and tibial nerve. Possible extensor retinaculum syndrome was suspected and the patient was taken to the OR for a fasciotomy and exploration. Intra-operative superior extensor retinaculum compartment was 58 mmHg proximally and 46 mmHg distally and the retinaculum was noted to be extremely tight. An external neurolysis was performed on the deep peroneal nerve as it was fibrosed. There was noted to be consistent bleeding from the medial aspect of the surgical site, outside the area of the initial surgery. Vascular surgery was consulted and discovered a bleeding perforator off the posterior tibial artery. Hemostasis was achieved and patency of the artery was confirmed. Primary closure was not possible due to edema and the patient was taken to the OR 2 days later for repeat irrigation and delayed closure. The patient's subsequent hospital stay was uneventful. Post operative neurologic studies showed mild slowing of the superficial peroneal nerve. Patient was followed for 4 months outpatient and has fully healed the fracture site with no residual pain or limitations in motion and function.
Discussion: Instances of such cases shed a rare light on the nuances of surgical treatment and emphasize the importance of diligent post operative care. Extensor retinaculum syndrome can become limb threatening if left untreated and cause the patient significant amounts of physical and emotional pain. Early diagnosis is key and future studies on mechanism of action or surgical prevention would be beneficial.

Primary Leiomyosarcoma of the Ureter Incidentally Detected on Magnetic Resonance Imaging for Prostate Evaluation

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Introduction: Primary leiomyosarcoma (LMS) arising from the smooth muscle of the ureter is extremely rare. Less than 30 cases are published in the English language. Survival of LMS and ureteral LMS is poor. Early diagnosis and treatment of ureteral LMS is challenging due to disease rarity and non-specificity of symptoms. We present a rare case of ureteral LMS incidentally detected during evaluation of the prostate with magnetic resonance imaging (MRI). **Description:** A man in his 70s presented with rising prostate specific antigen (PSA), urinary frequency, and nocturia. Prostate evaluation with magnetic resonance imaging revealed incidental nodular soft tissue at or adjacent to the left distal ureter. Computed tomography urography showed no evidence of stones, hydronephrosis, or filling defects, and confirmed nodular thickening of the distal ureter adjacent to the ureterovesical junction. Cystoscopy did not reveal mucosal irregularities. Cytologic washings were negative. A small nodule was identified with intraoperative ultrasound and distal ureterectomy with ureteral re-implantation was performed. Histopathological and immunohistochemical analysis revealed unexpected diagnosis of a small, intermediate-grade ureteral LMS with negative margins. The patient did not require radiotherapy or chemotherapy. Patient remains alive and disease-free 7 years after surgical treatment. A literature search was performed to compare management and survival to existing cases. **Discussion:** The rate of 5-year metastasis-free-survival among patients with leiomyosarcoma is approximately 60%. One-year metastasis-free survival for ureteral LMS is approximately 65% (11/17). Five-year metastasis-free survival is approximately 19% (2/11). Our patient is one of two patients with sufficient follow-up data living metastasis-free at 5 years after surgical resection. LMS grade, size, and bone or neurovascular involvement predict metastasis-free-survival. The intermediate grade, small tumor size, negative margins, and lack of neurovascular involvement are reasons for good outcome in this case. Incidental detection on prostate MRI evaluation may have contributed to relatively good outcome.

Acute Onset Vision Loss: More Than Meets the Eye

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Introduction: Acute onset decreased visual acuity in the pediatric population is uncommon and warrants urgent evaluation. Binocular vision loss in the setting of papilledema should raise suspicion for elevated intracranial pressure and requires prompt neuroimaging. While rare in the pediatric population, cerebral venous sinus thrombosis (CVST) should be considered in patients who present with bilateral vision loss in the absence of trauma. **Description:** A previously healthy 4-year-old female presented with acute onset changes in visual acuity. Her parents report that over the preceding days, she had been bringing objects closer to her face to look at them and walking more cautiously so as not to bump into anything. On exam, her pupils were 7mm and would partially and sluggishly constrict to light with dilation with continued light stimulation. Her visual acuity was 20/100 bilaterally. On fundoscopic exam, she had severe bilateral papilledema with blurring of optic disc margins and hemorrhages. A CT head demonstrated no acute intracranial process. An MRI/MRV subsequently demonstrated right-sided mastoiditis complicated by acute, partially occlusive right sigmoid and transverse dural sinus thrombosis. She had bilateral papilledema with dilation of the optic nerve sheaths, partially empty sella, and depression of the cerebellar tonsils, consistent with intracranial hypertension. She was therapeutically anticoagulated and received a prolonged antibiotic course. She underwent right mastoidectomy with myringotomy and tube placement and right optic nerve sheath fenestration due to inadequate improvement to visual acuity with conservative therapy. At her most recent follow-up, visual acuity was 20/60 with distance and 20/40 with near testing. **Discussion:** As demonstrated in this case, CVST is a rare yet known complication of intracranial infections such as mastoiditis. It can present signs of intracranial hypertension, seizures, or focal neurologic deficits. If CVST is not recognized and treated in a timely fashion, it can result in progression of the thrombus with complications of ischemic or hemorrhagic stroke. If there is associated intracranial hypertension that affects visual acuity, this can lead to permanent vision loss if not managed with medical and/or surgical interventions. This case highlights the importance of early recognition and treatment of CVST to reduce the incidence of blindness, other life-threatening complications, and even death.

Recurrent Transjugular Intrahepatic Portosystemic Shunt Restenosis in a Patient With Budd-Chiari Syndrome

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Introduction: Budd-Chiari Syndrome (BCS) is a rare disease with an overall annual incidence of 1 per million. It is characterized by hepatic venous outflow obstruction. Early recognition and treatment are crucial to prevent mortality. The mainstay of management includes early initiation of anti-coagulants, detecting and treating the underlying cause, and treatment of complications of portal hypertension via interventional radiology procedures such as transjugular intrahepatic portosystemic shunt (TIPS). TIPS is an expandable metal stent that creates a connection between the portal vein and the systemic circulation. Common postprocedural complications include hepatic encephalopathy, TIPS restenosis, and postprocedural bleeding. In this case study we discuss early detection and management of TIPS restenosis. **Description:** We report a case of a 36-year-old female patient with a past medical history of BCS who presented with worsening abdominal pain and vomiting of ingested matter. During her initial BCS diagnosis, she was started on anticoagulants but because of her persistent abdominal pain coupled with elevated liver enzymes and ascites, she was then treated with TIPS. Three years following the initial TIPS procedure, the patient had the first TIPS restenosis which was treated with a successful recanalization. One year later, the patient had her second restenosis where she presented with the above complaints. She was then managed with TIPS thrombectomy and revision with embolization. **Discussion:** TIPS was first successfully utilized clinically in 1980s and has been one of the most efficient treatment options for BCS for the past two decades. It is thought to increase the 5-year survival of patients by up to 70-80%. TIPS should be considered in patients with failed anti-coagulation treatment, acute fulminant hepatic failure, acute gastrointestinal bleeding, or refractory ascites. Up until 2001, bare metal stents were used which led to a higher rate of stent thrombosis and used to require multiple revisions. After 2001, covered stents were introduced and had better outcomes with a lower rate of stent thrombosis. The majority of TIPS stenoses occur in the first year and are more common in patients with hepatic cirrhosis mainly because of the hypercoagulable state. Restenosis should be suspected in patients who present with a recurrence of resolved BCS symptoms. Early surveillance for signs of restenosis and serial follow-up is recommended.

Synovial Chondromatosis: A Rare Case Report of Dorsal Dislocation of Hallux Interphalangeal Joint

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Introduction: Synovial Chondromatosis (SC) is a benign condition marked by synovial metaplasia leading to the formation of chondroid loose nodules. It predominantly affects weight-bearing diarthrodial joints, with the knee being the most common. SC occurrences in the forefoot are rare, with limited cases documented in literature. Further exploration of outcomes following surgical excision is warranted to enhance understanding of this condition. **Description:** We report a case of a 57-year-old female with a 7-month history of pain to her left hallux, impeding her ability to ambulate and wear shoes. Clinical examination revealed an inflamed, firm, non-mobile mass to the hallux, accompanied by dorsal dislocation at the interphalangeal joint (IPJ). The patient was neurovascularly intact. Radiographs depicted irregular calcification within the soft tissue surrounding the hallux. Ultrasound with an 8.0 MHz probe revealed mixed hyperechoic and hypoechoic lesion located at the distal phalanx of the hallux. MRI findings indicated a lobulated mass with T1 hypointensity and T2 hyperintensity encircling the IPJ at the anterosuperior aspect of proximal phalanx and anteroinferior aspect of distal phalanx. The patient underwent mass excision with biopsy and arthroplasty of hallux IPJ. Intraoperative exploration revealed multiple rubbery to soft lobulated masses within the joint capsule, along with erosions on the articular cartilage of proximal phalanx head. Pathologic examination confirmed diagnosis of SC. The patient remained weight-bearing as tolerated in a CAM boot for the initial 3 weeks and later transitioned to regular shoe gear after suture removal. The patient has been pain-free in shoes at 3 months post-operatively, experiencing improved range of motion. **Discussion:** This case highlights a rare occurrence of SC resulting in dorsal dislocation of the hallux at the IPJ level. The scarcity of SC in the forefoot and limited literature on its treatment poses challenges in formulating concrete recommendations for follow-up and management. Conducting high-powered studies is hindered by the infrequent nature of the tumor, emphasizing the importance of additional case studies to help establish treatment protocol for SC in the foot. Nevertheless, this case underscores the success of surgical excision as a viable option for reducing pain, reducing the risk of arthritis, and improving mobility.

Hyperkalemia Mimicking ST Elevation Myocardial Infarction

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Introduction: We present a case of hyperkalemia leading to an electrocardiogram (ECG) with an ST elevation myocardial infarction (STEMI) pattern that was brought for left heart catheterization but was found to have non-obstructive coronaries. Hyperkalemia is known to cause a wide range of ECG changes. Most traditionally these changes include peaked T waves, flattening of the P wave, prolongation of the PR interval, widening of the QRS, and bradycardia. However, two rare ECG changes that can be seen are ST elevation patterns and escape capture bigeminy. It is critical that hyperkalemia is identified early and treated aggressively in these cases to further determine need for LHC.
Description: A 57-year-old male with history of substance use presents to the emergency department (ED) after being found down for an unknown duration. On arrival he is altered, complaining of chest pain. ECG revealed an accelerated idioventricular conduction vs. sinoventricular conduction with peaked T waves, left axis deviation and ST elevations in II, III, AVF as well as V1-V6. Code STEMI was called and cardiology presented to bedside. Stat blood gas revealed a potassium >8.5 and pH of 7.14. Calcium gluconate, insulin/dextrose, bicarbonate, and isotonic fluids were ordered. Repeat ECG showed improvement in the ST elevations, worsening peaked T waves, and what appeared to be escape capture bigeminy. Multidisciplinary discussion resulted in decision to take patient for LHC where no obstructive lesion was identified. He was subsequently brought to the MICU and started on continuous renal replacement therapy with progressive improvement in mentation. Repeat EKG showed normal sinus rhythm without ischemic changes.
Discussion: Hyperkalemia can be life-threatening and is known to cause a wide array of ECG changes and arrythmias. In rare instances, it presents with ST elevations mimicking a STEMI, such as this patient. It also is a rare cause of escape capture bigeminy, seen on the second ECG. It is important to note the time to onset of hyperkalemia therapies when doing serial ECGs. For example, insulin/glucose may take 10-20 minutes to begin having an effect and an hour before maximum effect is noted. The timing of onset helps to inform when to do subsequent ECGs. The results of these serial ECGs can help determine the need for LHC balanced with risks of delaying further management of hyperkalemia.

A Case Report of Focal Amyloid Deposition Within the Tarsal Tunnel

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Introduction: Tarsal tunnel syndrome occurs when there is an entrapment neuropathy of the tibial nerve at the level of the ankle joint. Symptoms include sharp shooting, throbbing, and burning pain in addition to numbness into the toes and paresthesia. There are multiple intrinsic and extrinsic etiologies that can cause compression of the tibial nerve, including soft tissue space occupying lesions, which leads to worsening symptoms. Ganglion cysts are one of the most common benign soft tissue masses and can develop within the tarsal tunnel. This case is the first to report amyloid deposition within a ganglion cyst and within the tarsal tunnel.
Description: The patient is a 65-year-old female with a past medical history of diabetes, hypertension, kidney disease, and pericarditis. The patient is well known to our clinic and has been followed for routine care. The patient developed soft tissue in the right ankle in 2018. An MRI was performed to rule out malignancy. The MRI revealed a benign 2.9-cm ganglion cyst within the tarsal tunnel. At that time, the patient did not have any pain or nerve symptoms. The patient began to experience pain in her right ankle in November 2022. There was edema and warmth noted to the tarsal tunnel right ankle with a firm, large, non-mobile soft tissue mass. There was a positive Tinel sign noted at the right tibial nerve, demonstrating entrapment of the nerve. A repeat MRI was obtained revealing a 4.6-cm ganglion cyst within the tarsal tunnel which was displacing and compressing the tibial nerve. The patient failed conservative treatment including immobilization, orthoses, and anti-inflammatories. The patient underwent surgical excision of the ganglion cyst with decompression of the tibial nerve in 2023. Intra-operatively, the tibial nerve was distorted and discolored with fatty infiltration within the nerve. The ganglion cyst was sent to pathology. Post-operatively, the patient's nerve symptoms significantly improved. The pathology specimen was sent to Cleveland Clinic for further review. The report returned diagnosing ganglion cyst with Congo red positive for amyloid deposition. The patient is currently undergoing workup for systemic amyloidosis.
Discussion: Tarsal tunnel syndrome is a relatively rare disease from an entrapment neuropathy which can be caused by soft tissue masses. Amyloid deposition has been documented within the carpal tunnel; however, none have been reported within the tarsal tunnel. Tissue biopsy, genetic testing, and imaging should be performed.

Normal Non-Ossified Crista Galli Masquerading as Falcine Subdural Hemorrhage on Infant Head CT

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Introduction: A medical evaluation of child abuse often includes radiologic imaging. When subdural hemorrhage (SDH) is identified, concern about previous trauma arises. Further assessment includes a complete medical history, physical exam, and laboratory evaluation. Falcine SDH is a feature described in cases of abusive head trauma (AHT), the location approximating bridging veins susceptible to trauma. Here we present two cases of infants evaluated for accidental head trauma, who were suspected to have falcine SDH, raising concern for abuse. Upon further review, the CT findings were attributed to a normal anatomic structure, a non-ossified crista galli. When providing medical evaluations for suspected child physical abuse, one needs awareness about structures that can mimic traumatic injury. **Description:** Case 1: A 7-week-old fell from her mother's arm when she tripped. A family member witnessed the fall and the child presented for medical care immediately with a normal physical exam. A CT head revealed focal thickening of the anterior inferior falx, concerning for a falcine SDH. This resulted in notification of state Child Protective Services (CPS) and transfer to a pediatric intensive care unit. When the suspected injury was reassessed as a normal crista galli, the medical team concluded there was no injury at all, and CPS was updated promptly. Case 2: A 4-month-old fell from his father's arms. A family member witnessed the fall and sought prompt medical care. The infant was well appearing but developed scalp swelling. CT head identified bilateral skull fractures and subtle thickening along the anterior falx, representing trace subdural hemorrhage. On further review, the latter was attributed to a normal crista galli and notification of state CPS was avoided. **Discussion:** Crista galli means rooster's crest in Latin. The infant anterior skull base including the crista galli is cartilaginous and begins to ossify around 2 months of age. It is a midline structure extending from the ethmoid bone which can contain marrow or air, and thus have varying appearances on imaging. Accurate imaging assessment is of utmost importance as an unexplained injury finding might lead to investigation and intervention by CPS. While CPS notification is mandated when there is a suspicion of child maltreatment in order assure a comprehensive safety assessment and prevent future harm, such a response without a true basis for concern could lead to unnecessary family and patient stress.

Unusual Presentation of an Unusual Complication of a Usual Medication

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Introduction: Protamine is routinely used to reverse heparin in cardiac procedures. Adverse reactions are rare (0.06-10%) but include hypotension, right heart failure (RHF), anaphylaxis, noncardiogenic pulmonary edema, cardiac arrest, and death. We present a unique case of protamine causing acute RHF recognized by Spectral Doppler of atrial septal defect. **Description:** An 84-year-old-male with severe mitral regurgitation (MR) underwent successful TEE-guided transcatheter edge-to-edge repair (TEER) with MitraClip. Immediately following removal of transseptal sheath and receiving standard dose of 100mg IV protamine, TEE showed acute RA and RV dilation and dysfunction, and a high velocity right-to-left shunt. Within minutes, the patient went into cardiac arrest. CPR with 0.2mg epinephrine was initiated. After ROSC, TEE demonstrated normalization of the iatrogenic interatrial left-to-right shunt (Panel C). Continuous TEE monitoring was essential to rapidly diagnose and treat RHF secondary to acute protamine reaction. **Discussion:** Protamine rarely causes acute reaction leading to pulmonary vasoconstriction, RHF, and even cardiac arrest leading to death. Prompt recognition with TEE, stopping protamine infusion, and administration of epinephrine and other supportive medications are essential. Our case illustrates the rapid acute physiologic changes associated with RV dysfunction and prompt recognition of an atypical right to left shunt across an iatrogenic septal defect using 2D-TEE and continuous wave Doppler.

Primary High-Risk PCI in a Patient With Congenitally Corrected Transposition of Great Arteries and Dextrocardia at 40 Years of Age

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Introduction: Congenitally corrected transposition of the great arteries (CCTGA) is a rare congenital abnormality that can present in a variety of ways depending on the concomitant cardiac lesions involved. The systemic ventricle, the morphologic right ventricle, is prone to developing systolic dysfunction owing to its geometric limitations in adapting to pressures generated by the systemic circulation. **Description:** A 40-year-old man with a complex surgical history for dextrocardia and CCTGA presented for worsening dyspnea. Echocardiogram demonstrated worsening systemic ventricular function. Therefore, a coronary computed tomography angiogram was ordered, revealing findings of severe stenosis in the distal right coronary artery (RCA). The patient was referred for cardiac catheterization, which revealed that the RCA was a large-caliber vessel that had a >80%, distal, mildly calcific, obstructive lesion. Conversely, the left coronary system was undersized, which reflected that the area it was responsible for supplying had only mild, nonobstructive disease. Under intravascular ultrasound guidance, RCA was intervened on with a 5 x 32 mm SYNERGY drug-eluting stent. The patient's follow-up imaging revealed an improving systemic ventricle. **Discussion:** It is important to recognize that ischemia can potentially contribute to systolic dysfunction caused by CCTGA, that concomitant atherosclerosis be evaluated, and percutaneous coronary intervention be considered if appropriate.

A Case of Cardiac Arrest Due to Chagas Disease

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Introduction: Clinical manifestations of Chagas cardiomyopathy can develop 10 to 20 years after acute infection with the parasite *Trypansoma cruzi*. It is often difficult to identify patients during the acute infectious period due to low-grade symptoms. **Description:** A 53-year-old Hispanic female presented after suffering an out-of-hospital, witnessed cardiac arrest. Bystander CPR was promptly started, and she was found to be in ventricular fibrillation and underwent defibrillation with 200J of direct current. She was intubated for airway protection and brought to the hospital. Further history was obtained by her family who reported she was overall healthy aside from a past medical history of well controlled diabetes mellitus and hypertension. Her travel history included frequent trips to Mexico. Left and right heart catheterization revealed no coronary disease and normal filling pressures with a cardiac output of 4.7 L/min. A cardiac MRI showed an LVEF of 34% and aneurysm of the basal to mid anterolateral and inferolateral walls with transmural scar. The location of the aneurysmal segment and scar formation did not correlate to a coronary distribution, thus ischemic etiology was determined to be less likely. At this time, based on the patient's MRI findings, ethnicity, and previous travel history, the differential was expanded to sarcoidosis and Chagas disease. Sarcoidosis was deemed to be less likely in the absence of lymphadenopathy, pulmonary nodules, or other systemic findings, therefore she was referred for an outpatient 18F-FDG-PET scan to rule this condition out. *Trypansoma cruzi* IgG antibody levels came back elevated at 2.8 IV (range ≤ 1), consistent with a history of previous exposure. She subsequently underwent subcutaneous implantable cardioverter defibrillator placement for secondary prevention and was discharged home on appropriate goal directed medical therapy. **Discussion:** Chagas disease is classically associated with apical aneurysms, reported to occur in 45% of patients with LV dysfunction. This patient presented with an aneurysm in the basal to mid segment, which is an atypical location for aneurysm formation. This case highlights phenotypic variants in the presentation of Chagas Disease and the importance of keeping a broad differential when evaluating patients with new non-ischemic cardiomyopathy.

Break Through the Mold: Hyper-IgE Syndrome as a Vehicle for Invasive Aspergillosis

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Introduction: Hyperimmunoglobulin E syndrome (HIGES) is a rare immunodeficiency characterized by high levels of immunoglobulin E (IgE) in the setting of various clinical features such as cutaneous candidiasis, asthma, recurrent rashes, and fungal infections. This case describes a 70-year-old male with cachexia and dyspnea found to have a cavitary lesion and aspergilloma, with remarkably high IgE and positive 1,3-β-D-glucan and *Aspergillus* testing. **Description:** This patient was presented with debility and progressive shortness of breath. He appeared malnourished and unkempt, and had dystrophic nails and rashes present over extremities. He was profoundly hypoxic and moderately tachycardic. Influenza-A was positive. Chest radiography demonstrated diffuse bilateral interstitial

opacities with a large right upper lung lesion, confirmed on CT chest, which also noted a mycetoma (aspergilloma). IgE returned elevated to 58,410 (normal <99 IU/mL); 1,3-β-D-glucan was elevated to 436 (positive >80 pg/mL). *Aspergillus* galactomannan antigen was positive at 6.32. *Aspergillus fumigatus* IgG was elevated to >200.00 (normal <99 μg/mL). All other fungal labs were negative. Sputum cultures on admission grew *Aspergillus* species (not *Aspergillus fumigatus*) and multi-drug resistant (MDRO) *Stenotrophomnas maltophilia* (Steno). Voriconazole was initiated for the *Aspergillus*, and a combination therapy of Minocycline, TMP-SMX, Ceftazidime-Avibactam, and Aztreonam for the Steno. Ultimately, his hypoxia resolved, and he was discharged on antimicrobials. **Discussion:** We describe the aforementioned case, review the available literature, and hypothesize the connection between invasive fungal infections and HIGES. We hope this discussion helps highlight the importance of a broad differential in chronic dyspnea, including infectious etiologies, and allows for a better understanding of immunologic labs in the setting of fungal infections. The two main points of conclusion are to constantly evaluate the immunologic state of someone with chronic diseases and to always perform a thorough exam to avoid approaching a single symptom without appreciating the systemic syndrome.

CASE REPORT/SERIES VIRTUAL

Shrinking Lung Syndrome Case Report

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Introduction: Shrinking lung syndrome (SLS) is a rare complication of autoimmune diseases, most commonly seen in Systemic Lupus Erythematous (SLE). The disease is characterized by a restrictive lung pattern on pulmonary function testing, decreased lung volume on imaging, and bilateral hemidiaphragm elevation. Given the rarity of the disease, there are no standard treatment guidelines. Several treatments are described in literature, including one series with 63/66 SLS patients being treated with high dose corticosteroids. Rituximab showed statistically significant improvement in DLCO in a study of 18 patients with severe progressive connective tissue disease related lung disease, including 3 patients with SLS, although given the small sample size further studies are needed. We describe a case of SLS in a 43-year-old female with SLE that developed while on belimumab infusions, and with significant symptom improvement on mycophenolate and prednisone therapy. **Description:** A 43-year-old female with past medical history of SLE for which she was initially started on hydroxychloroquine and prednisone. She had persistent disease and was switched to belimumab. A year after diagnosis of SLE, patient presented to office with complaints of dyspnea and pleuritic chest pain. She underwent a chest X-ray in the outpatient setting which revealed low lung volumes with elevated diaphragm bilaterally and persistent mild lung base consolidation. She then underwent a High-resolution CT Chest which redemonstrated dense consolidation in lower lobes. She had PFTs done which showed restrictive lung disease pattern. Due to suspicion for shrinking lung syndrome, belimumab was discontinued and patient was started on prednisone and mycophenolate. After a month of therapy, she reports improvement in her breathing. **Discussion:** SLS is a rare manifestation of SLE and is a difficult diagnosis to make, especially in this patient who had opacities on radiographic imaging which is rarely seen in SLS. There is no evidence-based guideline for treatment of SLS. First line treatment is corticosteroids and treatment for refractory cases include cyclophosphamide, azathioprine, mycophenolate mofetil, and methotrexate with variable responses. The objective of this case is to raise awareness among clinicians regarding this condition, its various treatment options, and to encourage its inclusion as a potential differential diagnosis in lupus patients experiencing unexplained respiratory symptoms.

Mavacamten Safety and Efficacy in a Heart Transplant Patient Exhibiting Hypertrophic Obstructive Cardiomyopathy Phenotype/ Phenocopy

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Introduction: Hypertrophic cardiomyopathy (HCM) is the most common inherited cardiac disease. HCM has been reported in heart transplant (HT) patients;

however, medical treatments remain limited in such cases. Here, we describe a heart transplant patient who developed an obstructive hypertrophic cardiomyopathy (oHCM) phenotype/phenocopy with severe symptomatic left ventricular outflow tract obstruction (LVOTO). **Description:** A 49-year-old Asian man with ischemic cardiomyopathy underwent an orthotopic heart transplant (HT) and was immunosuppressed with mycophenolate, tacrolimus, and prednisone. Four years post-transplant, he developed progressive dyspnea. A left coronary angiogram showed non-obstructive coronary artery disease. An echocardiogram showed a septal thickness of 19 mm, mitral systolic anterior motion, and severe LVOTO with a resting gradient of 83 consistent with oHCM phenotype/phenocopy. Despite maximum tolerated standard medical treatment with metoprolol 200 mg, verapamil 360 mg, and disopyramide 480 mg, the patient remained symptomatic. The patient was started on 5 mg mavacamten, and at week twelve, the LVOTO had totally resolved, both at rest and with Valsalva. The patient became asymptomatic simultaneously. His EF maintained above 55%. The medication was well tolerated despite concurrent immunotherapy, and no interruption of mavacamten was made during the treatment period. **Discussion:** The development of left ventricular hypertrophy (LVH) after heart transplantation is well-known. Although its precise etiology remains elusive, various mechanisms have been proposed, including systemic HTN, chronic inflammation, and direct myocyte proliferation driven by immunosuppressive therapies. Regardless of mechanism, oHCM phenotype has been reported in heart transplant recipients and should be considered in cases with progressive LVH and LVOTO as in our case. Until recently, the only therapeutic option for patients with oHCM refractory to medical therapy was septal reduction therapy. Recently, however, mavacamten has become a non-invasive option for such cases (medical myectomy). By inhibiting myosin ATPase activity, mavacamten decreases myosin heads interaction with actin filaments. Therefore, it decreases hypercontractility and ameliorates the LVOT gradient associated with oHCM. In our case, mavacamten demonstrated high effectiveness and was well tolerated despite the patient being on multiple immunotherapies. Our case demonstrates the safety and efficacy of mavacamten even in a patient with HT.

Case Report: Popliteal Artery Entrapment Syndrome

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Introduction: PAES is a rare disease affecting 0.17%-0.35% of the population, with the mean age of onset being 32 years old. Approximately 83% of cases being males and bilateral disease seen in approximately 40% of patients. Generally, diagnosis is based on clinical history, patient age, and imaging. Imaging allows clinicians to look for abnormal variations in the anatomy and sequala and complications of PAES, such as popliteal artery stenosis and thrombosis. Treatment is variable as angioplasty and thrombolysis are used in cases of popliteal artery thrombosis with definitive treatment being myotendinous decompression surgery. **Description:** A 53-year-old presented to orthopedic surgery clinic for calf pain while walking. The clinic started with a venous duplex ultrasound, which was negative for any acute or chronic DVT. Subsequently, they underwent physical therapy and started to have new onset numbness. There was concern for exertional compartment syndrome and the patient was started on steroids and NSAID's with MRI ordered. MRI revealed aberrant medial gastrocnemius and concern for popliteal artery entrapment syndrome. Vascular surgery follow-up was ordered but patient presented to the emergency room due to significant pain before clinic visit. IR was consulted who performed angiogram and DCB angioplasty for right popliteal artery occlusion. Post treatment, flow through the popliteal artery was noted, but plantarflexion angiogram revealed no flow through the popliteal artery consistent with PAES. The patient followed up with surgery clinic and was still having severe pain. They subsequently underwent entrapment release surgery. During surgery the medial head of gastrocnemius was divided, with one portion inserted on lateral condyle consistent with type II popliteal entrapment syndrome. Post-surgery, the patient continued to have trouble with claudication symptoms with focal stenosis of popliteal artery requiring multiple DCB angioplasty, stenting, and TPA and finally a femoral popliteal artery bypass. **Discussion:** PAES can be a difficult diagnosis to make for any clinician due to overlap in presentation with PAD and chronic exertional compartment syndrome. Imaging and education therefore play a key role in diagnosis and treatment management to prevent complications of PAES. Our patient in this case study highlights some of these complications and difficulty with diagnosis. Future research into management of complications and keys to early diagnosis can be investigated.

Sjogren's Induced Splenic Atrophy Leading to Overwhelming *S. Pneumoniae* Bacteremia and Purpura Fulminans

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Introduction: Sjogren's is known to have extra-articular manifestations, with complications such as glomerulonephritis and vasculitis having long been established. However, these complications are rare, and little is known on further associations of Sjogren's, in particular the effect on the spleen. **Description:** We present a case of a 46-year-old female with a past medical history of Sjogren's who presented to the Emergency Department from urgent care for several days of generalized weakness and shortness-of-breath. The patient was found to be hypoxemic and in profound shock requiring multiple vasopressors with a severe lactic acidosis. CT abdomen noted splenic atrophy, and blood cultures were positive for *S. Pneumoniae*. Her course was further complicated by disseminated intravascular coagulation (DIC) and acute limb ischemia due to radial thrombosis requiring thrombectomy. Despite improvement in her hemodynamics and weaning of her vasopressors, diffuse mottling of her distal extremities evolved initially most pronounced on the right hand. These lesions became purpuric and eventually necrosed consistent with purpura fulminans. The patient received vancomycin, ceftriaxone, and a heparin infusion with gradual improvement in shock and coagulopathy. She required right wrist disarticulation in addition to multiple digit amputations of her bilateral lower extremities. *S. pneumoniae* bacteremia cleared with therapy, and the patient had complete hemodynamic recovery. Once stable, she received the vaccinations recommended for asplenia before discharge to a rehabilitation center **Discussion:** This report demonstrates an exceedingly underrecognized yet detrimental association between Sjogren's and splenic atrophy, leading to profound *S. pneumonia* septic shock with purpura fulminans that resulted in multiple debridements and amputations. As the complications associated with asplenia can have calamitous ramifications on morbidity and mortality, as in this case, splenic atrophy should be recognized as a possible extra-articular manifestation of Sjogren's especially in the critically ill patient with septic shock.

Clinical Manifestation of Hypercobalaminemia: A Case Report

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Introduction: There is extensive literature on the clinical characteristics of vitamin B12 deficiency in peripheral neuropathy but limited research on hypercobalaminemia and its effect on the human body. This is a unique case in which peripheral neuropathy and muscle twitches were presented as the clinical manifestation of elevated levels of vitamin B12. **Description:** A 49-year-old female patient presented to chiropractic clinic after having extensive workup of paresthesia in her arms, legs, and upper back. Multiple prior MRIs did not reveal a clinical explanation for her symptoms. In addition, blood lab work was reported as normal, however, the serum B12 levels were significantly elevated. This was initially not concerning as B12 is a water-soluble vitamin and easily passed through the urine. Collaborative care plan between chiropractor and primary care doctor resulted in monitoring of B12 levels. The patient was advised by the chiropractor to discontinue use of supplements and energy drinks with B12, and to eat a diet lower in B12. Serum B12 levels were monitored over eight months. Accompanying the lower blood levels of B12, symptoms were improved showing a reduction in intensity and frequency of numbness and tingling. **Discussion:** There is evidence in this case to support an elevated level of vitamin B12 is correlated with paresthesias and muscle spasms throughout the body. Further research is needed to determine the potential indications for high serum cobalamin and the practical clinical strategy to adopt in case of elevated B12 levels.

Seeing the Possibilities: Vitamin A Deficiency in Children With Autism Spectrum Disorder

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Introduction: The World Health Organization (WHO) cites Vitamin A deficiency as the leading preventable cause of childhood blindness worldwide. Although most common in developing countries, marked Vitamin A deficiency has been noted in developed countries, particularly in children with autism spectrum disorders and limited diets. A literature search using the keywords "autism" and "vitamin deficiency" revealed that there are only 12 such cases reported between 1993 and 2022. Almost all reported diets were primarily potato-based, and most of these patients had only ocular or vision symptoms at presentation. **Description:** Our patient is a 6-year-old male who was admitted for intermittent fevers and fatigue, as well as ocular pain and decreased visual acuity, that began several months prior. MRI and Ophthalmology exam under anesthesia were unremarkable. Neurology was concerned for untreated, progressive optic neuritis with vision changes; thus, the patient was trialed on methylprednisolone 10 mg/kg BID for three days and discharged with a steroid taper. Of note, the patient has severe autism spectrum disorder, is non-verbal at baseline, and has a very limited diet composed primarily of Pop Tarts and French fries. Due to concerns for dietary vitamin and mineral insufficiency, vitamin levels were drawn. After discharge, the patient was found to have

extreme Vitamin A deficiency: the level was undetectable. He had close follow-up with his PCP and Ophthalmology, who believed his vision changes were secondary to his severe Vitamin A deficiency. Nutritionists and dieticians have been working regularly with his family to replete his Vitamin A level and introduce more foods and supplements into his diet. **Discussion:** Vitamin A deficiency can lead to night blindness, xerophthalmia, corneal abrasions/ulcerations, keratomalacia, and general vision loss. In some cases, vision loss is irreversible, and severity of corneal disease necessitates keratoplasty. Even in a developed country, it is critical to remember that patients with limited dietary intake due to developmental or sensory disorders can present with nutritional deficiencies more commonly seen in developing countries. For this reason, it is crucial to inquire about diet history and screen for deficiencies when appropriate. Additionally, children with such limited diets should be advised to take a daily multivitamin to aid in preventing severe deficiencies, and they should be referred for nutrition and feeding therapy to expand variety of dietary intake.

A Unique Meeting Place: Amylase in the Pleural Space

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Introduction: Pancreaticopleural fistula is a rare complication due to anatomic abnormalities of the pancreas. This commonly affects middle aged men often with a history of alcohol use disorder and chronic pancreatitis. The initial presentation often respiratory in nature. This disease confers significant morbidity and mortality due to sepsis from superinfection of the pancreaticopleural fluids. Herein, we describe a 49-year-old female with abdominal pain, vomiting, and dyspnea found to have a complete left pleural effusion with elevated amylase ultimately diagnosed with suspected pancreaticopleural fistula. **Description:** A 49-year-old woman with a history of chronic pancreatitis complicated by pseudocysts presented with progressive abdominal pain and dyspnea after ERCP with biliary stenting. She was admitted to the ICU for sepsis and respiratory failure and initiated on empiric antimicrobial therapy. Radiography revealed a large left pleural effusion with complete left atelectasis. Thoracentesis drained 1.8 L of exudative effusion with elevated amylase and lipase. Pleural fluid cultures grew candida glabrata. Chest tube was placed for recurrent effusion and she was initiated on subcutaneous octreotide. Repeat ERCP demonstrated a pancreatic tail leak requiring duct stent exchange with high clinical suspicion for a pancreaticopleural fistula. Patient's clinical course was complicated by septic shock secondary to candidemia. Ultimately, she developed SJS-TEN, rapidly deteriorated, and unfortunately passed away shortly thereafter. **Discussion:** A pancreaticopleural fistula is difficult to diagnose and at times difficult to treat. Diagnosis requires a high index of clinical suspicion, particularly in the setting of recurrent pleural effusions with coexisting history of pancreatitis or alcohol abuse. CTAP is the gold standard for investigating pleural effusion but has limited ability to accurately delineate a fistula. ERCP leads to diagnosis in 80% of cases but does not always demonstrate the fistulous tract, especially in patients with a ductal obstruction on the distal side. Prompt pleural amylase assessment can prevent delayed diagnosis and may improve outcomes. In a patient with a history of chronic pancreatitis and/or recent surgical intervention presenting with pleural effusion, consider addition of amylase to pleural fluid studies and empiric octreotide administration.

A Podiatric Surgeon's Role in the Interdisciplinary Management of Acral Lentiginous Melanoma

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Introduction: There are four major histological subtypes of melanoma, but Acral Lentiginous Melanoma (ALM), although rare, is the most frequently encountered in the Foot and Ankle. It is described as a pigmented lesion that involves the hands and feet, characterized by lentiginous (radial) growth that evolves over months/years to a dermal (vertical) invasive stage. As outlined below in three cases, a podiatric surgeon plays an important role in the perioperative and surgical management of ALM. **Description:** Case 1 is an 89F which underwent a partial 1st ray amputation and sentinel lymph node biopsy. She followed with dermatology for melanoma of the left hallux, Breslow's depth of at least 3.5mm. PET scan revealed no evidence of metastatic disease. Surgical pathology revealed ALM, Breslow's depth of 2.2cm, and negative margins. Sentinel node was positive for metastatic melanoma. Postoperatively, sutures were removed at three weeks, and Pembrolizumab was given. Case 2 is an 93F who underwent partial L hallux amputation and sentinel lymph node biopsy along the L groin. She underwent a shave biopsy and PET scan, confirming the presence of ALM to the L hallux. Breslow's depth of at least 1.7 mm and at least Clark's level IV. Surgical pathology revealed ALM, Breslow's depth of 0.8 cm, and negative margins. Sentinel node biopsy

was negative for metastasis. Postoperatively, sutures were removed at approximately three weeks. Case 3 is an 82M who underwent a L 4th digit amputation and sentinel lymph node biopsy along the L groin. He was following with dermatology and surgical oncology and had a punch biopsy performed, confirming ALM. Breslow's depth of at least 1.7 mm and at least Clark's level IV. Surgical pathology revealed ALM, Breslow's depth of 0.58 cm, and negative margins. Sentinel node biopsy was negative for metastasis. Postoperatively, sutures were removed at two weeks. **Discussion:** Cases 1, 2, and 3 demonstrate the importance of quick, efficient, interdisciplinary surgical management of pedal melanoma. Wide, aggressive marginal resection is challenging in the Foot and Ankle, and often requires partial amputation in order to achieve appropriate closure. Weight bearing is often achieved within three to four weeks after surgical intervention upon suture removal. Coordination of sentinel lymph node biopsy is followed closely in the outpatient setting by surgical oncologist further treatment as appropriate.

A Refractory Case of Catastrophic Antiphospholipid Syndrome (CAPS)

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Introduction: Catastrophic Antiphospholipid Syndrome (CAPS) is a rare, life-threatening form of antiphospholipid syndrome (APS) characterized by severe thrombotic complications of the microvasculature and large vessels. CAPS is typically treated with a combination of anticoagulation, glucocorticoids, and therapeutic plasma exchange (TPE) or intravenous immune globulin (IVIG). In refractory cases, Rituximab (RIT) or Eculizumab is used. Trials utilizing anti-CD38 drugs are ongoing, but availability is a limiting factor. **Description:** A 40-year-old male presented with calf pain and chest pain. He was found to have deep vein thrombosis (DVT) of the right lower extremity and pulmonary embolism (PE). He was initially treated with Apixaban (stopped due to rash), and subsequently Enoxaparin (EN). Initial workup was indeterminate for lupus anticoagulant, and later positive. EN was switched to Warfarin. Two months later, he developed new DVT & PE while therapeutic on Warfarin so was switched back to EN. After three months, he again developed new PE, started on heparin, and transitioned to Rivaroxaban. He was readmitted within a day for multi-territorial acute brain infarct and treated with Fondaparinux, Prednisone, Hydroxychloroquine, TPE, and RIT. He did respond to TPE initially. He was again readmitted after one month with complete loss of vision secondary to ischemic strokes involving bilateral occipital lobes and was treated with Fondaparinux, IVIG, TPE, Prednisone, Mycophenolate Mofetil (MMF), and Eculizumab. He continued to develop multifocal embolic strokes, splenic/renal infarcts, RV thrombus, severe thrombocytopenia <30 (PF4 negative), and low fibrinogen <50. Due to low fibrinogen and low platelets, anticoagulation was temporarily held. Romiplostim was used to improve platelet count. Cryoprecipitate was given once to improve fibrinogen levels in preparation to re-start anticoagulation on Argatroban. Within two days, he developed globular hemorrhagic transformation of prior stroke and inferior STEMI. Timely initiation of heparin was challenging, and heparin started after two days. Respiratory status progressively worsened, and family transitioned him to comfort care. He passed away within six months of diagnosis. **Discussion:** More research is needed to explore treatment options for refractory cases of CAPS. Evaluation for a possible trigger in refractory cases requires a multidisciplinary approach. It may be challenging to proceed with even minimally invasive workup to evaluate triggers due to concomitant coagulopathy.

Peripheral Mononeuropathy in a Pediatric Patient Following Episode of Severe Diabetic Ketoacidosis: A Case Report

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Introduction: Peripheral mononeuropathy is a rare complication of diabetic ketoacidosis. Only a small number of cases have been reported in the pediatric population. The exact pathogenesis and treatment of peripheral neuropathy associated with diabetic ketoacidosis remains unclear.
Description: We report a case of a 14-year-old female with past medical history of type 1 diabetes mellitus and hypothyroidism who developed numbness and tingling to the right foot following treatment for severe diabetic ketoacidosis. Per the patient's mother, the patient had been experiencing flu-like symptoms with decreased PO intake for several days prior to presentation. Upon arrival to outside hospital, patient was noted to be tachypneic with Kussmaul

respirations and pale in appearance with poor skin turgor. The patient was found to have a glucose of 1,135, HbA1c of 10.5, K+ of 6.0, venous blood pH of <6.8, and WBC of 34.0. IV fluids, insulin drip at 0.1 units/kg, and broad-spectrum antibiotics consisting of Rocephin were initiated. The patient was transferred to Advocate Christ Medical Center for higher level of care. Podiatry was consulted 6 days into the patient's admission at Advocate Christ Medical Center for evaluation of numbness and tingling to the right foot. Right foot x-ray series demonstrates no soft tissue or osseous abnormality. Right foot and ankle MRI imaging demonstrates no evidence of space occupying lesion in the tarsal tunnel, soft tissue mass, or osseous abnormality. Additional etiologies of peripheral neuropathy were ruled out. Patient was seen by physical therapy and noted gradual improvement in symptoms throughout her admission. Recommendations upon discharge included daily supplementation with alpha-lipoic acid and vitamin B1, B6, and B12 supplementation, close outpatient follow-up with pediatric endocrinologist, and outpatient neurology consultation if continued improvement in symptoms ceased. **Discussion:** This case illustrates a rare complication of diabetic ketoacidosis in the pediatric population. With appropriate glycemic control and initiation of physical therapy, improvement was noted in right lower extremity peripheral mononeuropathy. This case reaffirms the need for additional research outlining the pathogenesis, prevention, and treatment options for this complication for diabetic ketoacidosis.

Hypercalcemia and a Mycotic Aneurysm

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Introduction: We report an unusual case of a mycotic aortic aneurysm that developed two years after intravesical instillation of Bacillus Calmette – Guérin (BCG). **Description:** A 78-year-old male with a history of diabetes mellitus was evaluated for acute kidney injury, hypercalcemia, and 25-pound weight loss. Labs showed serum creatinine (Scr) had increased from 1.0 to 2.8 mg/dl over 3 months. Urinalysis revealed moderate WBC. Renal imaging was normal. The uncorrected serum calcium level was 13.6 mg/dl. Two years earlier he underwent resection of a papillary urothelial carcinoma and was treated with six intravesical BCG instillations. Workup revealed elevated serum alkaline phosphatase, suppressed PTH (< 7), normal serum protein electrophoresis, negative parathyroid-related peptide, and very high levels of Angiotensin-converting enzyme and 1, 25 dihydroxy Vitamin D 3. Liver imaging showed an ill-defined mass. A presumptive diagnosis of sarcoidosis was made. The patient was treated with normal saline, bisphosphonates, and calcitonin. The Scr declined to 2.2 and serum calcium to 10.2 mg/dl. A liver biopsy demonstrated non-caseating granulomas, and the AFB stain was negative. The patient was treated with prednisone 40 mg daily that was tapered after four weeks. His lab values returned to a normal range. Six months later he had recurrent bladder cancer with muscle invasion and required systemic chemotherapy. Two years later he complained of abdominal pain and was noted to have a pulsatile upper quadrant mass. Imaging showed a new 4 cm abdominal aortic aneurysm. The aneurysm was resected and an axillary-bifemoral bypass graft placed. Operative cultures grew *Mycobacterium bovis*. He was treated with Isoniazid and Rifampin for six months and continues to do well clinically. **Discussion:** Intravesical BCG, a live attenuated strain of *Mycobacterium bovis*, is an adjunctive treatment for noninvasive bladder cancer. Infectious complications are rare and estimated at < 1%. Systemic dissemination of the organism is postulated to occur when there is urothelial disruption, frequent instillations, and host immunosuppression. In PTH-independent hypercalcemia not due to an obvious malignancy, it is important to consider 1,25 dihydroxy D 3 overproduction as a possible etiology. Besides sarcoidosis, infectious etiologies such as fungal and mycobacterial granulomas should be entertained.

A Tale of Two Appendages: Large Native Left Atrial Appendage Thrombus in a Cardiac Transplant Patient

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Introduction: Thrombus formation in the native left atrial appendage (LAA) of a cardiac transplant recipient is a rare complication of an outdated surgical technique that left large portions of the native left atrium intact. The current bicaval anastomotic surgical approach for cardiac transplantation removes the native LAA and has been used since 1989. **Description:** A 60-year-old male underwent an orthotopic heart transplant in 1988 due to viral myocarditis. He later developed cardiac allograft vasculopathy and graft dysfunction. He recently presented with an acute ischemic stroke, which was treated with alteplase and aspiration thrombectomy. A small subarachnoid hemorrhage was noted on follow-up imaging. Transesophageal echocardiogram (TEE) revealed a large 2.2 x 3.8cm thrombus in the native LAA and a normal appearing graft appendage. The patient's course was complicated by left popliteal artery occlusion and inferior ST-elevation myocardial infarction.

Discussion: A TEE was obtained due to a high suspicion of a cardioembolic source. Anticoagulation was initiated based on the findings despite SAG after a multidisciplinary discussion, which determined that further embolic events outweighed the risk of worsening hemorrhage. Cardioembolic stroke from native LAA thrombus is rarely seen in current practice due to widespread use of the bicaval technique for cardiac transplantation. Native LAA thrombus should not be overlooked in patients with older cardiac transplants.

Ankle Myopericytoma: A Case Report

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Introduction: Myopericytoma is a rare, circumscribed mass that commonly forms within the superficial subcutaneous layer of the four extremities, more commonly in the lower extremity. This benign soft tissue tumor exhibits differentiation within the perivascular myoid cells which consists of spindle shaped cells. A small number of cases have been reported regarding myopericytomas to the lower extremity. The exact etiology remains unclear. This report will outline the pathogenesis, clinical presentation, and treatment course of myopericytoma to the ankle. **Description:** This case reports a myopericytoma in an 85-year-old male who presents to clinic with a painless, well-circumscribed soft tissue mass to the posterior lateral aspect of the right ankle. Patient has a past medical history including hypertension, hyperlipidemia, sinus bradycardia, coronary artery disease status post percutaneous coronary intervention, and obstructive sleep apnea on continuous positive airway pressure. A formal physical exam was performed. The soft tissue lesion initially presented itself as a ganglion cyst. The magnetic resonance image to the right ankle exhibited a soft tissue abnormality near the Achilles tendon. All conservative management has been exhausted as patient has dealt with this for a number of years. All alternative treatment options were discussed including but limited to the risks and benefits of each. Patient elected for surgical excision of the mass. Upon excision, the soft tissue mass was sent to surgical pathology, at Advocate Christ Medical Center, for further analysis. The case was then reviewed by a bone and soft tissue pathologist at Cleveland Clinic. The patient followed up in outpatient setting two weeks post operatively. Post-operative complications including re-occurrence are not reported. **Discussion:** This report has described the clinical presentation and treatment course for myopericytoma highlighting the importance in differentiating this lesion from similar-like soft tissue lesions. Although there is a low incidence for malignant myopericytomas, it is important to ensure the benignity of the lesion upon presentation. With appropriate diagnosis, surgical excision of the lesion is an appropriate first line of treatment. Further studies are needed to evaluate the pathogenesis, treatment options, and complications related to myopericytomas to the ankle.

Post-Bariatric Surgery Hypoglycemia Presenting Years After Sleeve Gastrectomy

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Introduction: Post-bariatric surgery hypoglycemia (PBSH) is increasingly being recognized after various bariatric procedures. PBSH can manifest as postprandial or fasting hypoglycemia, requiring investigation and prevention due to potential asymptomatic presentations that may lead to severe consequences. **Description:** A 45-year-old female with a history of type 2 DM, ESRD on HD, gastric sleeve surgery, bilateral trans-metatarsal amputations, coronary artery disease, and congestive heart failure presented with bilateral lower extremity wounds. On admission her venous blood glucose was 71 mg/dL. Glycohemoglobin was 3.9% and fructosamine was 225 umol/L. Her glycohemoglobin levels consistently remained below 6.4% status post sleeve gastrectomy off diabetes medications. Throughout admission, she experienced almost daily episodes of fasting asymptomatic hypoglycemia correlated with venous sample with lowest blood glucose reading 38 mg/dL. Initially, these episodes were attributed to NPO status for procedures or decreased PO intake. Her diet consisted of fast food brought by her family, which she reported was similar to her diet at home. Workup during a hypoglycemic episode (glucose 51 mg/dL,) revealed insulin 4 mUnits/L, proinsulin 7.1 pmol/L (<=7.2 pmol/L), C-peptide 25.7 ng/mL (0.8-3.9 ng/mL), and beta-hydroxybutyrate (BHB) 0.5 mmol/L (0.0-0.3 mmol/L). Negative insulin antibodies and sulfonylurea panel, normal cortisol, and ACTH levels were noted. The patient was placed on a 10% dextrose infusion to avoid further episodes of hypoglycemia. She continued to experience hypoglycemia and was started on oral diazoxide. A CT pancreas with and without contrast was unremarkable,

and endoscopic ultrasonography only revealed a 10 mm accessory spleen. The patient was discharged with dietary counseling and follow-up with endocrinology. **Discussion:** PBSH should be considered as a differential diagnosis in patients with unexplained hypoglycemia and a history of bariatric surgery. PBSH mimics insulinoma or non-insulinoma pancreatogenous hypoglycemia syndrome (NIPHS) with elevated insulin, proinsulin, C-peptide, and low BHB during hypoglycemia. However, NIPHS is exclusive to non-bariatric patients. Imaging is crucial to rule out insulinoma and invasive tests such as endoscopic ultrasound aid diagnosis. PBSH is a diagnosis of exclusion; workup should rule out other causes. First-line treatment involves diet modification, with diazoxide or acarbose if dietary changes are insufficient.

Acute Profound Thrombocytopenia After Administration of a Single Bolus of Intracoronary Eptifibatide in Patient With Acute Coronary Syndrome (ACS)

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Introduction: Eptifibatide is an anti-platelet agent that is widely used in percutaneous interventions in patients with acute coronary syndrome (ACS). The mechanism of action of this medication is to prevent binding of fibrinogen, von Willebrand factor, and other adhesive ligands to glycoprotein IIb/IIIa by reversibly inhibiting platelet aggregation. One of the rare but clinically significant adverse reactions is acute profound thrombocytopenia. We present a case of acute profound thrombocytopenia after a single intracoronary administration of eptifibatide during percutaneous coronary intervention (PCI). **Description:** A 55-year-old male with a history of diabetes mellitus, hypertension, and tobacco use presented to the emergency department with substernal chest pain. The EKG revealed anterior ST segment elevations. On admission, platelets (PLT) count was 323,000/μL. He received aspirin, heparin, and atorvastatin in emergency department (ED), after which he was taken for an emergent coronary angiogram which revealed 100% acute thrombotic occlusion in the proximal to mid left anterior descending (LAD) with TIMI 0 flow. PCI was performed with a drug-eluting stent deployment in the proximal to mid LAD. Due to low flow after stent deployment, a single bolus of intracoronary eptifibatide was administered with TIMI III flow in the end. Patient was loaded with prasugrel 60 mg. The next morning, CBC revealed PLT count decreased to 7000/μL. Patient was asymptomatic without any concerns of active bleeding. However, due to this profound thrombocytopenia, prasugrel was discontinued. Hematology consult was obtained, and a diagnosis of eptifibatide-induced thrombocytopenia was established. The patient's PLT count trended up to 28,000/μL the next day without any interventions. Once, the PLT counts were above 40,000/μL, patient was loaded with clopidogrel 600 mg and started on maintenance dose. Clopidogrel was chosen to mitigate bleeding risk compared to prasugrel. Eventually, the patient was discharged home with PLT count of 120,000/μL. **Discussion:** Eptifibatide-induced profound thrombocytopenia is a rare complication that occurs in around 0.2% cases. The cases reported in medical literature are associated with eptifibatide infusion used for the treatment of ACS. To the best of our knowledge, this is the first case report that associates acute profound thrombocytopenia with a single intracoronary bolus of eptifibatide. This case will add to the current evidence and bring more awareness regarding this complication in patients after even single intracoronary bolus.

Primary Gastric Squamous Cell Carcinoma Treated With CROSS Regimen

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Introduction: Primary gastric squamous cell carcinoma (PGSCC) accounts for only 0.04-0.07% of all gastric cancers. Given the rarity of PGSCC, the prognosis and best course for disease management remain unknown. Conversely, esophageal squamous cell carcinoma (ESCC) is the most common type of esophageal cancer. For this disease, neoadjuvant chemoradiotherapy and surgery (the CROSS regimen) has been shown to improve both overall survival and disease-free survival compared to surgery alone. Despite histologic similarities between PGSCC and ESCC, PGSCC treatment differs to various extents. In a single hospital study looking at 21 cases of PGSCC, surgery and sometimes adjuvant chemotherapy were used. The adjuvant chemotherapy regimen in this study did not yield a significant difference in survival of patients compared to those who had surgery alone. **Description:** The patient presented to the emergency department with light-headedness and black stools and underwent CT imaging which showed gastric wall thickening with a mass. An EGD with endoscopic ultrasound revealed

a 5-6 cm gastric mass at the lesser curvature approximately 1-2cm from the GE junction. The esophagus was normal. A biopsy was consistent with SCC. The patient was referred to surgical oncology. A PET/CT found no evidence of metastatic disease. A diagnostic laparoscopy was negative for peritoneal disease. Treatment with neoadjuvant CROSS was recommended. After neoadjuvant treatment, repeat staging imaging was performed, which showed a significant reduction in size of the mass. The patient underwent a diagnostic laparoscopy, total gastrectomy, and omentectomy. Surgical pathology reported no residual tumor. Eight regional lymph nodes were negative for malignancy. The patient had an uncomplicated recovery and was discharged on post-op day six. Patient continues to recover well. Recent surveillance imaging shows no evidence of metastasis or recurrence. **Discussion:** This case presented the clinical challenge of navigating a disease with a mostly unknown prognosis and non-standardized course for treatment. How squamous cell carcinoma occurs in the stomach remains unknown and the appropriate treatment remains debated. The decision to treat our patient on the CROSS protocol demonstrated a dramatic response. The long-term outcome for the patient remains unknown due to the short follow-up period, but he will continue to be monitored and screened. Treating PGSCC similarly to ESCC has promise, but more investigations are needed to make definitive conclusions.

Safety of Flecainide in Patients With Advanced Heart Failure

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Introduction: Flecainide is a very efficacious drug for the suppression of premature ventricular contractions (PVC) and ventricular tachycardia (VT). However, it is contraindicated in coronary artery disease (CAD) and structural heart disease (SHD) due to its drug class associated high mortality documented in the CAST trial. Its role in the suppression of VT foci in non-ischemic dilated cardiomyopathy (NIDCMP) is unknown. We aimed to evaluate the efficacy, and safety of flecainide therapy in patients with advanced heart failure due to NIDCMP. **Description:** We performed a retrospective chart review of non-consecutive patients with NIDCMP who had been prescribed flecainide. Flecainide was prescribed by the physician in an off-label manner, when other medications including amiodarone had failed, or they had developed significant intolerance. All the patients had an implantable cardioverter defibrillator (ICD), to monitor for arrhythmia burden. Baseline demographics, event data from the ICD, were acquired. The values are displayed in percentage, and median with interquartile range. We identified 12 patients. All had a negative recent ischemic evaluation. At drug initiation, 11/12 (91.6%) patients had an implantable cardioverter defibrillator (ICD) present, 1/12 (8.3%) had a life vest, 5/12 (41.6%) had a Left Ventricular Assist Device, 3/12 (25.0%) patients had NIDCMP due to cardiac sarcoid. Patients had failed at least 1-3 AADs previously. 8/12 (66.7%) had a previous failed VT ablation. Flecainide was stopped prematurely in 3/12 (25.0%) patients because of intolerance but the ICD did not record any arrhythmia. There was a marked suppression in premature ventricular activity, and VT episodes requiring shocks/ATP after initiation of the medication. No ventricular fibrillation events occurred with flecainide use on the ICD (Median follow-up 6-18 months). **Discussion:** Flecainide appears to be safe and efficacious in patients with advanced heart failure due to NIDCMP. Its role in the management of patients who have an ICD, no obstructive coronary artery disease, and intolerance/marked side effect profile to other AAD needs to be revisited and randomized trials may be needed.

Percutaneous Femoropopliteal Arterial Bypass With Venous Endoluminal Stent Graft

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Introduction: More than 200 million people worldwide in 2010 were affected by peripheral arterial disease (PAD). Open surgical bypass procedures are typically considered the definitive treatment for symptomatic PAD, favoring autogenous vein grafts over prosthetic graft. Novel techniques for when the more classic surgical approach to PAD fail continue to progress, particularly when considering at-risk populations such as the elderly and the medically compromised patients who present with PAD. **Description:** A 68-year-old male presents with severe peripheral arterial disease, chronic nonhealing wounds within the left foot, and chronic clinical left lower extremity ischemia. Patient has a history of occluded left femoral popliteal bypass graft and occluded left native SFA status post multiple prior attempts at endovascular revascularization. A vascular sheath was established with the contralateral common femoral artery (CFA). Lower extremity angiogram demonstrates a patent profunda femoral artery. The native SFA and bypass graft remain occluded. The popliteal artery

is reconstituted at the bifurcation with the anterior tibial artery (ATA). ATA and peroneal are patent. Posterior tibial artery is chronically occluded. US-guided 21-gauge needle was advanced through the anterolateral wall of the common femoral artery, out the posterior lateral wall of the CFA and into the left common femoral vein. A snare was advanced via this access into the popliteal vein to the level of the patent popliteal artery. A sheath was then placed in the distal ATA and an angioplasty balloon advanced retrograde to the level of the snare; 21-gauge needle was used in gunsight technique in conjunction with the angioplasty balloon and snare to establish body floss. Viabahn stent graft was deployed such that a venous intraluminal arterial conduit was created with proximal aperture within the patent CFA and distal aperture within the patent popliteal arterial segment. This successful femoropopliteal endoluminal arterial bypass led to resolution of the patient's rest pain and healing of the left foot wounds with current 2-year patency. **Discussion:** This case demonstrates successful salvage revascularization in a setting of severe chronic critical limb ischemia. This is concordant with published results within the DETOUR clinical trial.

Unmasking an Isolated Hepatic Amyloidosis in a Patient With Acute Cholestatic Liver

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Introduction: Amyloidosis is a clinical disorder caused by deposition of insoluble abnormal amyloid fibrils extracellularly or intracellularly. The four main types of amyloidosis are: Primary amyloidosis (AL), Secondary amyloidosis (AA), Familial ATTR Amyloidosis, and Wild-Type (Senile) ATTR Amyloidosis. Most common presentation of amyloidosis is shortness of breath, neuropathy, swelling of legs, and enlarged tongue. We present a rare case of AL Amyloidosis of the liver presenting with an isolated cholestatic hepatic pattern. **Description:** The patient is a 53-year-old who complained of fatigue, abdominal pain, jaundice, and dark-colored urine for the last month and significant weight loss of around 50 pounds. Laboratory was remarkable for leukocytosis 23.5, normocytic normochromic anemia, PTH-independent hypercalcemia 12.2, direct bilirubin 8, AST 161, ALT 37, ALK 986, normal lipase, Cr 1.01. Anti-mitochondrial antibody and smooth muscle were negative. Abdominal ultrasound revealed gallstones without common bile duct dilation. Chest CT did not show hilar adenopathy. MRCP noted for normal caliber of biliary tree without evidence of stricture or choledocholithiasis. Given unclear clinical presentation patient underwent a liver biopsy which showed the presence of trichrome and congo red positive for diffuse sinusoidal amyloid deposition. Iron stain and PAS-D were negative. Subtyping demonstrated AL (lambda) amyloid type. SPEP showed baseline IgG lambda M protein was 1.7 with free K/L ratio of 0.21. Bone marrow biopsy revealed IgG lambda myeloma, 60% plasma cells, FISH with t (14;16) and 1q21 amplification. Cardiac MRI without evidence of cardiac amyloidosis. After a multidisciplinary approach, the patient started on Daratumumab plus CyBorD (cyclophosphamide, bortezomib, and dexamethasone) and continued her treatment with adequate tolerance. **Discussion:** Amyloidosis can be difficult to diagnose, as it mimics a plethora of other diseases. However, given the increased awareness, incidence of AL increased from 15.5 cases per million in 2007 to 40.5 in 2015. Data suggest an estimate of 15% of all MM cases develop AL. Since 2014 the options for treatment have increased dramatically. Genetics and biomarkers have given clinicians a much better understanding and targeted approach to treating MM. Daratumumab, in this case, is an example of targeted therapy for maker CD 38. It is imperative to keep differentials broad and intervene with the appropriate treatment.

Sink Your Teeth Into a Curious Case of Non-Infectious Mandibular Osteomyelitis

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Introduction: Facial swelling is a common pediatric complaint and is often due to infectious causes such as lymphadenitis, parotitis, sinusitis, or dental infection. When antibiotics fail and symptoms become subacute/chronic, further work up is indicated to evaluate for other disease processes such as oncologic or autoimmune. We present a case of mandibular osteomyelitis suspicious for chronic non-bacterial osteomyelitis (CNO) vs. Chronic Recurrent Multifocal Osteomyelitis (CRMO). **Description:** A previously healthy 8-year-old female presented with a three-week history of progressive right-sided facial swelling and tenderness, which failed to respond to oral antibiotic therapy. On exam, she had right cheek swelling with focal tenderness over the ramus of the mandible. There was no overlying induration, warmth, or erythema. She had normal dentition without caries. Her laboratory evaluation was notable for an elevated ESR with normal CBC, and negative CRP, procalcitonin, and blood culture. CT neck demonstrated no evidence of abscess but did show periosteal reaction at the right mandibular angle with a 9-mm osseous erosion, suggestive of osteomyelitis.

MRI of the face confirmed mandibular osteomyelitis. Given her reassuring laboratory workup and lack of infectious source, concern for nonbacterial osteomyelitis was raised. A full body MRI was obtained to evaluate for other potential sites of involvement, but none were identified. A bone biopsy was obtained, and pathology revealed inflammatory changes without evidence of an infectious or neoplastic process. **Discussion:** This case highlights a unique presentation of facial swelling non-responsive to antibiotic therapy. Our patient meets both published diagnostic criteria (Jansson and Bristol criteria) for diagnosis of CNO/CRMO, an autoinflammatory bone disorder that presents with insidious, recurrent bone pain in one (CNO) or multiple (CRMO) sites. Whole-body MRI is the gold standard for diagnosis and follow-up, and bone biopsy is often performed to exclude other disease processes such as infection or malignancy. While CNO/CRMO can mimic bacterial osteomyelitis, the first line of treatment is NSAIDs rather than antibiotics. The diagnosis of CNO/CRMO is often delayed; however, early recognition and diagnosis is crucial for prevention of complications such as fractures and management of chronic, recurrent pain, as up to 50% or more of patients develop clinically significant flares.

The Forgotten Right Side: Rare Cause of Right Sided Heart Failure

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Introduction: Carcinoid heart disease is a rare cause of right-sided valvular disease. We present a case of carcinoid heart disease that was diagnosed by echocardiogram in a patient with metastatic neuroendocrine carcinoma to the liver. **Description:** A 62-year-old male with history of neuroendocrine carcinoma with liver metastasis presented to his primary physician with complaints of persistent lower extremity swelling and ascites requiring recurrent paracentesis. He was found to have a holosystolic murmur. Transthoracic echocardiogram and cardiac MRI (CMR) showed findings consistent with carcinoid heart disease. Transthoracic echocardiogram showed left ventricular (LV) EF of 83%, tricuspid valve (TV) leaflets were severely thickened and fixed with wide-open regurgitation and a dense triangular shaped doppler contour. The pulmonary valve (PV) was also severely thickened and fixed with severe regurgitation and doppler showing early termination of diastolic regurgitant flow. The RV was severely dilated. CMR showed severely dysplastic TV in a fixed open position and severe regurgitation. Regurgitant fraction was 47%. PV was severely dysplastic and in a fixed open position with severe regurgitation. Regurgitant fraction was 33%. RV end diastolic volume index was 173 mL/m2. Mid myocardial stripe of delayed gadolinium enhancement was also seen in the basal septum. He was referred for evaluation for surgical valve replacement. Cardiac catheterization revealed normal coronaries and elevated right sided filling pressures with ventricularization of right atrial pressure waveform. He ultimately underwent TV and PV replacement with bioprosthetic valves. He received peri-operative octreotide and tolerated the surgery well. He followed up with significant improvement in symptoms and without requiring further paracentesis. **Discussion:** Echocardiography remains the cornerstone in the investigation of patients with suspected carcinoid heart disease. It typically involves TV and PV valves; however, spectrum of disease remains wide. CMR can be a valuable adjunct, it enables measurement of size of metastases and is able to identify extension into extra-cardiac structures. Echocardiography remains a reliable method for diagnosis. However, multimodality imaging is essential in the investigation of this rare disorder. Valve replacement is currently the gold standard treatment for symptomatic carcinoid valve disease. However, debates remain in terms of the choice of heart valve prosthesis.

A Case of Neglected Bilateral Clubfoot Deformity in a 7-Year-Old Patient

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Introduction: Conventionally, the mainstay treatment for congenital clubfoot deformity with the Ponseti method of serial manipulation and casting is initiated within the first few months of a patient's life. The reported success rate with the Ponseti method is over 90% for patients under one year of age. Older children, of walking age, with rigid neglected clubfoot deformity present a unique challenge and historically have been treated with soft tissue procedures, osteotomies, external fixation, triple arthrodesis or, in some cases, a talectomy. Current literature suggests satisfactory outcomes with the use of the Ponseti method for the initial treatment of neglected congenital clubfoot deformity. In this case report, we discuss the treatment of a 7-year-old patient with bilateral neglected clubfoot deformity who, upon initial presentation, had never walked before.

Description: A 7-year-old male, with bilateral knee flexion contractures and bilateral clubfoot deformity, presented to the orthopedic surgeon's office with his guardian. Subsequent MRI of his spine was ordered to rule out neural etiology of his symptoms prior to the initiation of casting. On physical exam, there was difficulty fully passively extending his knees, and his feet were rigidly contracted and not passively correctable to neutral position. That patient had never walked and ambulated on his knees or in a wheelchair. Bilateral foot radiographs were ordered illustrating symmetric talipes equinovarus deformity. Ponseti method of serial manipulation and casting was initiated. Patient had 11 cast changes up to this point and had shown marked improvement. He had been scheduled for bilateral posteromedial release, bilateral Achilles tendon lengthening, bilateral plantar fascia release and bilateral Hamstring lengthening that same month. Patient underwent surgical treatment as outlined above. Patient presented in the casts that were placed post-operatively. His correction had been maintained, and he was able to dorsiflex his ankles past neutral. His feet were plantigrade. Patient had been referred for acute rehabilitation and measured for ankle-foot orthosis (AFOs). Patient transitioned to AFOs and had begun acute rehabilitation. Patient was able to ambulate with a walker; this was the first time the patient had been able to walk. He is undergoing extensive rehabilitation.
Discussion: Ponseti method for casting is a viable initial treatment option for older children with neglected congenital clubfoot deformity followed by a posterior-medial release.

A Local Rebound in Adult Invasive Group A *Streptococcus* (iGAS) After Recent Pediatric iGAS Outbreak

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Introduction: Group A Streptococcus (GAS) is one of the leading causes of death by a pathogen, with case fatality rates of 45% in GAS septic shock. During the COVID-19 pandemic, the incidence of GAS decreased by 28% compared to rates prior to then. However, the 2022-23 winter season saw a resurgence of cases among children per the CDC, but there has been less focus on the concomitant rise among adults. This case series calls attention to the current rise in adult iGAS cases, which seems to follow the increase in pediatric iGAS cases in the winter season of 2022-23.
Description: An electronic medical record data collection system, Slicer Dicer, was used to identify cases from a single community-based hospital in Illinois. Inclusion criteria used were (1) age at admission greater than 18 years, (2) positive GAS blood culture or throat GAS PCR, and (3) ICU admission between October 1st, 2022-August 1st, 2023. Six cases were identified based on these criteria with the first noted in January 2023. Of these, 83.3% were male and 16.7% were female. The average age of these patients was 65.3 years (range 42-83 years). Complications of iGAS identified in this case series include septic shock (100%), bacteremia (83.3%), respiratory tract infection requiring intubation (33.3%), and necrotizing soft tissue infection (16.7%). Risk factors that may have contributed to progression of iGAS in these cases include substance abuse (33.3%), diabetes mellitus (33.3%), trauma/wounds (50%), and recent surgery (16.7%). 16.7% of cases had patient-reported exposure to sick contacts younger than 18. Antibiotic therapy varied between the cases; all were treated with either clindamycin or vancomycin, and either a carbapenem or penicillin with a beta-lactamase inhibitor. In-hospital mortality was 16.7%.
Discussion: In this single community hospital, we identified an increase in iGAS infections after the increase in pediatric iGAS cases reported elsewhere, although only 1 patient within this case series had a reported exposure to a pediatric sick contact. Risk factors identified were similar to prior studies. Complications in this ICU cohort were prevalent although overall mortality was low compared to published mortality rates.

ORAL PRESENTATION SESSION II

Acupuncture as Nonpharmacologic Pain Management in the Emergency Department

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Background: Patients with pain account for over 70% of emergency department (ED) visits, and acupuncture is a nonpharmacologic option that has shown promising results in pain management.
Purpose: We assessed the impact of acupuncture offered in the emergency departments in a large midwestern health

system at no out-of-pocket cost to patients.

Methods: Patients presenting to three participating ED between 4/17/2023—11/30/2023 were eligible to receive acupuncture if they presented with a non-life-threatening issue, did not have a contraindication to acupuncture, and could consent to treatment. Surveys, offered in English and Spanish, asked patients to report on satisfaction. We abstracted serial pain scores (0-10, 10 being the worst) from electronic medical records to assess changes in pain during admission. Treatment patients were compared to control patients presenting to three comparisons ED (not providing acupuncture) during the same period, and to those presenting to a treatment or comparison ED in 2022. We used an inverse probability of treatment weighted difference-in-difference (DiD) approach to calculate the average treatment effect on the treated (ATET). We secondarily assessed patient satisfaction of those who received acupuncture.

Results: Of 666 acupuncture encounters, 384 were eligible for inclusion in this analysis. A total of 49,610 control encounters were included from comparison EDds in 2023 (n=15,058) and from comparison and treatment EDds in 2022 (n=34,552). Following application of stabilized inverse probability of treatment weights, standardized mean differences for all variables of interest were below 0.2, indicating good covariate balance. Among patients receiving acupuncture, treatment was associated with a 1-point greater reduction in pain (adjusted DiD estimate: -1.00, 95% CI: -1.32, -0.69). Of 332 acupuncture patients completing the satisfaction survey, 97% reported willingness to receive acupuncture again in the ED, and 63% said they would pay out-of-pocket for this treatment.

Conclusion: Receipt of acupuncture treatment was associated with a 1-point greater reduction in pain during admission. Most patients would desire acupuncture again in the ED, with more than half willing to pay out-of-pocket for this treatment. Acupuncture may serve as a promising nonpharmacologic pain management option in the ED.

Correlation of Oxygen Saturation Index and Oxygenation Index in Neonates With Persistent Pulmonary Hypertension Treated With Inhaled Nitric Oxide

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Background: Hypoxemic respiratory failure (HRF) triggered by persistent pulmonary hypertension of the newborn (PPHN) results in significant morbidity and mortality. Inhaled nitric oxide (iNO) improves oxygenation in infants with HRF and PPHN and is reported to reduce the composite outcome of death or need for extracorporeal membrane oxygenation (ECMO). Prompt diagnosis and treatment, including timely referral to a tertiary care center, can dramatically improve outcomes. The alveolar-arterial oxygen gradient, which compares alveolar and arterial oxygen tension, is used to evaluate disease progression. The current standard for quantifying severity or progression of HRF is the invasive Oxygenation Index (OI), an important criterion for ECMO referral and predictor of outcomes in HRF. The noninvasive Oxygen Saturation Index (OSI) is a faster and readily available alternative method to evaluate HRF progression, which can be readily performed at the bedside.

Purpose: Compare OSI and OI in newborns with varying respiratory compromise requiring iNO support to evaluate whether OSI can replace OI.

Methods: This single center, retrospective, observational study compares oxygenation index (OI) to oxygen saturation index (OSI) in neonates with HRF requiring iNO at Advocate Children's Hospital – Park Ridge NICU. Demographics, diagnoses, ventilator data, OSI measurements, arterial blood gases for OI calculation, and other physiology data were extracted from the chart. OI with OSI was explored using Wilcoxon rank sum test analyses both overall and in subgroups defined by gestational age, birth weight, and diagnosis.

Results: Statistical analysis measures the differences between OI and pre-ductal OSI (Pre-OSI), OI and post-ductal OSI (Post-OSI), and between the two OSI measurements. There was no statistically significant difference between OI and Pre-OSI ($p=0.09851$), between OI and Post-OSI ($p=0.1145$), or between Pre-OSI and Post-OSI ($p=0.8966$). Based on these analyses, the oxygenation assessment from invasive OI measurements did not differ significantly compared to non-invasive OSI measurement using either pre-ductal or post-ductal oxygen saturation. Furthermore, pre-ductal and post-ductal OSI measurements showed strong agreement with each other.

Conclusion: In neonates with HRF requiring iNO, OSI can potentially replace OI without loss of accuracy in assessing oxygenation status.

Association of Older Adult Demographic Factors With Physical Therapy Attendance and 30- Day Emergency Department Revisit

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Background/Significance: Adults over the age of 65 account for 23.1 million visits to the emergency department (ED) annually, with a significant portion discharged home experiencing functional decline and adverse outcomes. While studies have examined physical therapist (PT) contributions to transitions for hospitalized older adults, the impact of PTs in the outpatient (OP) setting after discharge from the ED is limited.

Purpose: The purpose of this study was to investigate patient characteristics that influence attendance of outpatient (OP) PT after discharge.

Methods: A retrospective cohort study was conducted focused on adults aged 65 and older who visited 15 Geriatric Emergency Departments (GED) within one midwestern health care system. The study sample consisted of 1,390 patients discharged home from the ED with an OP PT referral between January 2021 and December 2022. Predictor variables included age, median neighborhood income level by zip code, and ED primary diagnosis. Outcome variables were outpatient physical therapy and 30-day ED revisit. Multivariate logistic regression analyses were performed to analyze the data and propensity matching was used to match therapy and no therapy attendance groups when analyzing 30-day ED revisit.

Results: Patients with a median household income of $28,008-$55,000 had 51% lower odds of attending OP PT than those with a median household income of $89,745-$149,131 (OR=0.49; 95% CI=0.33-0.72). Patients with a diagnosis of vertigo/dizziness had 110% higher odds of attending OP PT (OR=2.1; 95% CI=1.11-3.92) and those with diagnosis of falls/impaired mobility 42% lower odds of attending (OR=0.52; 95% CI=0.37-0.92) compared to those with diagnosis of back pain. Older adults who didn't attend post-ED PT visit within 30-days had 88% higher odds of returning to ED compared to those who did attend (OR=1.88; 95% CI=1.34-2.64). Older adults with median household income $0-$55,000) had 66% higher odds of ED revisit compared to those in the $89,745-$149,131 range (OR=1.66; 95% CI=1.01-2.74).

Conclusion: Older adults who attended OP PT demonstrated lower odds of ED return within 30-days of discharge, emphasizing potential benefits of timely outpatient PT interventions. This preliminary data highlights the potential of OP PT in reducing ED recidivism. The findings further suggest that socioeconomic factors may serve as a barrier to accessing OP PT, particularly among vulnerable populations.

DENNIS J. BAUMGARDNER, MD, CLINICIAN RESEARCHER AWARD ORAL PRESENTATION

Comprehension of Pediatric Discharge Instructions: Do Gaps Exist for Caregivers Who Prefer to Communicate in a Language Other Than English?

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Background: The transition from hospital to home requires children's caregivers to comprehend a substantial amount of information. Prior research demonstrated communication challenges are amplified for caregivers who prefer a language other than English (CLOE). This study aimed to determine whether there is a difference in comprehension of discharge instructions between CLOE and caregivers who prefer English (CE). We further analyzed if discharge instruction comprehension for CLOE improved when provided with language-concordant written instructions.

Purpose: This study adds to the growing body of research studying health equity for CLOE.

Methods: We surveyed caregivers of children discharged from the pediatric hospitalist medicine service from May-October 2023 with scripted telephone surveys within 10 days of discharge; an interpreter was used for CLOE. Questions assessed comprehension of seven aspects of discharge instructions: diagnosis, follow-up, medications, recovery, return precautions, and activity limitations. Comprehension was assessed by comparing caregivers' responses to information found via chart review. Comprehension by CE and CLOE was compared; p-values were calculated using Chi-squared tests. Electronic medical record written discharge information was reviewed to determine if it was language-concordant for CLOE.

Results: 154 caregivers participated in the study (77 CLOE, 77 CE); 86% of CLOE reported an interpreter was used to review discharge instructions. The only component for which there was a significant difference in comprehension between CLOE and CE was return precautions (87% vs 97% respectively, p=0.016); 87% of CLOE reported a preference for receiving language-concordant written

discharge instructions, but 42% of CLOE received written discharge instructions only in English. Being provided with language-concordant written discharge instructions did not significantly improve CLOE's comprehension for any of the six key aspects of discharge instructions (p-values all >0.05).
Conclusion: Our study revealed significant discrepancy in return precaution comprehension between CLOE and CE. However, there was equivalent comprehension regardless of language preference for the other five aspects of discharge instructions. Receipt of language-concordant discharge instructions did not impact comprehension for CLOE, emphasizing the importance of verbal interpretation and communication in the transition from hospital to home.

JUDGED 3-MINUTE ORAL PRESENTATION SESSION II

Review of Live Discharges From Medicare-Certified Home Hospice Program

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Background: Types of live discharge from hospice include patient revocation of care, provider discharge for improved prognosis, and patient transfer. Live discharges may be problematic if they lead to high rates of hospice readmissions, lead to high rates of hospitalization following discharge, or occur after 180 days in hospice. Medicare reviews claims data to assess patterns of live discharges. Their report of 2016-2019 data found 25% of live discharges occurred within 30 days of admission and 32% occurred after 180 days. The discharge planning process for live discharges involves handoffs between hospice team and patient's primary care providers and ordering of outpatient medications and homecare equipment. Our study aimed to quantitate live discharges from the AAH Home Hospice Program, determine rates of hospital utilization within 6 months of discharge, compare our pattern of live hospice discharges to national Medicare data, and review discharge planning process.
Purpose: This study reviewed live discharges from AAH Home Hospice Program and identified gaps in the discharge planning process to improve transitions in care for home hospice patients in Milwaukee.
Methods: This quality improvement project retrospectively reviewed charts of patients who were live discharges in 2022. Information reviewed includes demographics, palliative care involvement, length of hospice, reason for discharge, discharge planning steps, and clinical course in the 6 months post-discharge. Descriptive statistics such as means, frequencies, and percentages were calculated as appropriate.
Results: A total of 87 patients were discharged alive from hospice. Most discharges occurred either in the first 30 days (38%) or after 180 days (24%). Over half of discharge patients voluntarily revoked care (60%) and 49% of these patients reenrolled in hospice within 6 months. Across all discharges, 43% had at least one ED visit or hospitalization within 6 months of discharge. Coordination of PCP follow-up was done for 13% of discharged patients and 22% had documentation of at least one step of the discharge planning process (eg, ordering meds).
Conclusion: Compared to national Medicare data we had a higher rate of live discharges in the first 30 days. We observed high rates of hospice readmission and hospital utilization following live discharges. Documentation of discharge planning steps was limited for these patients. This study suggests room for improvement in the explanation of hospice services/philosophy and the discharge plan.

Dobbs vs. Jackson Women's Health Organization: The Impact on Contraception Trends

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Background: In June 2022, the US Supreme Court reversed federal protection of abortion in *Dobbs vs. Jackson Women's Health Organization*. Following *Dobbs*, abortions were a felony in Wisconsin until later appealed in December 2023, and are now allowed up until 21 weeks. In Illinois, abortions are allowed until fetal viability (24-26 weeks). Since *Dobbs, a* recent survey identified that 21% of women between the ages of 18-44 have changed contraception type.
Purpose: To compare the prevalence rates of long-acting reversible contraceptives (LARCs) and tubals performed before and after the ruling, and to evaluate self-reported

changes in provider attitudes towards contraceptive care.

Methods: We retrospectively identified all people of childbearing age who had LARCs placed and tubals performed between January 2021-December 2023. To calculate prevalence rates pre-Dobbs (January 2021-June 2022) vs. post-Dobbs (July 2022-December 2023), two sets of counts were obtained for people of childbearing age in the system: (1) 15-51 years of age and (2) 21-51 years of age given age of tubal eligibility. A voluntary survey was distributed via REDCap to all providers in Obstetrics and Gynecology, Family Practice, and Internal Medicine to gauge attitudes towards contraceptive care after the ruling. Prevalence rates pre- and post-Dobbs were compared. Categorical variables were analyzed using either Chi-square or Fisher's exact test; continuous variables were analyzed using Wilcoxon rank sum test due to non-normality of data.

Results: While prevalence rates in LARC placement (0.54% vs 0.57%, $p<0.01$) and tubal completion (0.12% vs 0.11%, $p<0.01$) before and after Dobbs ruling were statistically different, the absolute differences were nominal (1,536 and 100, respectively), suggesting limited clinical significance. There was a 14.7% (244/1660) completion rate for the provider survey; 93.4% (n=228) reported providing contraceptive counseling for patients. Of those that provided contraceptive counseling, 25.0% (n=57) Agree and 9.7% (n=22) Strongly Agree that the Dobbs ruling changed their counseling pattern. Notably, OBGYNs were most likely to have changed counseling for tubals ($p=0.02$) and to have felt an increase in the number of people requesting contraception ($p<0.01$).

Conclusion: While there may be an emerging pattern of change for contraceptive care after the Dobbs ruling, it is likely not clinically significant. However, these changes may become more clinically significant over time.

ORAL PRESENTATION SESSION III

Right Ventricular Global Longitudinal Strain for Pulmonary Embolism Risk Stratification

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Background: In pulmonary embolism (PE), the presence of right ventricle (RV) dysfunction increases mortality, even in absence of hemodynamic compromise. Defining RV dysfunction has been limited in PE, and traditionally dichotomized as present or absent by CT or echocardiography. Contractility parameters, such as Tricuspid Annular Plane Systolic Excursion (TAPSE) have been shown to predict mortality in acute PE, but newer modalities such as speckle-tracking echocardiography (STE) with 2D strain better evaluate global RV function. RV global longitudinal strain (RV GLS), derived from STE, is a more sensitive parameter of RV contractility and strong predictor of mortality in RV dysfunction. The overall mortality from PE remains high and refining our ability to identify patients with pulmonary embolism at risk of clinical progression to shock, cardiac arrest, or death can improve medical decision making and management.

Purpose: To determine if several early echocardiographic measurements of RV dysfunction, including TAPSE and RV GLS, are predictors of clinical deterioration or prolonged hospitalization in PE.

Methods: This retrospective cohort study analyzed patients ≥18 years old hospitalized at Aurora St. Luke's Medical Center with a primary diagnosis of PE with BOVA score >2 or less than 2 with high-risk features such as syncope or clot in transit, or any patient with a massive pulmonary embolism have an echocardiograph completed. Data were analyzed from all PE Response Team patients presenting to our center between March 2017 through August 2023. Descriptive statistics summarized the data, and linear regression was utilized to examine the relationship between echo perimeters and outcomes.

Results: A total of 357 patients with mean age 64.4 years who were diagnosed with PE during the selected timeframe were included in this study. Overall, there was a mean TAPSE of 2.32cm, mean RV GLS of -13.59%, and mean RV/LV ratio of 1.38 on admission. At 0.05 level of significance, RV GLS was associated with later requirements of vasopressors ($p=0.016$), thrombolytics ($p=0.036$), and in-hospital cardiac arrest ($p=0.027$), while TAPSE was associated with later requirement of thrombectomy ($p=0.015$). Furthermore, an association was found between RV GLS and both hospital length of stay ($p=0.01$) and ICU length of stay ($p=0.003$).

Conclusion: RV global longitudinal strain on admission is associated with length of stay, hemodynamic compromise, and cardiac arrest in patients who present with at least intermediate risk pulmonary embolism.

Psychometric Properties of SMART Feeding Tool

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Background: Feeding difficulties are a frequent complication for preterm infants, which often delay discharge from the NICU. Infant feeding assessment tools with well-established validity and reliability and with ease of use by nurses are lacking in the literature. Our health system does not currently utilize a standard infant feeding assessment tool across sites, leading to inconsistencies in communication and care.
Purpose: SMART Tool is a novel "infant feeding assessment tool" we developed. This study aimed to test the psychometric properties of this SMART Tool, ie, to establish that the SMART tool is (1) valid, measures what it proposes to measure, and (2) reliable and produces a consistent result.
Methods: This study was a prospective, multi-site (four level-3 NICU) observational study to determine the reliability and validity of the SMART tool. Inclusion criteria: stable infants, more than 33 weeks post-menstrual age, and parental consent. Exclusion criteria: Infants on high flow oxygen of more than 2 liters per minute flow. We recruited 76 patients to observe 116 feeding for the study. Trained observers scored before (Pre-Feed) and after (Post-Feed) feedings. We used another tool, called the NEOA tool, to establish the validity of the criteria. Reliability was established using inter-rater and test-retest reliability.
Results: Inter-rater and intra-rater scores before and after feeds showed no statistically significant difference. SMART Tool has a high sensitivity of 76% and specificity of 82%. Comparing the SMART tool score ratings and the NEOA tool score ratings, Spearman's Rho value or r=0.706 indicates a moderate to strong positive correlation of score ratings between the tools, which is statistically significant at $p<0.0001$, signifying high confidence.
Conclusion: Statistical analysis established the validity and reliability of the SMART tool. Using the SMART Tool by bedside nurses to assess infant feeding readiness and skills can improve interprofessional communication and will help shift practice from volume-driven to evidence-based infant-led feeding and enhance safety and quality of care.

Transcending the Binary: Case-Based Learning in Gender-Affirming Care

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Background: Students enter medical school with varying levels of knowledge of the transgender and gender-diverse (TGD) community. A baseline of vocabulary and a shared understanding of health disparities are achieved during didactics in the preclinical curriculum at the University of Wisconsin School of Medicine and Public Health (UWSMPH). However, there is not currently a clinically relevant didactic counterpart to this introductory education. Furthermore, TGD patients report the lack of providers knowledgeable about gender-affirming care as the largest barrier to accessing care. Thus, it is critical for medical students to feel prepared to treat patients across the gender spectrum, and to be supported in doing so by a formal didactic experience.
Purpose: This project aims to fill the medical knowledge gap in gender-affirming care through the implementation and evaluation of a case-based learning session that follows a single gender-diverse individual through their life from childhood to adulthood.
Methods: Learning objectives were identified based on existing guidelines for the care of TGD patients. Three case-based learning modules supporting these learning objectives were created: Transgender Health for the Pediatrician, Transgender Health for the Obstetrician/Gynecologist, and Transgender Health for the Primary Care Physician. Evaluation of these case-based learning sessions examines learners' knowledge, skills, and attitudes surrounding providing care to TGD patients and utilizes a post-test then retrospective pre-test design to minimize response-shift bias. Wilcoxon signed-rank test was used for comparison between the retrospective pre- and post-test answers of the study group.
Results: Following this case-based learning, learners globally felt more confident in their preparation to take care of gender-diverse patients (mean pre=2.87, mean post=3.87, $p=0.03$). Learners additionally became more confident in their knowledge and skills across all evaluated domains including how and when to initiate puberty suppression, risks and benefits of gender-affirming hormone therapy, and changes in fertility secondary to gender-affirming hormone therapy, among others (p's=0.016-0.03).

Conclusion: This curricular update represents a successful method for progress in a knowledge area critical to the future practice of medical students graduating from the University of Wisconsin School of Medicine and Public Health. Future directions include dissemination to additional health professions programs internal and external to UWSMPH.