Oral and Poster Presentation Abstracts

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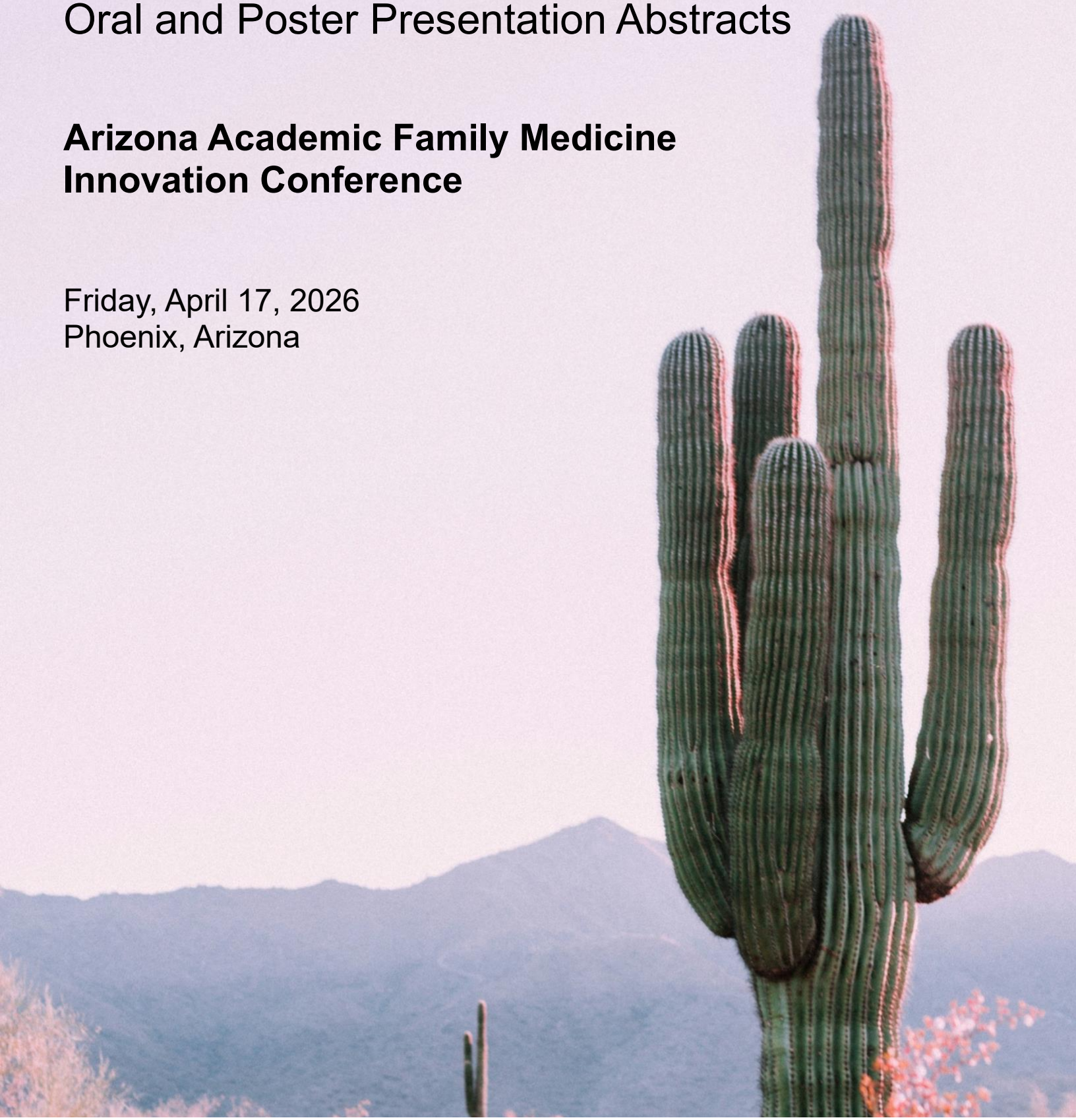

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Case Reports/Series Abstract

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Spontaneous Resolution of Chronic Lymphocytic Leukemia-Induced Leukemia Cutis

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Introduction: Chronic lymphocytic leukemia (CLL) is the most common adult leukemia in Western countries and is characterized by the proliferation of monoclonal $CD5^+$ B lymphocytes in the blood, bone marrow, and lymphoid tissues. While many patients are asymptomatic, rare cutaneous manifestations such as leukemia cutis (LC) occur in approximately 5% of cases and typically resolve only with treatment of the underlying malignancy. We report an unusual case of CLL-associated LC with spontaneous resolution in the absence of systemic therapy.

Case Description: A 57-year-old man presented with a one-week history of multiple painless, erythematous, annular lesions involving the face, scalp, and upper extremities following a mild upper respiratory illness. Laboratory evaluation revealed marked leukocytosis, and peripheral blood smear demonstrated lymphocytosis with smudge cells. Flow cytometry confirmed chronic lymphocytic leukemia (CLL) with $CD5^+$, $CD19^+$, $CD23^+$, dim CD20 expression, and monotypic kappa light-chain restriction. Dermatology referral and subsequent skin biopsy demonstrated dermal infiltration by leukemic cells, confirming leukemia cutis (LC). Despite a high disease burden at presentation, the patient lacked B symptoms, cytopenias, lymphadenopathy, or organomegaly and was classified as Rai stage 0; observation was recommended by oncology. At the three-month follow-up with primary care, all cutaneous lesions had completely resolved without treatment.

Discussion: This case illustrates a rare, spontaneous resolution of CLL-associated LC. LC is generally managed by treating the underlying leukemia, as cutaneous manifestations typically persist until systemic control is achieved. Spontaneous resolution is exceedingly uncommon; to date, only one other report has documented such a phenomenon. Recognition of LC as a possible presenting feature of CLL facilitates timely diagnosis and management, while also preventing unnecessary interventions for cutaneous disease that may resolve spontaneously.

Conclusion: We present a rare case of CLL-associated LC with spontaneous resolution. Although LC generally requires systemic therapy, this case demonstrates that lesions may resolve without treatment. Further study is needed to clarify the mechanisms behind spontaneous LC regression.

Relevance to Family Medicine: This case underscores the importance of multidisciplinary collaboration between primary care, dermatology, and hematology/oncology in evaluating atypical dermatoses. It also highlights the importance of a thorough primary care-led workup to ensure appropriate care coordination.

The Bleeding That Defined Every Intervention

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Introduction: Atypical hemolytic uremic syndrome (aHUS) is a triad of microangiopathic hemolytic anemia, thrombocytopenia, and AKI/acute kidney injury. What makes this presentation atypical is that it is due to genetic abnormalities/variants within the alternative complement pathway. However in this case study, aHUS presented after a postpartum hemorrhage, 2 D&Cs and a TAH (total abdominal hysterectomy). We took an interest in this case because aHUS still remains as a diagnosis of exclusion, and due to its severe nature, an accurate and rapid diagnosis is crucial to start treatment.

Case Description: 38 year old G6P3123 woman with a past medical history of hypertension and early stage endometrial cancer presents to the clinic after a recent hospital discharge, and to establish care.
After her most recent term vaginal birth complicated by advanced maternal age and cervical insufficiency requiring cerclage, she was diagnosed with atypical hemolytic uremic syndrome, which she did not have in her previous pregnancies. Her most recent term vaginal delivery was complicated by postpartum hemorrhage requiring 2 D&Cs and emergent TAH in which she received multiple transfusions. Post OP she developed severe oliguric AKI, thrombocytopenia, and worsening anemia. Shortly after diagnosis, Ravulizumab (C5 inhibitor) was initiated as well as dialysis 3x/week for renal failure. She is now getting infusions every 8 weeks, and continued on prophylaxis with Penicillin to reduce the risk of invasive meningococcal infection. She notes no oliguria, no hematuria, and no acute blood loss.

Discussion: -aHUS results from uncontrolled activation of the complement system, causing endothelial injury, platelet activation, and microvascular thrombosis.
-Therapeutic management: Ravulizumab and Eculizumab (C5 inhibitors) block formation of the membrane attack complex (MAC), preventing further endothelial damage.
-Ravulizumab offers a longer half-life, allowing less frequent dosing compared to Eculizumab.
-Alternative treatments: plasma exchange, steroids, and immunosuppressants—especially for patients with anti-CFH antibodies or extra-renal manifestations.
-Duration of therapy: Typically continued for 3–6 months, or until renal function stabilizes (normalized creatinine, no proteinuria).
-Ravelizumab is a complement C5 inhibitor that has a similar mechanism to Eculizumab, which remains the gold standard of treatment. Eculizumab is a monoclonal antibody drug which inhibits C5 complement. This prevents the generation of the membrane attack complex (MAC) from doing further damage.

Conclusion: Due to the rarity of this disease presentation, it is important to continue looking into different ways to prevent disease progression, fatality, or underdiagnosis For patients with relapsing aHUS, it remains unclear if a life long regimen of C5 inhibitor should remain as the mainstay of treatment, or if a kidney transplant should be considered. Our hope is that this case can help format early interventions for aHUS Early diagnosis can also be made through the Ham test, though this is variable, as it is not pathognomonic of aHUS (can be used for PNH/paroxysmal nocturnal hemoglobinuria as well).

Relevance to Family Medicine: This patient transitioned from many settings in the hospital, from labor and delivery, to a tertiary center for management of the diagnosis, and specialist referral. Family medicine serves as the perfect way to continue care across different settings, and can help monitor for treatment complications (meningococcal infection risk or dialysis-related issues) as well as communication between different specialists. Family medicine plays a key role in managing comorbidities, preventive care, mental health screening after traumatic birth and loss of fertility, and addressing social determinants of health (such as factors affecting dialysis adherence or infusion access).

Severe Rickets and Pneumonia in a Malnourished Infant in Rural Tanzania: A Case Report

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Introduction: Rickets remains a common pediatric condition globally but is infrequently encountered in the United States. Classic physical exam findings can strongly suggest the diagnosis when laboratory or imaging resources are limited. Most cases result from vitamin D or calcium deficiency due to inadequate intake or sunlight exposure. This case describes rickets in the setting of severe acute malnutrition, which contributed to severe pneumonia, an uncommon complication in high-resource settings, and highlights the consequences of untreated micronutrient deficiencies in low-resource environments.

Case Description: A 10-month-old Maasai male infant presented to a rural hospital in Tanzania with respiratory distress and was diagnosed with severe pneumonia. He required prolonged hospitalization with oxygen therapy, antibiotics, and corticosteroids. Physical examination revealed classic signs of rickets along with severe acute malnutrition. Diagnostic evaluation was limited by cost, but clinical findings strongly supported the diagnosis. The infant improved with nutritional support and vitamin D supplementation and ultimately recovered from pneumonia.

Discussion: This case emphasizes the overlapping features of severe malnutrition and rickets, which can complicate diagnosis in resource-limited settings where clinicians rely heavily on physical examination. Early recognition of rickets is critical, as vitamin D deficiency weakens immune function and increases vulnerability to severe infections such as pneumonia. For family physicians, this case reinforces the role of preventive care and routine nutritional screening in early childhood. Evidence-based interventions, including vitamin D and calcium supplementation and food fortification programs, are effective strategies for reducing the incidence and complications of rickets.

Conclusion: Recognizing rickets in severely malnourished children is essential, particularly in settings with limited resources. Early treatment of vitamin D deficiency can prevent serious infection-related complications. Family physicians are key to implementing nutritional screening, anticipatory guidance, and preventive supplementation to reduce the burden of rickets and improve outcomes for at-risk infants.

Relevance to Family Medicine: For family medicine, this case reinforces the importance of preventative care and nutritional screening in early childhood. Evidence-based interventions have been shown to reduce the incidence of rickets. Family physicians are uniquely positioned to implement these measures, counsel families, and identify at-risk children before complications develop.

Dissecting Back to Life

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Introduction: Iatrogenic nerve injury is an uncommon, but severe pathology that can be challenging to manage. In this case of intraoperative radial nerve injury unresponsive to surgical management, a family medicine physician trained in sports medicine and point of care ultrasound was able to provide guidance and treatment with a minimally invasive bedside procedure. This case illustrates the opportunity for outpatient treatment of nerve entrapment and possibly nerve injury with ultrasound guided hydrodissection.

Case Description: A 65-year-old female experienced a comminuted proximal humerus shaft fracture after falling in the shower which was operated on one month following with an ORIF procedure. Immediately following the surgery, she developed numbness, tingling, and weakness of her left wrist and thumb with significant motor weakness of her wrist and hand. She underwent radial nerve transposition with wrapping without improvement. She had no improvement following several months of physical therapy. EMG showed severely reduced nerve function. No symptomatic improvement with gabapentin. Radial nerve hydrodissection was performed with immediately improved sensation and motor function.

Discussion: This case shows symptomatic improvement following hydrodissection procedure despite EMG findings indicative of probable injury. It highlights the growing opportunities for a minimally invasive procedure that family medicine physicians can perform. While there is literature showing the benefit of hydrodissection for nerve entrapment, this case shows benefit when utilizing it for nerve injury.

Conclusion: Nerve hydrodissection is a minimally invasive procedure that can be performed in an outpatient setting by family medicine physicians and should be a treatment option when patients are suffering from peripheral nerve entrapment and potentially for nerve injury.

Relevance to Family Medicine: Patients frequently return to their primary care provider after a failed treatment with their established specialist. Family medicine physicians should be educated on this treatment option and can also perform the procedure with adequate POCUS training.

RECURRENT CHEST PAIN AND ERYTHROCYTOSIS IN A SMOKER: JAK2-NEGATIVE SECONDARY POLYCYTHEMIA WITH LOW ERYTHROPOIETIN

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Introduction: Erythrocytosis in smokers is traditionally distinguished from polycythemia vera (PV) by serum erythropoietin (EPO) levels; however, recent cohort data show that approximately 40% of JAK2-wild-type erythrocytosis patients with smoking history present with low EPO, limiting this marker's diagnostic specificity. True JAK2-negative PV is exceedingly rare. We present a 45-year-old male smoker with marked erythrocytosis, persistently low EPO, and negative myeloproliferative molecular testing, whose hematologic abnormalities reversed with smoking cessation and recurred with relapse.

Case Description: A 45-year-old man with a 15 pack-year smoking history presented with recurrent severe chest pain (8/10, squeezing, at rest). Laboratory evaluation revealed hemoglobin 20.6 g/dL, hematocrit 60.2%, and persistently low serum EPO (1.2–1.5 mIU/mL). Molecular testing for JAK2 V617F, JAK2 exon 12, CALR, MPL, and BCR-ABL1 was negative. CBC, coagulation studies, peripheral smear, iron studies, and abdominal ultrasound were unremarkable. Hematology diagnosed smoking-induced secondary erythrocytosis. After 3 months of cessation, hemoglobin normalized to 16.3 g/dL with EPO rising to 6.7 mIU/mL. One month after resuming smoking, hemoglobin rose to 18.9 g/dL with recurrent chest pain, confirming the reversibility of smoking-related erythrocytosis.

Discussion: This case demonstrates that low serum EPO does not reliably distinguish PV from secondary erythrocytosis in JAK2-negative patients with smoking exposure. The complete reversal of hemoglobin and EPO with cessation and recurrence upon relapse provides compelling evidence for a causal relationship between smoking and erythrocytosis. Recurrent chest pain likely reflects hyperviscosity-mediated microvascular ischemia, as hematocrit exceeding 55–60% substantially increases blood viscosity. Bone marrow biopsy was deferred given negative molecular markers and clear biochemical response to cessation. This supports a clinical approach prioritizing molecular testing and lifestyle modification over invasive procedures in JAK2-negative erythrocytosis.

Conclusion: Smoking-induced secondary erythrocytosis can present with markedly elevated hemoglobin and low EPO, mimicking polycythemia vera. Negative JAK2/CALR/MPL testing effectively excludes primary PV. Smoking cessation is the cornerstone intervention, capable of normalizing hemoglobin and EPO within months. Phlebotomy should be reserved for symptomatic hyperviscosity or documented thrombosis. Clinicians evaluating JAK2-negative erythrocytosis should prioritize lifestyle assessment and aggressive cessation support before pursuing invasive diagnostic workup.

Relevance to Family Medicine: Family physicians are frequently the first to identify erythrocytosis on routine labs in active smokers. This case underscores that low EPO should not automatically trigger referral for bone marrow biopsy in JAK2-negative patients with clear smoking exposure. Primary care providers are uniquely positioned to deliver sustained, multifaceted smoking cessation interventions, the definitive treatment for smoker's polycythemia. Recognition of this condition prevents unnecessary invasive testing and enables longitudinal monitoring of hematologic response to behavioral change within the medical home.

TIRZEPATIDE-INDUCED MUSCLE TWITCHING AND FASCICULATIONS: A RARE NEUROMUSCULAR ADVERSE EFFECT WITH DECHALLENGE–RECHALLENGE EVIDENCE

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Introduction: Tirzepatide, a dual GIP/GLP-1 receptor agonist approved for type 2 diabetes and obesity, is associated primarily with gastrointestinal adverse effects. Musculoskeletal and neuromuscular symptoms are poorly characterized in pivotal trials and post-marketing data. Rare severe muscle events, including rhabdomyolysis, have been reported, but persistent fasciculations and cramps have not been specifically described. We present a 76-year-old woman who developed new-onset muscle twitching and focal fasciculations during long-term tirzepatide therapy, with causality established through a structured dechallenge–rechallenge sequence.

Case Description: A 76-year-old woman with coronary artery disease (prior CABG) on tirzepatide 12.5 mg weekly for >2 years presented with two months of involuntary muscle twitching and right foot cramps. Examination revealed fine fasciculations in the right gastrocnemius; strength, reflexes and sensation were normal. Laboratory workup—including CK, electrolytes, magnesium, B12, TSH and renal function was unremarkable. Tirzepatide was discontinued; symptoms resolved completely within two weeks. Upon rechallenge at the same dose, twitching recurred within days with identical distribution, confirming causality. Given non-disabling symptoms and significant weight-loss benefit, the patient elected to continue tirzepatide at a lower dose with conservative management (hydration, magnesium supplementation, stretching).

Discussion: This case establishes tirzepatide as a probable cause of persistent focal fasciculations via positive dechallenge–rechallenge evidence, a pharmacovigilance standard for causal inference. Proposed mechanisms include GLP-1-mediated appetite suppression causing subclinical dehydration and intracellular electrolyte shifts, lean mass depletion during rapid weight loss predisposing to neuromuscular irritability, and possible direct GLP-1/GIP receptor effects on peripheral nerve or muscle tissue. This presentation represents the mild end of a spectrum that includes reported cases of tirzepatide-associated rhabdomyolysis. No formal guidelines exist for managing GLP-1 agonist-induced fasciculations; our approach prioritized shared decision-making, balancing symptom burden against substantial cardiometabolic benefit.

Conclusion: Tirzepatide may rarely cause muscle twitching and fasciculations not captured in clinical trials. Dechallenge–rechallenge sequencing can definitively establish drug causality for suspected neuromuscular adverse effects. Clinicians should assess hydration, electrolytes and concomitant medications before attributing symptoms to the drug. Mild, stable fasciculations may be managed conservatively without discontinuation. Pharmacovigilance reporting of rare adverse effects is essential to refine the safety profile of increasingly prescribed GLP-1/GIP receptor agonists.

Relevance to Family Medicine: Family physicians frequently prescribe tirzepatide for weight management and type 2 diabetes and are often the first clinicians to encounter unexpected adverse effects. This case demonstrates a systematic primary care approach: thorough metabolic workup, structured dechallenge–rechallenge to establish causality, and shared decision-making that preserved therapeutic benefit while managing a tolerable side effect. Recognizing drug-induced fasciculations prevents unnecessary neurology referrals and invasive testing. Family medicine's longitudinal patient relationships are ideally suited for monitoring emerging adverse effects and contributing pharmacovigilance data for newer medications.

Verapamil Use in Hypertrophic Cardiomyopathy with Preserved Ejection Fraction During Hypertensive Emergency: Challenging the 'Calcium Channel Blockers in Heart Failure' Contraindication

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Introduction: Non-dihydropyridine calcium channel blockers (NDHP-CCBs) are widely labelled "contraindicated in heart failure," largely based on data in HFrEF. Contemporary guidelines, however, endorse verapamil for symptomatic hypertrophic cardiomyopathy (HCM) and HFpEF with preserved EF. A woman in her late 60s with newly diagnosed non-obstructive HCM (EF 55–60%), hypertensive emergency, and acute on chronic diastolic heart failure experienced persistent severe dyspnea despite beta-blockade, diuresis, and multidrug antihypertensive therapy. Addition of low-dose verapamil stabilised blood pressure and improved symptoms without bradycardia or hypotension, illustrating phenotype-specific, guideline-concordant NDHP-CCB use.

Case Description: An elderly woman with morbid obesity, refractory hypertension, advanced CKD, and no recent cardiology follow-up presented with months of worsening dyspnea and orthopnea and was found to be in hypertensive emergency with pulmonary congestion and hypercapnic respiratory failure. Echocardiography showed concentric LV hypertrophy with septal thickness 15 mm, LVEF 55–60%, and grade 2 diastolic dysfunction, consistent with non-obstructive HCM with HFpEF. Despite clevidipine, high-dose IV diuretics, carvedilol, clonidine, hydralazine, alpha-blockade, and nitrates, blood pressure remained labile and orthopnea persisted. After cardiology consultation, immediate-release verapamil 40 mg three times daily was initiated with telemetry monitoring; within 24–48 hours, BP stabilised around 130–140/60–90 mm Hg and dyspnea improved, enabling de-escalation of ventilatory support without conduction disturbances.

Discussion: This case highlights that the blanket avoidance of NDHP-CCBs in "heart failure" is inappropriate when systolic function is preserved and pathophysiology is dominated by diastolic dysfunction, as in HCM-related HFpEF. AHA/ACC HCM guidelines recommend verapamil or diltiazem for symptomatic non-obstructive HCM with preserved EF, and as second-line in obstructive disease when beta-blockers are inadequate. Verapamil improves symptoms via rate slowing, improved diastolic relaxation, and modest afterload reduction, mechanisms particularly helpful in hypertensive HCM. Observational data suggest comparable efficacy and safety of verapamil versus beta-blockers in carefully selected HCM patients, while non-DHP CCBs remain contraindicated in HFrEF. In this monitored ICU setting, combination therapy with carvedilol and low-dose verapamil was well tolerated and clinically effective, underscoring the importance of precise heart failure phenotyping.

Conclusion: Verapamil can be safely and effectively used in HCM with preserved EF and HFpEF, even during hypertensive emergency, when guided by current HCM and heart failure guidelines. The long-standing teaching that "calcium channel blockers are contraindicated in heart failure" should be reframed to specify HFrEF, not HFpEF or HCM. In selected patients with non-obstructive HCM and diastolic heart failure, low-dose verapamil added to beta-blockade may stabilise blood pressure and relieve congestion without compromising systolic function, provided close monitoring is available. Recognizing this nuance prevents therapeutic nihilism and expands evidence-based options for complex hypertensive HCM presentations.

Relevance to Family Medicine: Family physicians frequently encounter patients labeled broadly as having "heart failure" and may internalise oversimplified contraindications that do not distinguish HFrEF from HFpEF or HCM. This case reinforces the need for phenotype-specific interpretation of guidelines and collaboration with cardiology when considering NDHP-CCBs in patients with preserved EF and HCM physiology. In hospital and transitional care settings, family medicine clinicians play a central role in reconciling medications, educating patients that their "thick and stiff" hearts differ from classic systolic failure, and supporting adherence

to complex multidrug regimens. Appreciating when verapamil is appropriate enables more individualized, guideline-concordant management of hypertensive emergencies and chronic HCM care in primary practice.

To Refer or Not to Refer: A Case of Natal tooth, Tongue Scarring, and Suspected Micrognathia

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Introduction: Natal teeth are a rare and anomalous phenomenon that can have a range of clinical manifestations impacting both the newborn and their family. Treatment, which can include a conservative “watch and wait” approach or scheduled extraction by a dental professional, ultimately depending on the severity of symptoms. We report the case of an otherwise healthy 5 day old female born with two mandibular incisors complicated by tongue scarring, also known as Riga-Fede disease.

Case Description: The patient is a 5-day-old female with routine prenatal care, possible intrauterine growth restriction and an unremarkable delivery born at 39 weeks 1 days. Birth weight was 2680 g with APGARs 9 and 9, who presented with her mother for her first well child check. The patient's mother noticed that she had 2 teeth in the middle of her lower jaw. Mother stated the teeth do not impact her breastmilk intake, and mother mentioned occasional minimal pain while breastfeeding. The patient is breastfeeding on demand, and has gained weight since birth (birth weight was 2.68kg, current weight at 5 days old is 2.69kg) and is currently trending on the 6th percentile curve. Physical exam revealed micrognathia, two teeth located on the lower jaw, with scarring of the tongue noted right were the teeth would contact the tongue during suckling. At first, close observation was implemented, but after subsequent visits which showed worsening scarring, a referral to a pediatric dentist was placed.

Discussion: The natal teeth were not causing significant feeding difficulties or maternal pain, and the infant demonstrated adequate weight gain, trending along the 6th percentile. This aligns with literature suggesting that asymptomatic natal teeth can often be managed conservatively with close monitoring.
The presence of potential micrognathia raises important clinical considerations. Although isolated micrognathia can occur without syndromic association, it may also be an early clue to underlying congenital conditions. While no immediate functional impairments were noted in our case, this finding prompted further evaluation. The observed Riga-Fede disease, a reactive traumatic ulceration on the ventral tongue resulting from repetitive trauma by the natal teeth, underscores a potential complication that may warrant intervention, which led us to place an urgent referral to a pediatric dentist.

Conclusion: Ultimately, this case supports existing recommendations for individualized management of natal teeth based on symptomatology and risk of complications. Given the relatively asymptomatic course and preserved feeding in our patient, conservative management with close follow-up was appropriate at the beginning. However, the presence of potential micrognathia and early signs of Riga-Fede disease reinforced the importance of anticipatory guidance and multidisciplinary collaboration when indicated.

Relevance to Family Medicine: This case underscores that family medicine physicians, who often serve as the first point of contact for newborn care, are well positioned to detect natal teeth and associated features, initiate appropriate interventions, and provide longitudinal care. With an individualized, symptom-guided approach, some natal teeth cases can be managed conservatively, while others can be referred to pediatric dentists for potential tooth extraction. At the initial visit, it was discussed with the mother and conservative management was the original plan. After subsequent visits and increased tongue fibrosis from the friction of the natal teeth, an urgent referral was placed and within 2 months, the teeth were extracted. The procedure did not inhibit the patient’s growth, as she continues to gain weight appropriately and continues to appear healthy at her subsequent appointments.

A Pain Misplaced: CAD Behind a Toothache

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Authors: Bhavishya Narra, MD; Shailee Shroff, MD; Karen Melara, MD; Preeti Chandra, MD

Introduction: Myocardial ischemia remains one of the world's most relentless silent killer, striking millions each year, claiming countless lives, and often arriving in disguise with symptoms that defy classic expectations. In 10-33% of cases, chest pain is not at all seen, atypical symptoms like dyspnea, syncope, palpitations, jaw pain, mandibular pain and neck discomfort may be present, and these symptoms have been termed "anginal equivalent". Such presentations can delay diagnosis and management, leading to a 2-fold increase in mortality of atypical presentations compared to typical chest pain. This case underscores the importance of maintaining a high index of suspicion for ischemia in patients with atypical pain patterns.

Case Description: This is a patient in their 70s, with PMH of T2DM, HTN, HLD, and BMI 31.9 kg/m2, who presented with a 2-month history of exertional left-sided neck and mandibular pain, no chest pain referred. Initial workup included ECG, poor R wave progression; ECHO, LVEF 65%, grade 1 DD; nuclear stress test, reversible anterior defect. LHC with PCI, showed diffuse CAD, 4 DES were placed and DAPT was initiated. Symptoms recurred 10 months later, ISR was diagnosed, 3 additional DES were placed. 7 months later jaw pain recurred. ISR was diagnosed again, balloon angioplasty was performed. 2 months later, left neck/mandibular pain led to an NSTEMI diagnosis, a CABG x 4 was done. 3 years later, dyspnea and palpitations prompted a cardiology assessment. All 4 grafts were patent, a 5.5-6 cm aortic root aneurysm/pseudoaneurysm involving the proximal CABG vein graft anastomoses with associated LVEF of 40% was noted, leading to aortic root graft with SVG reimplantation. The patient recovered successfully.

Discussion: Atypical presentations of ACS are frequently missed, especially in older patients with comorbidities (T2DM). These patients often have blunted and altered pain perception, resulting in non-classic presentations. Neck discomfort, jaw pain, throat pain or shoulder pain may serve as the only presenting symptoms. In this case, the patient's isolated neck discomfort and mandibular pain were the only initial presenting symptoms, which could be easily misdiagnosed as MSK pathology. Initial cardiology evaluation identified it as a potential anginal equivalent and testing revealed significant CAD requiring PCI. Subsequent development of recurrent ISR and NSTEMI, requiring repeated PCI, balloon angioplasty, and ultimately CABG, illustrates the often-progressive nature of CAD. Additionally, an aortic root aneurysm/pseudoaneurysm was diagnosed in the setting of recurrent symptoms. These are recognized as rare, but often fatal complications of cardiac surgery, in the absence of early detection.

Conclusion: This case serves as a reminder that ACS does not always announce itself with chest pain and atypical anginal equivalents can represent advanced and progressive CAD. Clinicians should remain alert for late complications following coronary intervention, as vigilance can be lifesaving.

Relevance to Family Medicine: Family medicine physicians serve as the first and often only point of contact for many patients seeking medical care across many health care settings. More than 1 million patients are hospitalized annually in the United States for ACS, with an estimated annual incidence of approximately 550,000 new myocardial infarctions and 200,000 recurrent events. Atypical presentations occur in approximately 8-21% of ACS patients. When specifically examining patients presenting without any chest pain, the incidence ranges from 1.4% to 35.5%. It is vital that family medicine physicians are aware of these potential ACS presentations, as lack of recognition can lead to delays in care, resulting in worsening morbidity and mortality.

A Pain Misplaced: CAD Behind a Toothache

Karen Melara Hernandez
3rd year Family Medicine Resident
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Introduction: Myocardial ischemia remains one of the world's most relentless silent killer, striking millions each year, claiming countless lives, and often arriving in disguise with symptoms that defy classic expectations. In 10-33% of cases, chest pain is not referred, instead atypical symptoms like dyspnea, syncope, palpitations, jaw pain, mandibular pain and neck discomfort may be present ("anginal equivalent"). Such presentations can delay diagnosis and management, leading to a 2-fold increase in mortality.

Case Description: This is a patient in their 70s, with PMH of T2DM, HTN, HLD, and BMI 31.9 kg/m2, who presented with a 2-month history of exertional left-sided neck and mandibular pain, no chest pain referred. Initial workup included ECG, poor R wave progression; ECHO, LVEF 65%, grade 1 DD; nuclear stress test, reversible anterior defect. LHC with PCI, showed diffuse CAD, 4 DES were placed and DAPT was initiated. Symptoms recurred 10 months later, ISR was diagnosed, 3 additional DES were placed. 7 months later jaw pain recurred. ISR was diagnosed again, balloon angioplasty was performed. 2 months later, left neck/mandibular pain led to an NSTEMI diagnosis, a CABG x 4 was done. 3 years later, dyspnea and palpitations prompted a cardiology assessment. All 4 grafts were patent, a 5.5-6 cm aortic root aneurysm/pseudoaneurysm involving the proximal CABG vein graft anastomoses with associated LVEF of 40% was noted, leading to aortic root graft with SVG reimplantation. The patient recovered successfully.

Discussion: Atypical ACS presentations are frequently seen and missed, especially in older patients with comorbidities, as they may have blunted/altered pain perception. Complications following coronary intervention, including aortic root aneurysms/pseudoaneurysms, are rare, but often fatal in the absence of early detection, vigilance can be lifesaving.

Conclusion: This case serves as a reminder that ACS does not always announce itself with chest pain and atypical anginal equivalents can represent advanced and progressive CAD.

Relevance to Family Medicine: Family medicine physicians serve as the first and often only point of contact for many patients seeking medical care across many health care settings. More than 1 million patients are hospitalized annually in the United States for ACS, with an estimated annual incidence of approximately 550,000 new myocardial infarctions and 200,000 recurrent events. Atypical presentations occur in approximately 8-21% of ACS patients. It is vital that family medicine physicians are aware of these potential ACS presentations, as lack of recognition can lead to delays in care, resulting in worsening morbidity and mortality.

The Paradox of Healing: A Case of Bactrim – Induced Aseptic Meningitis

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Introduction: Drug-induced aseptic meningitis (DIAM) is a rare but significant complication, blurring the line between therapy and toxicity. Trimethoprim-sulfamethoxazole (TMP-SMX, Bactrim) is a well-known cause, illustrating how a drug intended to treat infection can instead trigger sterile CNS inflammation through hypersensitivity reactions. Prompt recognition and discontinuation of the offending agent are vital to prevent misdiagnosis, unnecessary treatment, and morbidity.

Case Description: We present the case of a 40-year-old woman with PMH of sleeve gastrectomy and psoriatic arthritis who presented to the ED with a bartholin cyst. She underwent I & D and was prescribed cephalexin (Keflex) and TMP-SMX (Bactrim) for post-procedural prophylaxis. One week later, she returned to the ED with a generalized headache, neck stiffness, photophobia, and fever. Blood work revealed leucopenia of 1.5 $\times 10^9$/L and brain imaging revealed no abnormalities. A lumbar puncture revealed lymphocytic pleocytosis, normal glucose, and negative cultures, suggesting viral versus aseptic meningitis. HIV and Coccidiosis were negative. Given the temporal relationship to TMP-SMX initiation, a diagnosis of TMP-SMX-induced aseptic meningitis (TMP-SMX-IAM) was made. Following discontinuation of TMP-SMX, the patient's symptoms improved dramatically within 48 hours, and she was discharged after a 2-day hospitalization.

Discussion: Diagnosis of TMP-SMX-IAM requires excluding infection and recognizing the temporal relationship with TMP-SMX use. Cephalexin-induced aseptic meningitis is considered an exceptionally uncommon adverse effect, not listed in its FDA drug label; on the contrary, it is listed on the TMP-SMX FDA drug label. Female patients and those with autoimmune diseases appear to be at higher risk, and patients with prior episodes of unexplained aseptic meningitis should be considered at risk. Management focuses on stopping the drug and supportive care, with most patients recovering within 48–72 hours.

Conclusion: TMP-SMX-induced aseptic meningitis illustrates a clinical paradox: a drug intended to treat infection can cause sterile meningeal inflammation.

Relevance to Family Medicine: In 2023, there were approximately 4.67 million prescriptions for TMP-SMX (Bactrim) in the United States, making it the 128th most commonly prescribed medication that year. Many common conditions diagnosed and treated by family medicine physicians, such as urinary tract infections (UTIs), skin and soft tissue infections (specifically methicillin-resistant Staphylococcus aureus or MRSA), and Pneumocystis jirovecii pneumonia (PJP/PCP), are indications for TMP-SMX therapy. Therefore, family medicine physicians must be familiar with aseptic meningitis as a known potential adverse reaction to TMP-SMX, thereby prompting them to investigate further and document these cases to better characterize this clinical situation.

Beyond the Heart: When ST Elevation Leads to a Non-Ischemic Diagnosis

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Introduction: ST elevation on an ECG is often synonymous with ACS. In select cases, especially in young patients without cardiac risk factors, atypical presentations may point towards non-ischemic etiologies. This case underscores the importance of systemic symptoms in redirecting an initially cardiac-focused workup.

Case Description: We present the case of a previously healthy patient in their early 20s who presented with mid-sternal chest pain radiating to the left arm, lasting 7 to 8 hours, with spontaneous resolution, not associated with exertion or positional changes. Progressive hoarseness and a noticeable change in voice quality, which developed over the prior two weeks, were also reported. An ECG revealed ST-segment elevations in the inferolateral leads without reciprocal changes. Serial troponins remained normal. CT chest demonstrated prominent paratracheal and bilateral hilar lymphadenopathy, along with multiple intracardiac lesions, adherent to the myocardial wall. A TTE revealed 2-3 nodular echodensities within the RV myocardium, with intracavitary extension. Cardiac MRI and PET imaging identified two metabolically active masses in the RV with metastases to the kidneys and the 3rd rib. Mediastinoscopy with biopsy confirmed a diagnosis of sarcomatoid mesothelioma.

Discussion: Sarcomatoid mesothelioma (SM) accounts for approximately 10% of all mesothelioma cases, 300 cases per year in the U.S., making it the least common of the three major histologic subtypes. SM of the heart is an extremely rare and highly aggressive malignancy. Age at presentation ranges from 2 to 78 years (mean 46 years), with a 2:1 male-to-female ratio. Clinical presentation is often late, and diagnosis is challenging, with a survival of only 3 months from symptom onset, as the rarity of the disease poses significant limitations for comprehensive studies to establish diagnostic and treatment strategies.

Conclusion: This case emphasizes the importance of considering systemic context in diagnosing ST elevation and the need for a comprehensive diagnostic approach.

Relevance to Family Medicine: Family medicine physicians evaluate patients with symptoms suggestive of acute coronary syndrome (ACS) in all clinical settings. As ACS is so prevalent, vast information has been published on ACS representing coronary artery disease (CAD), particularly in the older population with diagnosed conditions that are known cardiac risk factors. However, when symptoms suggestive of ACS are encountered, particularly in a young patient with no known risk factors, these should prompt a thorough assessment, as the etiology can be significantly different, as in the case presented above. Family medicine physicians must be familiarized with such cases to foster prompt diagnoses and the creation of literature that can lead to better health outcomes in the future.

A Rare Cause of Ascites in Primary Care: Recognizing Abdominal Tuberculosis in At-Risk Populations

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Introduction: Abdominal tuberculosis (ATB) is a rare form of extrapulmonary TB, most commonly reported in regions of Africa and Asia, particularly the Indian subcontinent. It often affects immunocompromised individuals and presents with nonspecific symptoms such as poorly localized abdominal pain, weight loss, fever, abdominal distention, and altered bowel habits. Ascites is a frequent finding, typically straw-colored with high protein content and lymphocytic predominance. Because of its rarity and vague presentation, abdominal TB is frequently misdiagnosed as other gastrointestinal or systemic conditions.

Case Description: A 35-year-old East African woman presented with six months of epigastric pain, abdominal distention, generalized weakness, arthralgias, myalgias, nausea, vomiting, diarrhea, dizziness, and significant weight loss. Examination revealed ascites, lower-extremity edema, muscle wasting, and jaundice. The differential diagnosis included abdominal TB, peptic ulcer disease, nephrotic syndrome, nonalcoholic liver cirrhosis, and sepsis. She had been evaluated and hospitalized in her home country, where limited resources hindered definitive diagnosis. Her symptoms, epidemiologic risk factors, and examination findings raised strong concern for abdominal TB.

Discussion: Abdominal TB is an uncommon but serious manifestation of TB that may result from hematogenous spread of pulmonary disease, ingestion of infected sputum, or direct extension from nearby infected structures. In some East African communities, consumption of raw milk poses additional risk due to possible contamination with Mycobacterium bovis. This accounts for fewer than 2% of global TB cases but can cause gastrointestinal infection. Given the potential for delayed diagnosis, family physicians should consider ATB in patients with new-onset ascites who have emigrated from endemic regions or regularly consume unpasteurized dairy products.

Conclusion: Abdominal TB remains a diagnostic challenge due to its nonspecific presentation and low prevalence in many primary care settings. Maintaining vigilance for this condition in at-risk populations can reduce diagnostic delays and improve outcomes.

Relevance to Family Medicine: Given the potential for delayed diagnosis, family physicians should consider ATB in patients with new-onset ascites who have emigrated from endemic regions or regularly consume unpasteurized dairy products. Maintaining vigilance for this condition in at-risk populations can reduce diagnostic delays and improve outcomes.

TAVR for Prosthetic Valve Endocarditis in High-Risk Patients

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Introduction: Transcatheter aortic valve replacement (TAVR) has emerged as an established therapy for patients with severe aortic stenosis who are at high or prohibitive surgical risk. However, its role in managing infective endocarditis (IE), particularly prosthetic valve endocarditis (PVE), remains limited due to concerns about reinfection and procedural complications.

Case Description: We present the case of an 80-year-old male with a history of bioprosthetic aortic valve replacement who presented with worsening dyspnea and heart failure symptoms. Diagnostic imaging revealed dysfunction of the bioprosthetic valve with moderate aortic regurgitation and stenosis, and transesophageal echocardiography identified a calcified echodensity consistent with healed endocarditis. Given his advanced age and multiple comorbidities, including coronary artery disease and diabetes mellitus, he was deemed a poor candidate for surgical aortic valve replacement. A transcatheter valve-in-valve procedure was successfully performed using a Medtronic transcatheter valve. Post-procedural imaging confirmed optimal valve positioning without paravalvular leak, and the patient demonstrated significant clinical improvement.

Discussion: This case underscores the expanding role of TAVR in managing PVE-related bioprosthetic valve failure among high-risk surgical patients. The procedure may be a viable option in select cases of healed endocarditis with structural valve deterioration. Careful patient selection, comprehensive microbiologic evaluation, and meticulous procedural technique are essential to minimize reinfection risk and optimize outcomes. TAVR can serve as a safe and effective alternative to surgical valve replacement in high-risk patients with bioprosthetic valve dysfunction secondary to healed PVE.

Conclusion: TAVR can be a reasonable option for high-surgical-risk patients with bioprosthetic valve failure after healed endocarditis, using a valve-in-valve approach. Careful patient selection, confirmation that infection is resolved with cultures and imaging, and multidisciplinary decision-making are essential. When anatomy is suitable and co-morbidities are optimized, TAVR can improve symptoms and function with lower procedural risk than repeat open surgery.

Relevance to Family Medicine: Family physicians play a key role in early recognition of worsening dyspnea, new murmurs, or heart-failure symptoms that may indicate valve dysfunction, and in timely referral to cardiology. After TAVR, family physicians are essential in providing longitudinal follow-up, medication reconciliation, monitoring for complications, and ensuring continuity, holistic care, and management of other co-morbidities.

Recognizing and Managing Artery of Percheron Stroke

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Introduction: The Artery of Percheron (AOP) is an uncommon variant in the posterior circulation of the brain, where a single unilateral branch of the first segment of the posterior cerebral artery (PCA) supplies both sides of the paramedian thalamus and rostral midbrain. AOP stroke, resulting from acute infarction due to occlusion or embolism, represents a highly uncommon and distinctive subtype of ischemic stroke. Due to its unique vascular supply, patients present with characteristic clinical features that can often create significant diagnostic challenges.

Case Description: We present the case of a 67-year-old male with a medical history of type 2 diabetes mellitus,
hyperlipidemia, coronary artery disease, and complete heart block managed with a pacemaker, who was brought to the emergency department after being found unresponsive. Upon presentation, the patient exhibited pinpoint pupils and was responsive only to painful stimuli, prompting activation of the stroke protocol. Initial CT scans of the brain
suggested AOP stroke, which was later confirmed by MRI. Due to delayed presentation, IV thrombolysis was not administered. Patient was started on aspirin, high-dose statin, and lifestyle modifications. Neurology recommended rehabilitation-focused care. The patient showed gradual neurological improvement and was discharged to a short-term rehab facility. Patient was noted to have significant functional recovery with continued therapy.

Discussion: This case highlights the importance of recognizing the clinical signs and symptoms associated with AOP stroke and highlights the critical role of advanced imaging modalities in accurately diagnosing this distinctive condition to ensure prompt and effective management. AOP infarction presents with a variable triad: altered mental status, oculomotor abnormalities, and cognitive/behavioral changes. Early recognition is crucial to avoid misdiagnosis. CT may show subtle bilateral thalamic changes; MRI (DWI/FLAIR) is most sensitive. CTA often misses AOP due to its small size, making clinical suspicion and MRI critical. Thrombolysis or thrombectomy is ideal but often not feasible due to delayed presentation. Focus shifts to secondary prevention and rehabilitation to support recovery.

Conclusion: Artery of Percheron stroke is a rare ischemic stroke variant that causes bilateral thalamic and midbrain infarction, often presenting with altered consciousness, abnormal eye movements, memory changes, or pinpoint pupils. Early CT scans may be normal, so MRI with diffusion-weighted imaging is usually required for confirmation. Standard acute stroke protocols still apply, including rapid recognition, urgent imaging, and timely reperfusion therapy when eligible. Clinicians should maintain suspicion in unexplained decreased responsiveness and aggressively manage vascular risk factors and potential cardiac embolic sources. Raising awareness of atypical stroke signs and strengthening rapid response systems are vital. Long-term support through rehab, education, and prevention fosters better outcomes and healthier communities.

Relevance to Family Medicine: Family physicians play a major role in both prevention and long-term management. Control of diabetes, hypertension, and hyperlipidemia, along with smoking cessation and antiplatelet or anticoagulation therapy, reduces overall stroke risk. In outpatient settings, recognizing sudden confusion, excessive sleepiness, or visual changes and immediately referring to emergency services can be lifesaving. After hospital discharge, family physicians are essential in providing continuity through post-stroke care, medication management, and ongoing cardiovascular risk reduction, ensuring a comprehensive holistic care.

Caught between autoimmunity and neurodegeneration: The mystery of Anti-IgLON5

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Introduction: Anti-IgLON5 disease is a rare neurologic disorder that lies at the intersection of autoimmunity and neurodegeneration. It presents with heterogeneous features including sleep disturbances, bulbar dysfunction, movement abnormalities, and cognitive changes. Because symptoms mimic more common conditions such as sleep apnea or neurodegenerative syndromes, it is frequently under-recognized. This case is clinically relevant as early identification and immunotherapy can improve outcomes and reduce risk of sudden respiratory complications.

Case Description: A 69-year-old male with prior renal cell carcinoma, GERD, and esophageal stricture presented with chronic sleep disturbances, dysphagia, stridor, dysarthria, tremors, and limited upward gaze. He developed hypercarbic respiratory failure initially attributed to COPD. Neurologic evaluation showed negative EMG and infectious CSF studies, but serum and CSF IgLON5 antibodies were positive with mildly elevated p-tau/Aβ42 ratio. Imaging and metabolic workup were unrevealing. He received plasma exchange and rituximab with clinical improvement and was discharged to rehab with planned outpatient immunotherapy.

Discussion: Anti-IgLON5 disease demonstrates overlapping autoimmune and tau-associated neurodegenerative mechanisms. MRI and routine CSF may be normal, making antibody testing essential for diagnosis. Clinical manifestations range from parasomnias and sleep apnea to gait instability, bulbar symptoms, and cognitive decline. Literature supports immunotherapy, steroids, IVIG, rituximab, and plasma exchange, as potential disease-modifying options, especially when initiated early. Delayed recognition increases morbidity and risk of sudden death from airway compromise or aspiration.

Conclusion: This case underscores the importance of considering anti-IgLON5 disease in patients with unexplained mixed sleep, bulbar, and movement symptoms. Diagnosis relies on serum and CSF antibody detection rather than imaging alone. Early multidisciplinary management with immunotherapy may stabilize or improve neurologic function. Greater awareness is essential to prevent underdiagnosis and reduce life-threatening complications.

Relevance to Family Medicine: Family physicians often serve as first contact for sleep complaints, dysphagia, falls, or cognitive concerns. Recognizing atypical constellation of symptoms and coordinating timely specialty referral can expedite diagnosis of rare neurologic diseases. Longitudinal care, medication monitoring, management of comorbidities, and patient-family education position family physicians as central to ongoing multidisciplinary management.

Integrative Medicine Approaches to Long COVID

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Introduction: Despite declining acute COVID-19 hospitalizations, Post-Acute Sequelae of SARS-CoV-2 infection (PASC, or Long COVID) continues to affect millions, with profound functional and economic consequences. This presentation introduces a clinically actionable integrative and functional medicine framework for Long COVID, informed by emerging science, real-world clinical experience, and case-based outcomes.

Case Description: Two cases demonstrate application of this integrative framework. Sylvester, a 75-year-old man, developed post–COVID fatigue, tachycardia, orthostasis, and chest discomfort despite normal cardiac testing, inflammatory markers, and thyroid studies. Clinical phenotyping supported hypovolemic POTS. Treatment with allithiamine, B-complex, magnesium, and supportive lifestyle measures led to rapid resolution of dysautonomia and near-complete recovery. Deepa, a 63-year-old woman with post–COVID worsening of multisystem symptoms, medication intolerance, flushing, and gastrointestinal distress, was diagnosed with mast cell activation disorder. Initiation of ketotifen and cromolyn enabled tolerance of nutritional and metabolic therapies, resulting in resolution of dysautonomia, metabolic normalization, and sustained functional improvement.

Discussion: These cases highlight the clinical utility of structured phenotyping in Long COVID, demonstrating how symptom clustering can guide targeted, mechanism-based interventions when standard diagnostic pathways are unrevealing. Dysautonomia and mast cell activation disorders represent high-prevalence yet frequently under-recognized contributors to persistent post–COVID morbidity. Early identification of these phenotypes allows clinicians to move beyond symptomatic management toward root-cause–informed therapy, improving functional outcomes and reducing diagnostic uncertainty. The cases also underscore the importance of sequencing care—stabilizing autonomic and mast cell dysregulation before initiating broader metabolic or rehabilitative interventions. Collectively, these examples contribute to emerging clinical knowledge by illustrating reproducible, pragmatic strategies that can be implemented in routine practice, bridging gaps between evolving pathophysiologic research and real-world care.

Conclusion: Long COVID is a heterogeneous, multisystem condition that benefits from deliberate clinical phenotyping rather than symptom-based treatment alone. A stepwise approach—first ruling out serious pathology, then stabilizing foundational lifestyle factors, followed by targeted root-cause interventions—can meaningfully improve outcomes. Dysautonomia (particularly hypovolemic POTS) and mast cell activation disorders are common, under-recognized contributors and should be actively screened for using orthostatic vitals, symptom patterns, and treatment response. Early stabilization of autonomic and mast cell dysfunction may enhance tolerance of rehabilitation, nutritional, and metabolic therapies. Clinicians are encouraged to adopt structured frameworks that integrate conventional diagnostics with integrative and functional strategies to restore function and reduce long-term disability.

Relevance to Family Medicine: Long COVID is predominantly managed in primary care, where family physicians address its multisystem, chronic presentations. This framework aligns with family medicine's strengths in longitudinal, whole-person care, enabling clinicians to recognize common phenotypes, reduce diagnostic fragmentation, initiate low-risk interventions, and coordinate effective, patient-centered management within the medical home.

Anxiety Disorder Focused CBT Intervention in Primary Care Settings

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Introduction: Anxiety disorders are prevalent, often leading to functional impairments and increased healthcare utilization. Amongst the behavioral therapies, CBT, PST, and counseling, all three demonstrated long-term treatments to be effective, except brief CBT for anxiety. Brief CBT (bCBT) has been shown to significantly expand the accessibility of mental illness therapy, particularly given the high prevalence and morbidity of depression and anxiety in patients. In primary care settings patients benefit from less intensive mental health interventions that address both physical and emotional health, and prefer care that is integrated within primary care.

Case Description: A 31-year-old postpartum female with symptoms of anxiety associated with early parenthood and breastfeeding difficulties. Upon discussion, the patient consented to participate in bCBT sessions delivered by her family medicine physician. As the physician of both the 31 year old female and her newborn, Dr. Mehta had unique insight into the patient's triggers for anxiety. Patient has a history of hypertension, which was an important consideration considering its comorbidity with anxiety.

Discussion: Data gathered after each visit, with the patient completing a comprehensive questionnaire. The GAD-7 was administered at each visit to assess progress. From the 2nd post-treatment questionnaire, the patient reported utilizing mindful breathing techniques during moments of unsuccessful latching- helping her remain calm. After the 3rd bCBT session she reported feeling more capable of handling stressful parenting situations and having an improved mood with fewer manifestations of anxiety in behavior, such as excessive reassurance-seeking and avoidance. At the conclusion of the sessions she developed a structured self-care routine, including brief meditation sessions, furthering her emotional resilience . Objective assessment using the GAD-7 questionnaire demonstrated a significant improvement, with anxiety severity decreasing from moderate (score of 13) to mild (score of 6) following treatment. Additionally, the PHQ-9 questionnaire showed a mild improvement in her depression symptoms.

Conclusion: The success of this approach demonstrates the impact of integrating accessible mental health support, like bCBT, into routine visits. It is essential to recognize that this intervention was feasible because the patient had the flexibility to remain at the clinic for extended sessions—a privilege that may not be universally available. Future studies with larger sample sizes are needed to determine replicability of these results. This would also aid in exploring strategies for adapting bCBT to fit the diverse needs of patient seeking care. As the demand for mental health care continues to rise, physicians must integrate innovative ways in practice to bridge the gap between psychological support and medical care.

Relevance to Family Medicine: Family medicine physicians are uniquely positioned to implement bCBT in a holistic manner due to their longitudinal relationships with patients.
This depth of familiarity allows for a nuanced understanding of patients' psychosocial dynamics, family history, and environmental stressors—all factors integral to the effectiveness of bCBT. Additionally, their role in preventive care and chronic disease allows integration of physical health and lifestyle modifications to the treatment plans, addressing both psychiatric conditions and behavioral components of physical health.

Community Health & Engagement

(Alphabetical by Primary Author)

Employment First as a Social Determinant of Health: Advancing Community Health Through Systems Change in Arizona

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Introduction: People with disabilities experience significant health disparities, including higher rates of chronic conditions, social isolation, and poverty. Competitive integrated employment (CIE) is strongly associated with improved mental, physical, and economic well-being, yet employment remains underutilized as a public health strategy. The Arizona Employment First Initiative addresses this gap by positioning CIE as the expected outcome for all Arizonans, even those with the most significant disabilities. This initiative advances employment as a social determinant of health intervention through statewide systems and policy change.

Methods/Approach: Arizona's Employment First Initiative aligns state agencies, education systems, vocational rehabilitation, disability advocacy stakeholders, and workforce development partners around a shared commitment to CIE for all people. Some of the strategies include state agency policy alignment, interagency collaboration, community and professional training and technical assistance, data-sharing improvements, and embedding employment goals into transition and service planning processes. This initiative emphasizes expectation-setting, an early focus on employment goals, and coordinated service delivery to reduce fragmentation and improve long-term outcomes.

Outcomes/Impact: Evaluation is ongoing to assess systems change efforts, interagency collaboration, employment outcomes, and integration of Employment First principles. Early assessment identifies interagency alignment, earlier work-based learning opportunities, and stronger transition planning practices as some of the areas of focus. By reframing employment as a health-promoting intervention, this initiative seeks to reduce poverty, improve mental health, and increase community inclusion for people with disabilities—key drivers of health equity.

Lessons Learned/Significance: Systems change requires sustained leadership, shared language, and cultural shifts in expectations. Challenges include funding silos, limited healthcare integration, and the prioritization of segregated environments. Next steps include deeper engagement with healthcare systems and primary care partners to strengthen employment as a recognized health intervention.

Relevance to Family Medicine: Medical providers address social determinants of health daily. However, identifying employment as a health intervention strategy is not yet a common practice. Integrating employment into health care planning offers a practical strategy to advance health equity, improve patient well-being, and build healthier communities.

Identifying Components of a Disability Navigation Program for Refugees in Pima County

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Introduction: Refugees with disabilities often face complex barriers to accessing healthcare and social services, resulting in unmet needs and health inequities. Few disability navigation programs exist to address the unique cultural, linguistic, and systemic challenges of refugee populations. This project aims to identify components of a disability navigation program to enhance equitable access to care for refugees in Pima County.

Methods/Approach: UA faculty and fellows collaborated with IRC staff and Encircle Families to co-develop content addressing concerns encountered by staff in the disability services application process. Four training and data collection sessions are planned with IRC staff, disability organizations, and clients. Preparatory steps included literature review and stakeholder engagement. The first training covered Division of Developmental Disabilities guidelines; the second will focus on the Arizona Long-Term Care System. Subsequent trainings for clients, families, and disability organizations will be guided by stakeholder input. Evaluation includes retrospective post-test surveys of knowledge, confidence, and intended application, with follow-up semi-structured interviews at 30, 60, and 90 days. Survey results will be analyzed descriptively; qualitative feedback will undergo thematic analysis.

Outcomes/Impact: We anticipate improvements in staff knowledge, confidence, and practical application of disability navigation strategies. Formative evaluation data will inform core competencies for a disability navigator and may provide a scalable model for refugee-focused interventions.

Lessons Learned/Significance: Collaboration with local partners ensures feasibility, relevance, and cultural responsiveness. Lessons learned can guide organizations implementing refugee-focused disability advocacy and navigation programs. Future steps include expanding trainings to additional staff and clients and evaluating long-term impacts on service delivery.

Relevance to Family Medicine: Family medicine practitioners frequently care for underserved populations with complex health and social needs. This initiative demonstrates how interprofessional, community-engaged strategies can improve equitable access to services and support the health of refugee patients within the family medicine framework.

Trauma-Informed Follow-Up Care for Survivors of Domestic and Sexual Violence Through Multidisciplinary Collaboration

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Introduction: Survivors of domestic violence (DV) and sexual assault (SA) often face fragmented care and barriers to follow-up. Literature highlights the need for trauma-informed, coordinated approaches to improve outcomes. Our family medicine residency program partnered with the emergency department (ED) and community advocacy centers to address this gap through a multidisciplinary model that supports survivors post-ED visit. The objective was to implement a trauma-informed, multidisciplinary follow-up care model for DV/SA survivors referred from the ED, with the goal of improving access to medical, behavioral, and social support services.

Methods/Approach: A collaborative care pathway was developed involving ED staff, Sexual Assault Nurse Examiners (SANEs), family medicine residents and attendings, MAs, scheduling staff, a clinical pharmacist, and a behavioral health counselor. Survivors referred from the ED were offered follow-up in the family medicine clinic, including nPEP, lab work, behavioral health, pharmacy consultation, and SDOH support (e.g., food boxes, Uber vouchers). For patients without insurance, all forensic visits were at zero cost to the survivor through HonorHealth Foundation funding.

Outcomes/Impact: In the first 6 months of this pilot, 147 patients were referred (2.7% male, 16% aged 12–17). Of these, 26 (18%) completed follow-up visits, with 8 returning more than once. All individuals were managed using a biopsychosocial approach. Several patients chose to participate in behavioral health counseling, and every patient was screened for social determinants of health. For those experiencing food insecurity, food boxes were provided through our on-site pantry. Overall, the pilot demonstrated the feasibility of delivering coordinated, trauma-informed care and underscored the need for enhanced engagement strategies to improve follow-up participation.

Lessons Learned/Significance: This model demonstrates how residency programs can lead trauma-informed, multidisciplinary care for DV/SA survivors. It offers a replicable framework for integrating ED, primary care, and community resources to address medical and social needs, with potential to improve survivor outcomes and reduce care fragmentation.

Relevance to Family Medicine: This model highlights the role family medicine residency programs can fill in providing trauma-informed, longitudinal, and comprehensive care for survivors of domestic violence and sexual assault in their community. Through a multidisciplinary partnership with the emergency department and community advocacy centers, family medicine served as a bridge from acute ED care to ongoing medical, behavioral, and social support. Being accessible to survivors of domestic violence and sexual assault and honing skills to support this patient population reflects core family medicine principles of continuity, community engagement, and whole-person care.

Curriculum

An easy to use tool to at the point of care to document resident milestone levels

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Introduction: It can be challenging to assess family medicine residents at the point of care using the ACGME milestones. Documentation of resident progress can be burdensome for faculty and difficult for residents to interpret. This challenge is magnified during semi-annual Clinical Competency Committee (CCC) reviews, which require substantial effort to assign milestone levels while residents often have limited understanding of milestone meaning. Additionally, the current structure offers limited opportunity to utilize milestones for meaningful, actionable feedback. The goal of this project is to streamline accurate documentation of resident knowledge and abilities while improving clarity, relevance, and shared understanding of milestones for both faculty and residents.

Description of Curriculum: We developed a web-based Milestones Analyzer designed to embed milestone recognition directly into everyday training. Faculty document routine clinical and educational activities through a simplified interface rather than navigating the full milestone framework. Activities are automatically mapped to relevant milestones using curated milestone–activity linkages, with qualitative comments that can be copied into New Innovations to document competency advancement. The tool includes an ambient staffing feature that listens to residents' PHI-free patient presentations and identifies milestones achieved during the encounter. Users can filter milestones by year of training, removing competency levels already achieved to reduce cognitive load and documentation redundancy. To promote intentional feedback, a Focused Feedback form was developed for clinic half days, allowing precepting attendings to target anticipated challenges, highlight milestones, and pair successes with purposeful feedback.

Outcomes/Evaluation: Early use demonstrates strong feasibility and usability. Faculty report faster documentation and improved confidence that recorded activities accurately reflect milestone achievement. Residents report greater clarity around expectations, improved feedback quality, and a clearer sense of longitudinal progression. Ongoing evaluation will assess documentation time, CCC preparation efficiency, faculty and resident satisfaction, and feasibility of direct integration with New Innovations.

Conclusion/Significance: By observing teaching interactions and transforming them to mapped milestone levels at the point of care, this innovation reduces administrative burden while helping make milestones more useful for evaluation and feedback.

Relevance to Family Medicine: Given the breadth and continuity of Family Medicine training, this approach offers a scalable, specialty-aligned solution adaptable to diverse training environments.

Residency Readiness – A Bootcamp Model for Orientation

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Introduction: A well-structured Family Medicine orientation is critical for ensuring a smooth transition from undergraduate medical education into intern year. It provides an opportunity to introduce core clinical workflows, culture, and expectations, while simultaneously allowing faculty to assess incoming residents' baseline knowledge, communication and clinical skills. Our goal was to design and implement a novel orientation format that achieves two primary goals: (1) to familiarize intern residents with the scope, structure, and culture of our Family Medicine residency program, and (2) to allow faculty to conduct early formative evaluations of interns across multiple competency domains.

Description of Curriculum: A 2-day orientation curriculum was designed, incorporating teaching sessions, skills stations, role playing, and direct observation. Key components included: introduction to core Family Medicine principles and expectations, communication and patient-centered skills stations, case-based learning sessions and interprofessional collaboration activities such as obtaining a history, physical examination, case presentation, effective patient handoff skills, and clinical skills. Faculty used direct observation tools and milestone-based assessments to evaluate interns' clinical reasoning, teamwork, professionalism, and communication skills. Interns and faculty completed evaluations at the end of the orientation and 3-months post-orientation.

Outcomes/Evaluation: The orientation curriculum was implemented at the start of the 2025-26 academic year. The orientation facilitated early integration of interns into the residency environment while enabling faculty to identify individual learning needs and strengths. Interns reported increased confidence and understanding of their role in survey feedback from immediately after the orientation and 3-months post-orientation. Further, interns were better able to identify gaps in the curriculum thus allowing from improvements and adding additional areas of focus for future intern orientations. Faculty were able to provide targeted feedback and focused individualized learning plans based on early assessments.

Conclusion/Significance: An intentionally designed orientation program for Family Medicine interns can effectively balance the dual objectives of resident acclimation and faculty evaluation. This novel model fosters a supportive learning environment while laying the groundwork for personalized education plans and professional growth from the onset of training.

Relevance to Family Medicine: This orientation curriculum was designed for and implemented in a well-established Family Medicine residency in Arizona. Topics that were focused on during the orientation were areas of previous weakness identified by current FM residents in our program and senior faculty member.

The R2S - Resident Research & Scholarship Program: A Longitudinal, Integrated Research & Patient-Education Curriculum for Residency

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Introduction: Residency programs are increasingly expected to produce scholarly output and graduate physicians skilled in evidence-based practice, yet many community and hybrid programs lack a structured, feasible research curriculum. The R²S program was designed to address gaps in resident research skills, patient-education quality, and IRB/QI navigation by embedding a longitudinal, skills-based curriculum into existing didactics. Goals are for every resident to complete at least one scholarly product and to strengthen a sustainable research culture over 3–5 years.

Description of Curriculum: R²S is a 6–8-month, 12–15 session longitudinal curriculum integrated into weekly residency didactics for residents at all postgraduate levels. Each month includes two 30-minute sessions and one concrete deliverable that advances an individual resident project (QI, case report, SR, or chart review). Content is organized into four blocks: (A) idea generation and project selection, (B) literature searching and critical appraisal, (C) project design, IRB/QI, data planning and basic statistics, and (D) writing, presenting, and scholarly identity. Faculty join targeted sessions for mentorship, article selection, IRB/QI guidance, and project feedback.

Outcomes/Evaluation: Planned outcomes include: ≥1 scholarly product per resident annually (abstract, case report, QI, or SR), increased submissions to institutional, regional, and national conferences, and improved resident self-rated confidence in literature appraisal, project design, and patient-education communication. Evaluation will use pre/post surveys, tracking of scholarly output, IRB/QI submissions, and qualitative feedback from residents and faculty on feasibility and perceived value. Patient-education outcomes will be assessed via readability metrics and structured feedback on resident-created materials.

Conclusion/Significance: R²S offers a scalable, low-cost model that embeds scholarship and patient-education training into routine residency teaching without requiring dedicated research blocks. By coupling stepwise project support with faculty micro-mentorship, the curriculum aims to normalize inquiry and dissemination as part of everyday training. This innovation is adaptable to other residencies seeking to build sustainable research and education capacity.

Relevance to Family Medicine: Family medicine residencies are uniquely positioned at the interface of community care, continuity, and population health, yet often lack robust research infrastructure. R²S aligns with family medicine's emphasis on QI, patient-centered communication, and practice-based evidence by helping residents transform real clinic and inpatient problems into scholarly work. The curriculum strengthens ACGME scholarship expectations, supports fellowship and academic career pathways, and generates practice-level improvements that directly benefit family medicine patients and communities.

Enhancing Procedural Competency in Family Medicine Residency Through Dedicated Clinics, Simulation, and Structured Curricula

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Introduction: Procedural competency is a core requirement in family medicine residency, yet many programs face challenges in providing consistent exposure. Limited patient flow, variable supervision, and inconsistent curricula often leave residents underprepared for certification and practice. This project aims to address these gaps by implementing a structured, multifaceted curriculum designed to enhance both competency and confidence among 32 residents.

Description of Curriculum: The innovation centers on monthly dedicated procedure clinics supervised by attending physicians, offering structured opportunities in dermatology, musculoskeletal care, women's health, and general office procedures. Complementary interventions include a digital application for procedure scheduling and access, updated manuals for residents and medical assistants, streamlined referral systems to increase patient flow, and simulation labs for skill reinforcement. The target audience is family medicine residents, with faculty oversight ensuring standardized training and assessment.

Outcomes/Evaluation: Evaluation metrics include procedural volume, schedule completion rates, Procedural Competency Assessment Tool (PCAT) scores, direct faculty observations, and procedural logs aligned with ABFM requirements. Anticipated outcomes are increased exposure to high-yield procedures, improved competency scores, higher clinic utilization, and enhanced readiness for certification. Ongoing feedback from residents and faculty will guide iterative improvements.

Conclusion/Significance: This curriculum provides a scalable model for residency programs seeking to strengthen procedural training. By integrating dedicated clinics, simulation, and structured referral systems, the initiative enhances resident education, patient care quality, and alignment with certification standards. Lessons learned highlight the importance of technology integration, interprofessional collaboration, and longitudinal curricula in advancing medical education.

Relevance to Family Medicine: Procedural competency is central to comprehensive family medicine practice. This innovation ensures residents graduate with the skills necessary to deliver high-quality, patient-centered care across diverse clinical settings, directly supporting the mission of family medicine to provide broad, continuous, and accessible care.

Theatre of Oppressed as a tool to discuss empathy, cultural competence and diversity in the medical practice

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Authors: Giovana Soares, Yumi Shirai, Aurelia Mouzet, Leora Sapon-Stevin, Amber Frame

Introduction: The FM Residency at University of Arizona in Tucson, AZ, has implemented a medical humanities track, providing opportunities for a variety of creative and multidisciplinary activities. As part of these activities, we used the Theatre of the Oppressed as a tool to discuss topics such as empathy, pedagogical approaches, and communication skills. Created by the Brazilian theatre practitioner Augusto Boal, the Theatre of the Oppressed is a form of a popular, community-based education that uses theatre as a tool for social transformation.

Description of Curriculum: During a 90-minute session, we worked with a multidisciplinary group that included experts in the Theatre of the Oppressed and improvisation. Improvisation techniques were used to open the session, after which four groups were formed and invited to present a skit. The skit was based on examples from FM residents who shared their experiences with current challenges through a pre-session survey. The scene resembled a clinical rounds presentation led by a new resident. The attending physician character demonstrated poor pedagogical skills, causing the resident to feel pressured, humiliated, and not a part of the team. Audience members were then invited to changing roles within the skit, offering new perspectives that transformed the outcome into a more collaborative, pedagogically appropriate, and respectful learning environment.

Outcomes/Evaluation: The results were based on participants' responses to evaluation questions administered at the end of the session. Participants reported learning alternative ways to communicate in a positive, supportive, and empathic manner.

Conclusion/Significance: As described in the literature, the Theatre of the Oppressed can be a great tool for addressing difficult topics. The next step will be to expand the focus to include cultural competence and diversity.

Relevance to Family Medicine: This experience demonstrates how the Theatre of the Oppressed can be used in the training of new healthcare providers and create opportunities for changes in practice through a participative and affective approach.

Quality Improvement

(Alphabetical by Primary Author)

Leveraging a Documentation Template to Improve Diabetes Care Outcomes

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Introduction: Delivering comprehensive diabetes care is challenging but critical to preventing complications, with many patients relying on their primary care physician to provide these services. This quality improvement project evaluated whether the use of a standardized documentation template would improve completion of diabetes care metrics.

Methods: This project took place at a Family Medicine residency clinic in Phoenix over a 1-year period. We developed a template that auto-populated patient-specific diabetes care metrics. Data was collected on 239 diabetic patients to determine whether the template had been used, the last A1C, and whether the following care metrics had been completed: diabetic eye exam in the past year, kidney health screening (creatinine and urine albumin-to-creatinine ratio completed on the same day within the past year), statin prescription for patients ages 40-75, and administration of any pneumococcal vaccine. We compared outcomes between visits with and without template use by examining differences in proportions for completed care metrics and average A1C values. We also surveyed the clinicians regarding their experience using the template.

Results: By the end of the study, 49% of diabetic visits were completed using the template. In comparing template use to no template use, there was a statistically significant difference in completion of kidney health screening (75% vs 44%; ARD 31%, 95% CI 19–43%, p < 0.001), statin prescription (93% vs 79%; ARD 14%, 95% CI 4.0–23%, p = 0.006) and pneumococcal vaccination (82% vs 68%, ARD 14%, 95% CI 3–24%, p = 0.015). There was no statistically significant difference in the completion of diabetic eye exams (27% vs 24%, ARD 2%, 95% CI –9 to 13%, p = 0.68) or in the average A1c (9.18% vs 9.02%; mean difference 0.16, 95% CI –0.47 to 0.79, p = 0.62). All clinicians who completed the survey (69%, 20/29) found the template easy to use and believed it decreased the time they spent chart reviewing while enhancing their ability to provide comprehensive diabetes care.

Conclusion: Use of a diabetes template improved clinician-driven tasks such as kidney health screening, statin prescribing, and pneumococcal vaccination, while more patient-driven metrics like eye exams and A1C did not, suggesting possible logistical or financial barriers. These findings highlight the feasibility of implementing a template in primary care as a strategy to improve clinician-driven diabetes quality metrics.

Relevance to Family Medicine: Family Medicine physicians serve as the primary point of care for most patients with diabetes and are responsible for coordinating comprehensive, longitudinal care to prevent the sequelae of this condition. This project demonstrates how implementing a pragmatic, clinic-level intervention within primary care can improve delivery of evidence-based chronic disease metrics while enhancing provider satisfaction in a real-world setting.

Improving SGLT2 Inhibitor Prescribing for Patients with Type 2 Diabetes and Chronic Kidney Disease in a Family Medicine Clinic

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Introduction: The American Diabetes Association recommends sodium-glucose cotransporter 2 (SGLT2) inhibitors for patients with type 2 diabetes mellitus (T2DM) and chronic kidney disease (CKD) with eGFR ≥20 mL/min/1.73 m² to reduce CKD progression and cardiovascular events. Despite strong evidence for reno- and cardioprotection, prescribing gaps persist in primary care. At Valleywise South Central Family Medicine Clinic (SPX), baseline SGLT2 inhibitor prescribing among eligible patients was 54%, identifying an opportunity to improve evidence-based care.

Methods: We conducted a single-cycle Plan-Do-Study-Act (PDSA) quality improvement project in an urban academic family medicine clinic serving adults with T2DM and CKD. The intervention was a silent “OurPractice Advisory” (OPA) embedded in the electronic medical record (EMR), which launched September 5, 2025. The OPA identified eligible patients during visits with a yellow banner, avoiding interruptive alerts to minimize workflow disruption and alert fatigue. Prescribing rates were tracked biweekly over 12 measurement periods. The aim was to increase prescribing to 60%.

Results: Following implementation, prescribing rates exceeded the 54% baseline median in 5 of 12 post-intervention periods and reached the 60% target in one period. However, improvement was not sustained across the study timeframe. No significant upward trend was observed.

Conclusion: A silent EMR-based intervention alone did not produce sustained improvement in SGLT2 inhibitor prescribing. Lessons learned include the importance of active provider engagement, audit-and-feedback mechanisms, and multi-modal strategies to change prescribing behavior. Future cycles could potentially incorporate provider education and performance dashboards to improve prescribing rates.

Relevance to Family Medicine: Family physicians manage the majority of patients with T2DM and CKD. Improving adherence to guideline-directed therapy in primary care directly advances population health, chronic disease management, and cardiovascular risk reduction within family medicine.

Closing the Loop: Implementing a Measurement-Based Care Cascade for PHQ-2/GAD-7 Positive Screens in a Family Medicine Clinic

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Introduction: Depression and anxiety are among the most prevalent conditions encountered in primary care, yet positive screening results frequently lack structured follow-up, creating a critical "screen-and-forget" gap. At Onvida Health Family Medicine Clinic in Yuma, Arizona, universal PHQ-2 and GAD-7 screening is embedded in every adult visit via Epic. However, no standardized workflow currently ensures that positive screens reliably trigger PHQ-9 escalation, clinical assessment, treatment initiation or adjustment, behavioral health referral, or documented follow-up within 4 weeks. This gap means patients with clinically significant depression or anxiety may be identified but not actively managed undermining the purpose of universal screening. This quality improvement project aims to build and implement a measurement-based care (MBC) cascade that converts every positive screen into a defined, trackable clinical action within the electronic medical record.

Methods: This is a prospective quality improvement initiative using Plan-Do-Study-Act (PDSA) cycles over a 12-month period.
Phase 1 (baseline): Retrospective Epic chart review of all adult primary care visits over 3 months to determine rates of PHQ-2 and GAD-7 completion, PHQ-9 escalation for positive PHQ-2 screens (score ≥3), documented clinical action (medication initiation, dose adjustment, counseling, or referral) for moderate-to-severe scores, and follow-up visit scheduling within 4 weeks.
Phase 2 (intervention): Implementation of a standardized care cascade—a positive PHQ-2 (≥3) automatically prompts in-visit PHQ-9 administration; a PHQ-9 ≥10 or GAD-7 ≥10 triggers an Epic Best Practice Alert with a SmartSet offering treatment options, behavioral health referral, and a 4-week follow-up order.
Phase 3 (study/act): Monthly run-chart analysis of process and outcome measures. Balancing measures include visit duration, patient and provider satisfaction.

Results: This project is currently in the pre-implementation phase. Preliminary baseline chart review indicates that PHQ-2 and GAD-7 screening completion exceeds 90% of adult visits. However, fewer than 40% of positive PHQ-2 screens have a documented PHQ-9 escalation, and fewer than 25% of patients with moderate-to-severe scores have a behavioral health referral or follow-up visit scheduled within 4 weeks. Treatment action documentation (new prescription, dose change, or therapy referral) is present in fewer than 35% of qualifying encounters. Anticipated outcomes after two PDSA cycles include: (1) ≥80% PHQ-9 escalation rate for all positive PHQ-2 screens, (2) ≥70% documented treatment action or referral for PHQ-9 ≥10 or GAD-7 ≥10, and (3) ≥60% follow-up visit completion within 4 weeks. Data collection is ongoing and interim results will be presented

Conclusion: This initiative transforms passive behavioral health screening into an actionable, closed-loop system that directly improves care for patients with depression and anxiety, conditions responsible for significant morbidity, lost productivity, and healthcare utilization in underserved border communities like Yuma. By linking every positive screen to a defined next step within the EMR, the project reduces diagnostic and therapeutic inertia, ensures equitable access to behavioral health services, and creates accountability through trackable metrics. The standardized care cascade eliminates provider-dependent variability in response to positive screens, meaning every patient receives the same evidence-based pathway regardless of which clinician they see. The model is low-cost, EMR-driven, and designed for portability, any family medicine clinic using PHQ-2/GAD-7 screening and Epic can replicate the workflow with minimal customization.

Relevance to Family Medicine: Family physicians are the frontline providers for mental health in the United States, managing more depression and anxiety than any other specialty. Universal screening is now standard practice, yet the gap between identifying a positive screen and delivering effective treatment remains one of primary care's most persistent quality challenges. This project directly addresses that gap through a practical, EMR-embedded workflow that aligns with the collaborative care model and measurement-based care

principles endorsed by the AAFP, APA, and USPSTF. It is set in a community-based family medicine clinic serving a diverse, underserved population along the US-Mexico border, reflecting real-world conditions where behavioral health resources are limited. The approach is immediately transferable to any FM practice performing routine screening, making it a replicable model for strengthening integrated behavioral health in family medicine.

Embedding Scholarship in Residency: A Standardized Approach in a Family Medicine Residency Program

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Onvida Health

Introduction: Residency programs face increasing expectations from the ACGME to integrate scholarship into training. However, scholarly projects often stall due to limited time, competing clinical demands, and lack of continuity. To address these challenges, the Family and Community Medicine Residency Program at Onvida Health in Yuma, Arizona, developed a standardized framework to embed scholarship into residency training. This initiative is significant because it strengthens scholarly culture, supports accreditation compliance, and enhances resident education.

Methods: Using a quality improvement (QI) approach modeled on structured cycles of accountability similar to PDSA principles, the program implemented a framework that includes representation from each PGY level to ensure sustainability and mentorship. The intervention was applied to 32 Family Medicine residents. Key tools included scheduled checkpoints at 3, 6, and 9 months to monitor progress, reinforce accountability, and provide timely support. Faculty engagement and interprofessional collaboration were embedded to enhance project longevity.

Results: Early outcomes demonstrate improved project sustainability and resident engagement. Compared to prior years, the proportion of residents completing scholarly projects increased, with preliminary data showing >75% of projects progressing beyond initial stages versus <40% historically. Qualitative feedback highlights enhanced mentorship, improved continuity across PGY levels, and greater alignment with accreditation requirements. These trends suggest measurable improvement in scholarly productivity and quality improvement integration.

Conclusion: This standardized framework has strengthened scholarly activity within residency training by addressing barriers of time and continuity. Lessons learned include the importance of structured checkpoints, cross-PGY collaboration, and faculty support. The model is adaptable and scalable to other residency programs, offering a pathway to embed scholarship as a sustainable, practice-based quality improvement initiative. Future steps include formal evaluation of project outcomes and dissemination across additional specialties.

Relevance to Family Medicine: Family Medicine emphasizes continuous improvement, patient-centered care, and practice-based learning. Embedding scholarship into residency training directly supports these principles by fostering resident education, faculty development, and systematic quality improvement. This initiative equips future family physicians with the skills to integrate scholarship into clinical practice, thereby enhancing patient care outcomes and meeting accreditation standards.

Team-Based Diabetes Care: Outcomes of a Monthly Multidisciplinary Education Clinic in a Residency Program

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Introduction: Fragmented diabetes care often results in poor glycemic control and preventable complications. Residency-based practices face particular challenges in coordinating multidisciplinary services for patients with chronic disease. To address these gaps, our program implemented a monthly multidisciplinary diabetes education clinic designed to integrate screening, counseling, and education into a single structured visit. This initiative aimed to improve patient outcomes, enhance adherence, and strengthen continuity of care.

Methods: Using a quality improvement framework modeled on team-based care principles, we established monthly clinics involving pharmacists, nutritionists, nurses, and physicians. Thirty-nine patients participated in structured visits that included foot exams, eye screenings, pharmacist consultations, nutrition counseling, physician evaluations, and patient education. Baseline and follow-up A1c values, complication screening rates, adherence metrics, and patient satisfaction were tracked. Patients were encouraged to attend multiple sessions, with outcomes stratified by visit frequency.

Results: The mean A1c reduction across the cohort was 1.35 points, with 64% of patients showing improvement and 49% achieving A1c ≤7%. Foot exam compliance reached 100% (29 patients), and eye screening compliance was 74%. Patients attending ≥3 visits achieved the greatest A1c reduction (1.53). Visit distribution averaged 3 per patient, with most completing 1–2 visits. Patient satisfaction improved by 28%, and medication adherence increased by 25%. These findings demonstrate measurable improvements in glycemic control, complication screening, and patient engagement.

Conclusion: The monthly multidisciplinary diabetes education clinic significantly improved diabetes outcomes and care compliance in a residency-based practice. Lessons learned include the importance of structured workflows, interprofessional collaboration, and sustained patient engagement. This model is adaptable to other residency and community settings, offering a replicable framework for chronic disease management and quality improvement.

Relevance to Family Medicine: Family Medicine emphasizes comprehensive, patient-centered care and continuity across settings. This project demonstrates how embedding multidisciplinary education and screening into residency practice can improve outcomes for patients with diabetes, a common chronic condition in primary care. By fostering interprofessional collaboration and resident involvement, the initiative strengthens training, enhances patient care, and contributes to practice-based quality improvement in Family Medicine.

EPIC Inbasket Guide for Beginners

Karen Melara Hernandez
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Onvida Health

Introduction: Incoming PGY-1s are expected to manage electronic health record (EHR) inbasket responsibilities in the beginning of residency training, often in the setting of limited orientation and minimal prior Epic exposure. By providing PGY-1s with a standardized Epic inbasket guide to support common message management, we aim to improve patient safety, reduce resident stress, and enhance workflow efficiency during early training.

Methods: Study design: PDSA. Setting: Onvida Health, 2025. Participants: 9 PGY-1 Family Medicine residents. Interventions: A structured Epic inbasket guide outlining step by step management of tasks. Measures: Surveys to assess prior EMR experience and perceived challenges with inbasket management.

Results: Main outcomes: The guide aims to support early inbasket management and serve as a foundation for developing individualized workflows. Analyses: Participants will be re-surveyed to assess project impact. Initial surveys showed that 55.6% of PGY-1s had prior EMR experience, only 25% had used Epic, and 100% had never used the Epic inbasket; 86% believed that access to a standardized guide would improve understanding and efficiency.

Conclusion: A concise Epic inbasket guide may serve as a valuable tool to improve safety and standardize workflow.

Relevance to Family Medicine: As family medicine physicians in training, our residency program expects incoming PGY-1s to assume Epic in-basket duties very early in their training. Throughout orientation, a couple of hours are dedicated to discussing the most common types of in-basket messages they might encounter and how to respond to them appropriately. Doing this is very challenging, and it's simply not possible to address all types of messages in these sessions. We believe providing incoming PGY-1s with a guide on how to understand, prioritize, and respond to Epic in-basket messages can strengthen patient safety, alleviate attending physician burden, and empower incoming PGY-1s, as they will be able to focus on providing sound medical advice while utilizing the guide as support for technical Epic in-basket inquiries.

Precepting Patient Care Algorithms: a standardized approach to patient care designed for early learners

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Onvida Health

Introduction: Incoming PGY1s are scheduled for their first inpatient rotation and hospital follow-up clinic visits during the first months of their training. By providing PGY-1s with precepting patient care algorithms to guide their care in inpatient and outpatient (hospital follow-up) settings, we aim to ensure patient safety and improve the teaching/learning experience.

Methods: Study design: PDSA. Setting: Onvida Health, 2025. Participants: 9 PGY-1s and 5 attending physicians. Interventions: Precepting patient care algorithms. Measures: Surveys that assess perceptions of patient care delivered by PGY-1s during early training.

Results: Main outcomes: Algorithms provided are expected to serve as a guide for early patient management and as building blocks for future, personalized patient care approaches. Analyses: Participants will be re-surveyed to assess the project's impact. Initial surveys showed that 88.9% of PGY-1s anticipated dedicating significant time to developing their precepting technique, and 100% of attending physicians believed that presenting PGY-1s with a precepting guide would be beneficial.

Conclusion: Thorough yet concise precepting algorithms can serve as valuable tools for standardizing and guiding patient care in the early stages of learning.

Relevance to Family Medicine: Incoming resident physicians (PGY-1s) are expected to deliver safe, good-quality care from the very start of their training. Residency programs understand the magnitude of this task and therefore organize orientation sessions that aim to reinforce basic concepts and provide a basic understanding of an acceptable patient care approach. However, often due to time constraints and the need to provide extensive information before residency training officially begins, these sessions fail to provide residents with a thorough yet concise framework for approaching complex patient care scenarios. These patient encounters are often challenging and demand an organized, thorough approach, which residents are expected to develop over time. We believe precepting patient care algorithms can serve as a valuable tool for standardizing and guiding care in the early stages of learning, ensuring patient safety, decreasing resident stress and attending burden, and improving the teaching/learning experience.

Opening Doors: A QI Initiative to Increase Arrivals in a Regional Family Medicine Department

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Introduction: A clinical practice's financial health depends on patient volume. This is largely driven by patient panels, schedule utilization, and access to appointments for new and existing patients. Our department had fewer patients per clinical full time employee (FTE) and strained appointment access compared to national benchmarks. We aimed to increase arrived visits per clinical FTE through a targeted process improvement initiative.

Methods: An interdisciplinary team of physician leaders, operations dyads, a Population Health expert, a data analyst, and a nursing expert collaborated with frontline clinicians and operations personnel. Using process mapping, Fishbone analysis, and stakeholder analysis, the team designed multifaceted bundled interventions intended to increase arrived visits over one year. Interventions included stakeholder engagement, clear expectations, redesigned access workflows, advanced schedule opening, point-of-visit follow-up scheduling, marketing, Clinically Integrated Network (CIN) referral management, empanelment optimization, and EHR template improvements. A quasi-experimental pre/post study with Shewhart statistical process charts and JMP Pro 17 evaluated changes in arrived visits for eligible patients over the year.

Results: Phase analysis of the p-Shewhart chart showed a sustained increase in arrived visits per clinical FTE per month - from 157 at baseline (November 2023) to 162 during rollout (over the course of 2024) and 177 post-intervention (December 2025) - even accounting new FTE hires. One-way ANOVA confirmed statistical significance at all phases (p < 0.0001).

Conclusion: Patient volume management is dynamic and requires active oversight and management. A multidisciplinary, bundled intervention leveraging process improvement tools, including process mapping, Ishikawa diagrams, stakeholder engagement, and active leadership, can meaningfully enhance access and visit volumes in family medicine.

Relevance to Family Medicine: Broad patient panels, high visit variability, and longitudinal care place unique demands on access and schedule utilization. By improving arrived visits per clinical FTE, this work demonstrates how strengthening access to care and promoting financial sustainability improve family health outcomes.

Increasing The Medicare Annual Wellness Visit Through a Bundled Intervention: A Regional Quality Improvement Initiative

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Introduction: The Medicare Annual Wellness Visit (MAWV) offers an essential opportunity for comprehensive risk assessment and preventive care, and is associated with reduced mortality, fewer hospitalizations, and improved screening compliance. Despite its value as a key metric in value-based care, our geographically diverse medical group faced low MAWV completion rates, limiting preventive impact and quality outcomes. This project aimed to increase AWV completion to enhance preventive medicine, manage risk factors, and improve population health outcomes.

Methods: To address the low MAWV completion rates, an interdisciplinary team of physician leaders, population health experts, data analysts, and nursing specialists collaborated with frontline clinicians and operations personnel using process mapping, Fishbone diagrams, and stakeholder analysis. A multifaceted, bundled one-year intervention included stakeholder engagement, standardized workflows, multimodal patient outreach (via direct phone calls and in-clinic scheduling, online communication via the patient portal, and self-scheduling), pre-visit planning, and revenue cycle alignment. MAWV completion rates were evaluated using a quasi-experimental pre-post design, with Shewhart charts and JMP Pro 17.

Results: The phase analysis of the Shewhart p-chart for statistical process control showed a significant upward trend in MAWV completion, with 36% at baseline, 42% during intervention rollout (Phase 1), and 57% post-intervention (Phase 2). A one-way ANOVA confirmed statistical significance (p < 0.0001). Further analysis of the funnel chart identified one high- and one low-performing outlier region, with completion rates outside the funnel chart control limits.

Conclusion: Maintaining progress requires an annual cycle of continuous efforts, as MAWV completion rates are dynamic and patients must be re-evaluated every 365 days. Future efforts will include a sub-analysis of clinics performing above or below average and the implementation of qualitative focus groups at the outlier sites to identify best practices and guide targeted, scalable interventions to maintain and further increase MAWV completion rates.

Relevance to Family Medicine: This initiative is rooted in family medicine, with the MAWV serving as a primary care–focused visit aimed at delivering comprehensive preventive care and risk assessment for older adults. Increasing the MAWV completion rate enhances population health, supports value-based quality metrics, and encourages continuity of care. The bundled intervention reflects real-world changes in family medicine practice and can be scaled for quality improvement across different clinic environments.

Improving Early Autism Identification and Care Coordination at Onvida Health

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Introduction: Early identification of autism spectrum disorder (ASD) is strongly associated with improved developmental, behavioral, and social outcomes. However, delays in screening follow-up, fragmented referral workflows, and disparities related to language, insurance status, and other social determinants of health can significantly hinder access to early intervention services. This quality improvement initiative was developed to address these systemic gaps and improve timely autism identification and coordinated care delivery within a large health system.

Methods: This project used a Quality Improvement framework incorporating Plan–Do–Study–Act (PDSA) cycles. The initiative was conducted across Pediatrics, Psychiatry/Behavioral Health, and EMR/IT departments within a single integrated health system. The target population includes pediatric patients with positive or moderate-risk M-CHAT-R autism screening results. Interventions include implementation of EMR SmartSets and alerts to standardize referral pathways, development of departmental dashboards for referral tracking, standardized M-CHAT workflows across risk levels, expanded use of behavioral health autism clinics, equity-focused outreach guided by social determinants of health data, and physician learner–led retrospective chart reviews.

Results: Key measurable outcomes focused on reducing the median age of autism diagnosis, decreasing time from positive M-CHAT screening to psychiatric evaluation, and increasing completion rates of early intervention referrals. Target goals included reducing median age of diagnosis to under 36 months (ideally 30 months), shortening referral-to-evaluation intervals to under 45 days, and achieving ≥80% completion rates for state early intervention referrals, therapy services, and Head Start referrals when age-eligible. Qualitative improvements include enhanced interdepartmental communication, improved visibility of referral status through dashboards, and increased provider awareness of equity-related barriers.

Conclusion: This initiative demonstrated that structured EMR optimization, standardized referral workflows, and equity-informed outreach strategies can meaningfully reduce delays in autism identification and improve coordination of care. Lessons learned emphasized the importance of cross-department collaboration, data transparency, and continuous monitoring. The model is scalable to other pediatric screening programs and health systems seeking to reduce diagnostic delays and disparities. Future steps include longitudinal tracking of developmental outcomes, expanded parent engagement strategies, and broader system-wide EMR integration.

Relevance to Family Medicine: Family physicians play an essential role in developmental surveillance, early screening, and longitudinal care coordination for children and families. This project directly supports core family medicine principles by strengthening preventive care, improving interdisciplinary collaboration, addressing social determinants of health, and promoting equitable access to specialty and community resources. The workflow and EMR tools developed can be adapted in family medicine clinics to enhance early identification of developmental conditions and ensure timely, patient-centered intervention.

Improving Identification of Advanced Liver Fibrosis in Primary Care Through FIB-4 and FibroScan: A Quality Improvement Initiative

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Introduction: Early detection of advanced liver fibrosis is essential to prevent progression to cirrhosis, yet FIB-4 scoring and FibroScan utilization are often underused in primary care. To evaluate the impact of an EPIC Smartphrase on provider utilization of FIB-4/FibroScan and its influence on clinical decision-making.

Methods: A pre- and post-survey study was conducted among primary care providers at a single academic family medicine clinic. Surveys assessed frequency of SmartPhrase use, ease of access, time efficiency, perceived helpfulness, impact on identifying at-risk patients, and changes in clinical approach.

Results: Among post-survey respondents (n=7), most used the SmartPhrase at least weekly, primarily in primary care. Providers rated it highly for ease of use (mean 4.6/5) and time efficiency, with most reporting it saved “much less time” per encounter. Use of the tool improved the ability to identify patients at risk for advanced liver fibrosis (mean 4.3 / 5), and majority indicated it influence their clinical approach. Perceived helpfulness varied, with most rating it “very helpful” or “somewhat helpful”.

Conclusion: Implementation of the FIB-4/FibroScan SmartPhrase in EPIC is feasible, widely adopted, and enhances provider efficiency and risk identification in primary care. Ongoing efforts aim to expand its use across clinics and assess effects on patient outcomes

Relevance to Family Medicine: QI project directly reflects the core principles of family medicine by promoting preventive, comprehensive, and population-based care. Metabolic liver disease is highly prevalent in primary care, particularly among patients with diabetes, obesity, and metabolic syndrome—conditions routinely managed by family physicians. By integrating FIB-4 calculation and FibroScan referral into the EMR workflow, this initiative improves early identification of advanced fibrosis, supports longitudinal risk monitoring, and standardizes care across providers. It strengthens high-value care by using a low-cost screening tool to guide appropriate specialty referral, while empowering family physicians to manage liver disease risk within the patient-centered medical home model.

Using SmartPhrases in Epic to Improve Resident Note-Writing Efficiency

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Introduction: To evaluate the effect of implementing standardized SmartPhrases on resident documentation time in an outpatient family medicine residency clinic.

Methods: We conducted a quality improvement initiative at a family medicine residency clinic from July 2025 to February 2026. Residents were provided with standardized SmartPhrases for common clinical scenarios (Diabetes, Hypertension, Depression/Anxiety and Low Back pain) on October 1, 2025. Documentation time was measured using Epic's Slicer Dicer, calculated as minutes from note initiation to final edit. We collected bi-weekly time measurements and analyzed pre- and post-intervention medians using run chart methodology.

Results: Baseline median documentation time was 129 minutes per note (July-September 2025). Following SmartPhrase implementation on October 1, 2025, median documentation time decreased to 113 minutes per note (October 2025-February 2026), representing a 12.4% reduction in time spent per note and exceeding the goal of 116 minutes per note.

Conclusion: Implementation of standardized SmartPhrases in Epic significantly reduced resident documentation time, surpassing the target efficiency goal. This intervention demonstrates a practical, scalable approach to reducing EHR documentation burden in residency training programs.

Relevance to Family Medicine: This quality improvement project directly addresses documentation burden, a critical contributor to burnout in family medicine. The intervention targets four conditions central to primary care practice—diabetes, hypertension, depression/anxiety, and low back pain—which family physicians manage longitudinally in outpatient settings.

By demonstrating a 12.4% reduction in documentation time through standardized SmartPhrases, this project offers a scalable solution for family medicine residency programs. Reducing EHR burden during training not only improves efficiency but also establishes sustainable practice patterns that residents will carry throughout their careers, potentially mitigating burnout and improving retention in primary care. The focus on common outpatient conditions in a residency clinic setting makes this intervention immediately applicable to family medicine workforce development.

Research

(Alphabetical by Primary Author)

Recommended Cardiometabolic Screening Guidelines for Unhoused Adults: A Street Medicine Needs Assessment

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Introduction: Unhoused individuals face disproportionately high rates of preventable chronic disease due to fragmented access to care and prolonged exposure to environmental stressors. Street medicine programs offer a mobile, low-barrier model to assess and address these unmet needs. Despite well-documented disparities, no current literature provides numerically specific screening recommendation guidelines tailored to unhoused populations. This study fills that gap using clinical data from Street Medicine Phoenix (SMP), a mobile healthcare initiative serving urban Arizona.

Methods: We retrospectively reviewed 1,322 clinical encounters recorded by SMP between August 2023 and October 2024. Diagnoses and treatments were manually categorized. Blood pressure (BP) and glucose values were analyzed using descriptive statistics and compared against national norms (CDC 50th percentile and ADA guidelines). Kruskal-Wallis and Dunn's tests assessed age-based differences, while chi-square and Mann-Whitney U tests examined glucose patterns.

Results: The mean patient age was 51.4 years; 34.5% identified as female. Cardiovascular issues (39.4%) and routine screenings (39.6%) were most frequently documented. Systolic and diastolic BP values were significantly elevated across all age groups except those 60+, with even the 18–39 group showing median systolic BP above CDC norms (124.0 mmHg). Among 60 patients with fasting glucose data, 41.4% met ADA criteria for diabetes, and 10.7% of those without a known diagnosis had diabetic-range values.

Conclusion: Our findings suggest that cardiometabolic disease may emerge earlier and more aggressively among unhoused individuals than in the general U.S. population, reflecting patterns of accelerated biological aging. The elevation of cohort-based BP percentiles suggests that current national benchmarks may underrepresent clinical risk in this group. We propose initiating blood pressure screening at age 18 and fasting glucose screening by age 35 in unhoused individuals—adaptations of existing USPSTF recommendations based on cohort-specific trends. These screening thresholds can be feasibly implemented in street medicine settings to promote earlier detection and improve long-term health outcomes.

Relevance to Family Medicine: This study informs family medicine by strengthening preventive care for unhoused individuals, a population frequently cared for by family physicians and disproportionately affected by fragmented access to healthcare. Family medicine emphasizes longitudinal care, prevention, and management of chronic disease within the context of social determinants of health. By providing numerically specific, population-based screening thresholds for blood pressure and glucose, this work offers practical evidence to adapt USPSTF guidelines to real-world clinical settings. The findings demonstrate earlier and more aggressive cardiometabolic risk among unhoused adults and show that targeted screening can be feasibly implemented in low-barrier, community-based and street medicine settings. This aligns with the core mission of family medicine to deliver equitable, comprehensive, and patient-centered care to underserved populations across the lifespan.

Examining the Association of Social Isolation and Atherosclerotic Cardiovascular Disease (ASCVD) Prevalence in Primary Care Patients from an Obesity Registry

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Introduction: Atherosclerotic cardiovascular disease (ASCVD) is a leading global cause of morbidity and mortality, often progressing to myocardial infarction, ischemic stroke, and other serious cardiovascular events. Obesity is a well-established risk factor for ASCVD, but emerging evidence also underscores the importance of social determinants of health (SDOH) in influencing cardiovascular outcomes. In particular, social isolation has been identified as a potential contributor to ASCVD risk. However, the combined effect of obesity and social isolation on ASCVD has not been thoroughly investigated.

This study aims to examine the relationship between obesity, social isolation, and risk of ASCVD in patients receiving primary care. Specifically, this study seeks to determine whether individuals with elevated body mass index (BMI) who also experience social isolation have an increased prevalence of ASCVD compared to their socially integrated counterparts and to patients without obesity.

Methods: This study was conducted by doing a retrospective analysis using patient data from the HonorHealth PCORI Obesity Registry and primary care electronic medical records. Patients on this registry were identified using a combination of standard BMI calculations and clinical diagnoses of obesity. Social connection was measured using a validated questionnaire, which stratified patients along a spectrum from “socially isolated” to “socially integrated.” Diagnoses of ASCVD were identified through International Classification of Diseases, 10th Revision (ICD-10) codes, including angina pectoris (I20), acute and subsequent myocardial infarction (I21–I22), post-MI complications (I23), acute ischemic heart disease (I24), chronic ischemic heart disease (I25), and atherosclerosis (I70). Only active patients with a primary care visit within the past six months were included.

Results: Preliminary chi-squared analysis examining the relationship between ASCVD and social isolation demonstrates significance in both the obese and non-obese groups, with p-values of 0.002 and <0.001, respectively. The strength of the association, as measured by Cramer’s V, is 0.022 and 0.017, respectively. Full analyses are underway and will be completed in advance of the conference.

Conclusion: This study seeks to clarify the intersection between obesity and social isolation in the development of ASCVD. By leveraging real-world data from primary care populations, the findings will help determine whether socially isolated patients with obesity represent a particularly high-risk subgroup for ASCVD. Such insights have potential implications for primary prevention strategies, clinical screening, and the development of interventions targeting both biological and social risk factors.

Relevance to Family Medicine: Primary care physicians are on the frontline of preventing and managing chronic conditions such as ASCVD and obesity. Lifestyle changes in terms of diet and activity modifications are regularly discussed as prevention strategies for ASCVD while factors such as social isolation are often not emphasized despite recent studies correlating it to adverse health outcomes. The results looking at the combined effect of obesity and social isolation on ASCVD may directly inform family medicine providers about risk stratification and preventative methods with a greater focus on the patients’ social interactions and well-being. This aligns with the holistic approach of patient care within family medicine.

Venous Thromboembolism Prophylaxis and Outcomes After Shoulder, Hip, and Knee Arthroplasty: Family Medicine Implications

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Introduction: Venous thromboembolism (VTE), including deep vein thrombosis (DVT) and pulmonary embolism (PE), is uncommon but serious after arthroplasty. While surgeons manage early post-operative care, primary care physicians (PCPs) oversee chronic comorbidities, anticoagulation, and long-term follow-up. Real-world prophylaxis patterns and outcomes inform safe transitions of care and risk counseling in family medicine.

Methods: We analyzed a national database (2010–2022) of total shoulder (TSA, n=253,857), hip (THA, n=921,678), and knee (TKA, n=1,756,873) arthroplasties. Anticoagulant prophylaxis included aspirin, warfarin, enoxaparin, and factor Xa inhibitors (Xaban). Outcomes were 30- and 90-day DVT, PE, and other related complications. Odds ratios (OR) and 95% confidence intervals (CI) for complications despite prophylaxis were calculated, adjusting for age and comorbidity index.

Results: Prophylaxis use varied: aspirin 6–11%, Xaban 2–8%, warfarin 1–7%, enoxaparin 1–5%. Ninety-day VTE rates were low: TSA 0.51%, THA 1.07%, TKA 1.97%. Aspirin was associated with lower 90-day DVT odds in TKA (OR 0.51, 95% CI 0.45–0.57, p<2e-16) and THA (OR 0.59, 95% CI 0.49–0.69, p=1.39E-09). Other anticoagulants showed variable associations with DVT/PE, though absolute event rates remained low. Older age and higher comorbidity index increased VTE risk. Non-VTE complications were cumulatively rare (<4%).

Conclusion: VTE after arthroplasty is uncommon. Aspirin demonstrates a protective effect in hip and knee arthroplasty, supporting its use in routine prophylaxis. Other anticoagulants may increase VTE risk in certain contexts. These findings underscore the PCP’s role in longitudinal follow-up, medication counseling, and vigilance for VTE in higher-risk patients, reinforcing family medicine’s integral role in perioperative and post-discharge care.

Relevance to Family Medicine: Although orthopedic surgeons manage early post-operative care after arthroplasty, primary care physicians play a critical role in long-term follow-up. PCPs monitor chronic comorbidities, counsel on anticoagulation adherence, and remain vigilant for VTE in higher-risk patients. Understanding real-world prophylaxis patterns and outcomes allows family physicians to guide safe transitions from surgical to community care, optimize patient education, and support evidence-based management of post-arthroplasty complications.

Early Imaging Decisions Influence Outcomes in Tibial Plateau Fractures

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Introduction: Tibial plateau fractures (TPFs) are complex knee injuries that may first present in primary care or emergency settings, where imaging and referral decisions are made. Advanced imaging—CT or MRI—is commonly obtained prior to surgery, but its prevalence and impact on postoperative complications, ED visits, and healthcare costs remain unclear. Understanding these patterns can guide evidence-based imaging and care coordination for family medicine physicians and their patients.

Methods: We performed a retrospective cohort study using PearlDiver (2010–2022) to identify adults undergoing ORIF for TPFs. Patients were categorized by preoperative imaging: radiographs only, radiographs plus CT, or radiographs plus MRI. Matched cohorts (1:1:1; n = 751/group) controlled for age, sex, comorbidity, obesity, tobacco use, and fracture type. Outcomes included 90-day composite complications, ED visits, 90-day costs, revision ORIF at 1 year, and conversion to total knee arthroplasty at 2 years.

Results: Among 21,439 patients, 6,057 (28%) received radiographs only, 14,420 (67%) radiographs plus CT, and 962 (5%) radiographs plus MRI. Composite 90-day complications did not differ significantly. Wound disruption was higher in radiographs-only patients (2.66%) versus CT (1.46%) or MRI (1.07%; p = 0.047). ED visits were also more frequent (p = 0.038). Revision ORIF and TKA conversion trended higher in radiographs-only patients. Median 90-day costs were highest in the radiographs plus CT cohort.

Conclusion: Advanced imaging is frequently used before ORIF for TPFs and is associated with differences in wound complications, ED utilization, and costs. Selective, evidence-based imaging may improve fracture assessment and downstream outcomes for patients. These findings reinforce the importance of family physicians advocating for and following imaging decisions across the care continuum, as early choices can shape downstream procedures, outcomes, and healthcare utilization.

Relevance to Family Medicine: While many tibial plateau fractures present through emergency settings, family physicians are frequently involved in the early evaluation of low-energy knee trauma, particularly among older adults and patients with medical comorbidities. In these encounters, family physicians often determine initial imaging strategies and referral pathways. This project examines how early imaging decisions may influence downstream postoperative complications, emergency department utilization, and healthcare costs after surgical management. The findings support evidence-based imaging and care coordination, reinforcing the role of family medicine in delivering high-value musculoskeletal care and optimizing outcomes across the continuum of care.

Future Primary Care Year Measuring Tool

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Introduction: The Standard Primary Care Year was published in 2008 in Rural and Remote Health. I also published a follow up Preventing Rural Workforce using the Standard Primary Care Year. The name was more recently changed to Future Primary Care Year for clarity. The measuring tool allows comparisons of the 5 primary care sources and captures variations between the sources and over the class years using the product of career years, activity, primary care retention, and volume differences. This is increasingly important due to changes in the main primary care sources. The calculations have required decades of reviews of databases, association works, HRSA reports, and surveys to capture career years, activity, primary care retention, volume changes, and annual graduate numbers for the 5 sources across the 1970 to 2010 class years.

Methods: The future primary care year is a retrospective calculation of the product of years in a career, % active, % retained in primary care, and a volume adjustment specific to each source and each class year 1970 to 2010. After the 2010 class year the data is not available for the 4 parameters used in the calculations. The number of graduates of a source for that class year times the FPCYr for that class year gives the primary care year contribution for that source and class year allowing comparisons of contributions over time. The sum of the 5 sources captures the total class year production for the nation.

Results: The US doubled primary care production from 125,000 FPCYrs for the 5 sources for the class of 1970 to 250,000 for the 1980 class year. The primary care retention levels were over 60% for all sources. The major gains in future primary care years were seen in family medicine. The increase from zero to 3000 FM grads by 1980 at 25 FPCYrs per graduate resulted in 75,000 FPCYrs added or 60% of the 125,000 increase from 1970 to 1980. Steady declines in primary care retention since 1980 have resulted in declines in FPCYrs below 200,000 per class year for the nation. Sufficient primary care for the US would involve an increase to 400,000 FPCYrs per class year for 25 class years. For decades past the declines have been predominantly about worsening primary care retention. Surveys are beginning to indicate some limitations in years in a career and activity in practice. Volume declines are likely to worsen with additional team member burdens.

Conclusion: Declines in FPCYrs are seen in all sources. Pediatrics has maintained primary care retention best, apparently with little gain in subspecializing. The collapse of internal medicine primary care is seen with declines from 60% to less than 15% in primary care. Family medicine of the 1970s was the Gold Standard with optimal years, activity, volume, and retention. Other options have reduced FPCYrs almost in half. Primary care is frozen in place with insufficient primary care retention. This indicates a failure of the financial design. A scenario that would fit with declining primary care years involves costs of delivery increasing faster than revenue with fewer supported in primary care positions. Another possibility is that non-primary care careers have better salaries and supports which influence the more flexible primary care sources such as internal medicine, nurse practitioners, and physician associates to depart primary care, do fellowships, or fail to enter.

Relevance to Family Medicine: The 1970s improvements in primary care delivery capacity were also coincident with the major increases in funding from Medicare and Medicaid. The solution for basic health access may require the marriage of training and finances. Training interventions may be powerless for most Americans most behind in need of access unless training interventions are married to funding added specific to the populations and places in need of care. The massive expansion of family medicine plus new billions added in the 2621 counties most behind was the maximum gain in primary care.

ore are added funding together with the family medicine creation and expansion

or less than half of the requirement for sufficient primary care after 25 class years of such production. Claims of CMS of sufficient primary care by 2030 are incorrect.

Family Practice Country Decline by Design

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Introduction: Physician distribution by concentration was presented in the AAMC workforce conference about 20 years ago. The coding uses concentrations of physicians and was updated to include nurse practitioner and physician assistant workforce using the AMA Masterfile 2013 and Area Resource File Data. County Ranking data and other county data has been collected for 30 years.

Methods: Counties were stacked from most to least concentrated and sorted into a 10 20 30 40 grouping. There were 79 counties with top concentrations of physicians and 10% of the population. There was a higher concentration 20% of the population in 152 counties. The middle concentration 30% had 286 counties and the lowest concentration 40% involved 2621 counties. The intent was travel issues over 2 or 3 counties so about 20 - 25 counties were shifted between middle and lowest concentration counties based on adjacent counties much higher or lower in concentrations of workforce. The concentrations of physicians have advantages over rural or underserved codings because physician concentrations reflect funding and health care design results.

Results: The 2621 counties lowest in workforce have 40 million (75%) rural people and 90 million urban people (32% of urban). They are stacked with elderly, poor, disabled, and weakest employers and therefore are subject to Decline by Design - payments too low in public and private plans. They will continue to lose hospitals, practices, workforce, jobs and community contributions of the health care employed and spouse. The urban 90 million experienced a rapid growth rate 1970 to 2010 in places where health care is in Decline by Design. Diseases, behaviors, environments and social drivers associated with poor outcomes are concentrated in these counties. About 45 - 50% of complexities are packed into 40% of the population with just 25% of primary care and basics supported by less than 20% of spending in each. The financial design fails miserably with 15% - 30% lower payments and concentrations of those with lowest payments.

Conclusion: The primary policy efforts of the past 43 years have been about overutilization focus, cost cutting, and quality micromanagement. The 2621 counties have half enough primary care, mental health, women's health, basic surgical, and geriatric workforce. Overutilization focus is exactly wrong where underutilization, inappropriate utilization, and delays in care dominate by design. Cost cutting is contraindicated for the hospitals and practices in need of investment. The providers are paid 15 - 30% less. Quality micromanagement is also exactly wrong where the populations are inherently behind across drivers of outcomes. Why should practices and hospitals be paid less and penalized more when they care for the complex populations behind by so many designs? Why overburden team members shaped fewer and lesser by the financial design? How do you integrate and coordinate in 2621 counties with deficits of resources, supports, workforce, and team members?

Relevance to Family Medicine: Family practice is most important in these counties as family practice positions filled by MD DO NP and PA are 36% found in this 40% - thus the term family practice country. Family practice positions filled range from 30 to 100% of the entire local workforce and contribute half of the primary care which is 51 per 100,000 or about half enough given the concentrations of elderly, poor, disabled, and most complex in numerous areas. Family practice country is most abused by the financial design. Maximal family practice growth was 1970 to 1980 when Medicare and Medicaid were new and added funding and adjusted for cost of delivery. Minimal growth has been since the 1980s. DRG, RBRVS managed and micromanaged care have been a poor fit regarding basic health access for family practice country. OBBB will make the situations worse and the 50 billion patch will be little help to the 40 million rural people behind, and will be no help for the urban 90 million.

First Real-World Post-Market Clinical Study of a Handheld AI Elastic Scattering Spectroscopy Device: Assessing Point-of-Care Utility at a Federally Qualified Health Center

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Introduction: Skin cancer is common, and early detection is essential for improving outcomes. This is the first prospective real-world ESS device clinical study reporting results from routine clinical practice. The study assesses how AI-based handheld elastic scattering spectroscopy (ESS) device DermaSensor integrates into primary care workflows in a low-resource Federally Qualified Health Center (FQHC) setting.

Methods: The study was conducted at Wesley Clinic, an FQHC in Phoenix, Arizona. Three primary care physicians used DermaSensor during eligible visits as an adjunct to routine care. Lesions flagged by the device were referred for further evaluation, while unflagged lesions were managed per standard of care. Patients completed post-visit surveys and clinicians completed end-of-study surveys. Analyses evaluated feasibility, referral outcomes, usability, equity across skin types, and workflow efficiency.

Results: Twenty-two patients and 51 lesions were evaluated. Device risk scores correlated strongly with physician assessment (Spearman's $\rho = 0.786$) with high agreement (ICC [3,1] = 0.852). Among Fitzpatrick IV–V skin types, moderate agreement persisted (ICC = 0.702; $\rho = 0.537$). Patient satisfaction was high, with 82% reporting 10/10 scores. Clinician ease-of-use was favorable (18.5/20). Workflow integration scored lower, reflecting added time to skin exams with certain respondents reporting workflow burden.

Conclusion: DermaSensor demonstrates strong concordance with physician assessment and high usability in an FQHC. These findings support the device's role as a point-of-care tool and identify opportunities to optimize workflow integration. Sustained performance in darker skin types suggests potential to improve equitable access to skin cancer triage.

Relevance to Family Medicine: The study highlights the unique ability of Primary Care and specifically Family Medicine in an underinsured patient population to retain more autonomy with skin exams and utilize the latest advancements in technology to assist the clinician's assessment of suspect skin lesions for their patients without imposing cost burden of specialty consults for every skin lesion examined.

Connecting patients with food insecurity to a clinic food pantry

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Introduction: Recognizing and addressing social determinants of health (SDoH) is essential for promoting health equity. Food insecurity is a major public health concern. Of people in the United States, 10.2% are food insecure. Primary care offices increasingly address SDoH through screening, community partnerships, patient education, and referrals. We created the Banner Family Food Pantry in our residency clinic in 2023. From 2023- 2025 we have provided fresh produce and healthy non-perishables to 7,377 households and 22,546 individuals. The food pantry is organized and managed continuously by residents, faculty and staff. We have previously published a paper that showed an in-house food pantry helped address barriers to healthy food including cost, transportation, and time. While we have provided food to patients for over two years, we have not studied linking patients who screen positive for food insecurity.

Methods: Our study is IRB approved as of December 2025. We have identified patients who screened positive for food insecurity on the validated PRAPARE tool. The SDoH PRAPARE tool asks if patients have been "unable to get any of the following when it was really needed?" and includes "food" as an option. We will call all patients who have screened positive in the last year for food insecurity and ask them a series of questions including: "Are you aware that we have a food pantry in our office?"

Results: Prior to IRB approval we performed a QI project where we contacted 20 patients who screened positive for food insecurity. We spoke with 11 patients. 7/11 (64%) had utilized our food pantry. Patients were aware of the food pantry because they saw our flier or their doctor informed them of the program. We expect to contact 100 patients Jan-March 2026 during the IRB approved portion of our study.

Conclusion: Through this study, we aim to better understand how effectively we are connecting patients who experience food insecurity with our clinic food pantry. We also seek to identify which communication methods are most effective in conveying this information. These findings will be used to improve access to our clinic food pantry.

Relevance to Family Medicine: Family medicine residencies can directly address food insecurity by creating office-based food
pantries. Our research will determine how to best improve linkage to the food pantry in patients that routinely screen positive for food insecurity

Impact of OBBBA Federal Loan Caps on Future Primary Care Residents: Financing Gaps Among 2024 Osteopathic Medical Graduates

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Introduction: The One Big Beautiful Bill Act (OBBBA), enacted July 2025, eliminated Graduate PLUS loans and imposed new borrowing caps for professional students ($50,000 annually; $200,000 lifetime), fundamentally altering how aspiring physicians finance medical school. Tighter federal credit may reshape who enrolls and which specialties graduates choose, with implications for primary care, which continues to experience a persistent shortage. Osteopathic medical students disproportionately choose primary care (1) and rely heavily on federal loans, with average debt exceeding $250,000 (2). Prior research suggests debt burden disproportionately affects students from low-income families, underrepresented minorities, and may nudge students towards higher compensation specialties (3,4). Understanding which populations face the largest financing gaps under the new caps is critical for predicting downstream effects on medical school access, residency specialty choice, and physician workforce diversity.

Methods: We analyzed the AACOM Graduating Student Survey (GSS) from the 2024 graduating class (N=4,756). We calculate student-level financing gaps under OBBBA's new Federal Direct loan caps ($50k annual, $200k cumulative lifetime limit, including undergraduate and graduate; 5) using comprehensive financial data (loans, scholarships/grants, family contribution, earnings/savings, and prior debt) reported on the GSS. Gap amounts and percentages were stratified by demographics (race/ethnicity, gender, first-generation college status), socioeconomic status (family income, financial independence), and entry practice intentions (specialty choice, rural/underserved commitment). Analyses of differences in gap prevalence (% with any gap) used chi-square tests; mean gap comparisons used Welch's ANOVA or t-tests as appropriate. All tests two-sided; alpha=0.05.

Results: Among 4,756 students, 69% would face financing gaps exceeding federal limits (mean: $111K, median: $101K). Gaps disproportionately affected vulnerable populations: 76% of lower-income (<$200K) vs 53% of higher-income families exceeded caps (p<0.001), with mean gaps of $128K vs $55K (p<0.001). Financially independent students: 81% affected vs 53% of dependents (p<0.001), mean gaps $138K vs $50K (p<0.001). First-generation students: 82% vs 67% for others (p<0.001), mean gaps $148K vs $108K (p<0.001). URiM students: 77% vs 68% non-URiM (p<0.001), mean gaps $142K vs $108K (p<0.001). Students reporting that debt was a 'Major Influence' on their specialty choice had larger gaps ($129K vs $110K, p<0.001) and were more likely to match into non-primary-care specialties (p=0.013). Notably, among students planning primary care, those expecting to use a repayment/forgiveness program (n=1,635, 73% had a mean gap of $136K compared with $48K for those expecting not to (n=603, p<0.001).

Conclusion: The new federal caps would create substantial financing shortfalls for most osteopathic graduates and disproportionately affect students from lower-income, financially independent, first-generation, and URM backgrounds. These groups face greater barriers to accessing private financing and may be forced to choose between excessive personal debt, altered specialty choice, or forgoing training. The association between larger gaps and debt-driven specialty selection suggests caps may also shift specialty mix away from primary care for a meaningful subgroup of trainees. The use of more-expensive private loans to fill these gaps may exacerbate these trends. Moreover, because the OBBBA also targets loan-repayment and debt-relief programs, many of which are specifically designed to incentivize primary-care service, reductions or elimination of these programs would likely further push students away from primary care and amplify the caps' adverse effects on workforce distribution.

Relevance to Family Medicine: The new federal caps on graduate financing have the potential to severely deplete the future Family Medicine workforce. While this study exclusively focused on osteopathic students, the conclusions can likely be applied across the medical student spectrum. Facing prohibitive debt, students may be compelled to reconsider Family Medicine for higher-earning specialties. The caps imposed by the OBBBA pose a significant threat to the future of Family Medicine. By creating massive financing shortfalls for osteopathic graduates, especially those from lower-income, first-generation, and URM backgrounds, the caps effectively push potential Family Physicians away from the field.

From Gut to Brain: Evaluating Probiotics, Prebiotics, and Synbiotics as Adjunctive Therapy for Cognitive Decline

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Introduction: Dementia and mild cognitive impairment are increasingly managed in primary care, where patients frequently ask about “natural” or over-the-counter options for preserving memory. Emerging evidence links gut microbiota to neuroinflammation, metabolism, and cognitive decline, suggesting probiotics may modestly improve cognition in older adults with early cognitive symptoms. Yet family physicians lack clear, evidence-based guidance on if and how to incorporate probiotics into dementia care discussions

Methods: We conducted a completed systematic review of PubMed, Embase, and Cochrane Library (inception–January 2026) following PRISMA 2020 guidelines. Eligible studies were RCTs and meta-analyses evaluating probiotics, prebiotics, or synbiotics in adults (≥40 years) with subjective cognitive decline, MCI, or dementia. Outcomes included validated cognitive scales (MMSE, MoCA, ADAS-Cog, RBANS), inflammatory biomarkers (hs-CRP, IL-6, TNF-α), oxidative stress markers (MDA, TAC, GSH), metabolic indices (HOMA-IR, triglycerides, VLDL), and BDNF. Risk of bias was assessed using Cochrane RoB-2, and results were synthesized narratively with quantitative pooled estimates extracted from eligible meta-analyses.

Results: Probiotics: An umbrella meta-analysis (13 studies; n=3,910) showed significant cognitive improvement (SMD=0.52, 95%CI 0.07-0.98), with larger effects in AD (SMD=0.78) than MCI (SMD=0.43). MMSE-based studies showed the strongest signal (SMD=0.88). Single-strain formulations (e.g., B. breve A1) outperformed multi-strain (SMD=0.81 vs 0.41); interventions <=12 weeks showed greater benefit (SMD=0.61 vs 0.17). Probiotics reduced hs-CRP (SMD=-0.59), MDA (SMD=-0.35), HOMA-IR (SMD=-0.34), and increased total antioxidant capacity (SMD=0.40). Prebiotics: A 2024 KCL twin-pair RCT (n=72, age>=60) found 12 weeks of inulin+FOS improved memory and processing speed (beta=-0.48, p=0.014) with increased fecal Bifidobacterium. Synbiotics: Lactobacillus/Bifidobacterium + inulin/FOS improved cognition, reduced triglycerides, VLDL, and HOMA-IR in AD with enhanced SCFA production and BDNF upregulation. Adverse effects across all three categories were mild and gastrointestinal.

Conclusion: Dementia affects 55+ million people globally and is a top reason older adults present to family physicians with memory concerns. Patients increasingly ask about probiotics for cognitive protection, yet clinicians lack evidence-based guidance. This review addresses that gap with specific effect sizes, strains, doses, and durations across probiotics, prebiotics, and synbiotics.

Relevance to Family Medicine: Family physicians are often the first clinicians to evaluate memory concerns and are asked whether probiotics or “gut health” strategies can help prevent or slow cognitive decline. This completed research provides an evidence-based synthesis that can be directly integrated into brief visits: framing realistic expectations, identifying patients most likely to benefit, and aligning probiotic use with diet, exercise, and pharmacologic dementia therapies. By translating complex microbiome and dementia data into practical talking points and decision support, this project supports patient-centered counseling and shared decision-making in everyday family medicine practice.

GLP-1 Receptor Agonists Preserve Physical Function Despite Lean Mass Loss in Obesity, Type 2 Diabetes, and Metabolic Liver Disease: A Systematic Review

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Introduction: GLP-1 receptor agonists (GLP-1RAs) produce 10–20% weight loss in obesity and type 2 diabetes, rivaling bariatric surgery. However, rapid weight reduction raises concern for concurrent muscle loss and sarcopenia, particularly in patients with metabolic dysfunction–associated steatotic liver disease (MASLD), where low muscle reserves compound liver-related morbidity. No prior systematic review has jointly evaluated lean mass and physical function outcomes across obesity, T2DM, and MASLD populations treated with GLP-1RAs. This review addresses that gap by synthesizing evidence on body composition and functional performance during incretin-based therapy.

Methods: We searched PubMed, Embase, and Cochrane CENTRAL through January 2026 using terms for GLP-1 agonists (semaglutide, liraglutide, tirzepatide, dulaglutide) combined with lean mass, sarcopenia, muscle strength, physical function, and MASLD. Included studies were prospective trials or cohorts of adults (≥18 years) with obesity (BMI ≥27), T2DM, or MASLD receiving GLP-1RA therapy that reported quantitative lean mass (DXA, BIA, MRI, or CT) and/or functional outcomes (grip strength, gait speed, SPPB). Approximately 20 studies (15 RCTs, 5 cohorts; 2020–2025) met criteria. Narrative synthesis was performed given methodological heterogeneity.

Results: GLP-1RAs consistently produced large fat mass reductions (60–80% of total weight lost) with modest lean mass decline (20–40% of weight lost, approximately 2–4 kg per 10 kg lost). In the SEMALEAN trial, semaglutide yielded 13% weight loss and 18% fat loss with only 3 kg lean mass decline over 12 months. Crucially, physical function was preserved or improved: handgrip strength increased significantly (+4.5 kg, p<0.01), and gait speed did not decline even when psoas muscle volume fell 9% in MASLD patients. Tirzepatide showed similar proportional lean preservation (15–20% of weight lost).

Conclusion: These findings demonstrate that GLP-1RA-induced weight loss is predominantly fat loss, and muscle function is maintained despite modest lean tissue reduction. This challenges the assumption that pharmacologic weight loss necessarily accelerates sarcopenia. Evidence supports pairing GLP-1RAs with resistance exercise and protein intake ≥1.2 g/kg to further mitigate lean loss. In MASLD, the liver benefits of ≥10% weight loss outweigh the small muscle cost when nutrition and exercise are maintained. Dual monitoring of hepatic and muscular status is recommended.

Relevance to Family Medicine: Family physicians are frontline prescribers of GLP-1RAs for obesity and T2DM and frequently manage patients with concurrent MASLD. This review provides reassurance that these therapies do not compromise physical function, supporting confident prescribing in primary care. Practical takeaways include counseling patients on resistance training and adequate protein during GLP-1RA therapy, periodic functional screening (grip strength, gait speed) in older or sarcopenic patients, and integrated monitoring of liver and muscle health.

Transforming Depression Care: A Multifaceted Bundled Intervention to Improve Screening and Follow-Up in a Regional Healthcare Setting

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Introduction: Major Depressive Disorder (MDD) is a common behavioral health condition linked to poor quality of life and socioeconomic burdens. Over 50% of individuals requiring care don't receive it, leading to severe consequences like hospitalization and increased morbidity/mortality from untreated milder symptoms. Thus, depression screening and follow-up management rates are critical quality metrics in value-based care. Our Medical Group launched a quality improvement project to boost depression screening and follow-up management in its ambulatory clinics across a wide geographical area.

Methods: An interdisciplinary team comprising physician leaders, operations dyads, a population health expert, a data analyst, and a nursing expert collaborated with front-line clinic staff to develop a multi-faceted intervention. Quality improvement tools included process mapping, Fishbone analysis, and stakeholder analysis. A quasi-experimental study with a pre- and post-design assessed the intervention's impact on depression screening completion rates for eligible patients over one year, utilizing Shewhart charts and JMP Pro 17.

Results: The bundled intervention, engaging all stakeholders, included clear expectations, a post-intervention process map, implementation of a 3-step process during primary care visits, pre-visit planning, EHR solutions, and appropriate claims submission. IR-Shewhart analysis demonstrated a significant, sustained increase in screening completion rates, from a baseline mean of 58% to 70% during implementation, 90% post-intervention, and 95% by January 2026. One-way ANOVA confirmed statistically significant differences across phases (p < 0.0001).

Conclusion: A comprehensive, interdisciplinary approach to depression screening can achieve and sustain high performance across diverse primary care settings. Continued monitoring and targeted clinic-level analysis are essential for maintaining gains and guiding future improvement efforts.

Relevance to Family Medicine: Family medicine clinicians serve as the primary point of contact for patients with depression and are uniquely positioned to provide early identification and longitudinal management. This project demonstrates how primary care–based workflows can improve depression screening and follow-up, supporting whole-person care and advancing value-based care goals in family medicine practice.

Knowledge, Attitudes, and Practices of Primary Care Clinicians in the Management of Male Lower Urinary Tract Symptoms (LUTS)

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Introduction: Lower Urinary Tract Symptoms (LUTS) in males encompass a broad spectrum of clinical presentations. Affecting an estimated 29-35% of men over 65, the diverse etiology of LUTS makes clinical management challenging in primary care, where providers practice a broad scope of medicine with short clinic visits. To improve LUTS management, this study investigates practice patterns through a Knowledge, Attitudes, and Practices (KAP) survey distributed to primary care clinicians of Dignity Health Medical Group (DHMG).

Methods: A 29-question KAP survey derived from previously published studies was distributed via REDCap to DHMG Family Medicine clinicians. Data collection is ongoing. Descriptive statistics summarize preliminary responses, and future analyses will compare responses by clinician role and practice location.

Results: As of February 13, 2026, 13 clinicians have completed the survey (54% physicians/NPs, 46% residents; 77% from a single clinical site). When treating men over 50, 54% reported asking about LUTS only if brought up by the patient, while 46% routinely screened. Among asymptomatic patients, 85% reported not routinely recommending PSA testing. While 85% of respondents identified the IPSS/AUA-SI as a symptom scoring tool, only 38% reported routinely using it in practice.

Conclusion: Differences among participants indicate a need for refined LUTS/BPH management strategies. Although a majority were familiar with assessment tools like IPSS/AUA-SI, only 38% reported using them regularly in practice. Additionally, responses were nearly evenly split regarding bringing up LUTS with asymptomatic patients. These findings support a standardized primary-care LUTS workflow to improve consistency in symptom assessment and referral.

Relevance to Family Medicine: LUTS management is complex, balancing the risk of under-treating with the risk of over-screening for conditions like prostate cancer. This study is relevant for FM clinicians because it identifies specific management challenges and seeks to improve strategies that optimize clinician training and patient outcomes.

Research in Progress

(Alphabetical by Primary Author)

OA-WELL Score: Individualized Weight Loss and Exercise for Knee Osteoarthritis in Primary Care

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Introduction: Knee osteoarthritis (OA) is common in primary care and strongly driven by obesity and physical inactivity. Evidence shows each 1% body weight lost yields about 2% improvement in OA pain and function, yet guideline-recommended lifestyle counseling is inconsistently delivered in busy clinics. There is no simple, point-of-care tool to help family physicians individualize diet and exercise prescriptions while accounting for age, sex, OA severity, muscle function, and comorbidities. This project developed and piloted the OA-WELL (Osteoarthritis Weight-loss, Exercise, and Lifestyle Level) Score and workflow to close this implementation gap and standardize nonpharmacologic OA care.

Methods/Approach: This was a single-clinic quality-improvement pilot using PDSA methodology. Adults with radiographic knee OA and BMI ≥27 were scored using the OA-WELL instrument (8 items: BMI, target % weight loss, age, Kellgren-Lawrence grade, 30-second chair stand, sex, comorbidity count, baseline WOMAC pain). Scores (0–22) were grouped into LOW, MODERATE, and HIGH bands, each linked to a predefined pathway: brief counseling; intensive lifestyle (dietitian + physical therapy, 10% weight-loss goal); or aggressive intervention (dietitian + PT + discussion of pharmacologic weight loss, ≥15% goal). Exercise prescriptions were modified for comorbidities (HTN, DM2, CAD, CHF, OSA, AFib, PCI, pacemaker) using published comorbidity-adapted protocols. Outcomes (weight %, WOMAC pain, chair-stand performance, satisfaction, adverse events) were collected at baseline, 3, and 6 months.

Preliminary Findings: Five patients (3 women, 2 men; age 48–72) completed 6-month follow-up. OA-WELL Scores ranged 8–19 (1 LOW-MODERATE, 3 MODERATE, 1 HIGH). Mean weight change was −8.2% (range −4.8% to −14.1%); four patients lost ≥5% and three lost ≥10%. Mean WOMAC pain improved from 12.4 to 7.2 (≈42% relative improvement); all five exceeded the ≥20% minimal clinically important difference. Mean 30-second chair-stand repetitions improved from 9.2 to 12.6. No falls, cardiac events, or hypoglycemia occurred despite tailored protocols for patients with HTN, DM2, CAD, CHF, and AFib. Patient-reported satisfaction with the individualized plan averaged 8.6/10. Higher OA-WELL Scores qualitatively tracked with greater weight loss and pain improvement.

Implications/Next Steps: This pilot suggests the OA-WELL Score is feasible for routine use and may help family physicians deliver safe, individualized lifestyle therapy for knee OA while accounting for common multimorbidity. Embedding the score as an Epic SmartPhrase and linking each band to standardized diet and exercise orders could improve consistency of nonpharmacologic OA care, support earlier intervention in high-risk patients, and enhance documentation for quality reporting. Next steps include multi-clinic implementation, enrolling approximately 100 patients, and performing a formal validation study (ROC analysis, calibration, sensitivity/specificity of cutoffs) to refine the score and evaluate its impact on pain, function, weight loss, and frailty-related outcomes over 12 months.

Relevance to Family Medicine: Knee OA, obesity, HTN, DM2, CAD, CHF, and OSA are core conditions managed in family medicine, yet lifestyle counseling is time-intensive and often nonspecific. The OA-WELL Score operationalizes guideline-recommended weight loss and exercise into a brief, EMR-embedded tool that any family physician or care team member can use during routine visits. It supports shared decision-making by integrating patient preferences, comorbidities, and functional status into a tailored plan. If validated, this approach could provide a scalable, practical model for integrating individualized lifestyle medicine into everyday primary care for OA and related chronic diseases.

A Primary Care Lens on Infertility Management in Underserved Populations

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Introduction: Infertility affects a substantial proportion of reproductive-aged couples, with ovulatory dysfunction and male factor infertility accounting for the majority of cases. Polycystic Ovarian Syndrome (PCOS) is the most common cause of ovulatory dysfunction, and first-line ovulation induction therapies include Clomiphene Citrate and Letrozole. Although Letrozole has demonstrated superior ovulation, pregnancy, and live birth rates in women with PCOS, both agents remain widely used. Significant socioeconomic, racial, and immigration-related disparities limit access to fertility care in the United States, particularly in safety-net health systems serving uninsured, underinsured, and refugee populations. Data evaluating ovulation induction practices and outcomes in these settings are limited. Results from this study can provide insight for standard of care for couples diagnosed with infertility and create more equitable reproductive and preconception strategies in safety-net communities.

Methods/Approach: This is a retrospective cohort study of patients undergoing infertility evaluation and treatment at
a single urban safety net hospital between August 2020 and August 2025. Eligible patients
must have a diagnosis of female infertility and be prescribed either ovulation induction
medication. Data will be extracted from the electronic medical record, including medical history, laboratory and imaging results as well as demographics, insurance, socioeconomic and refugee status. Demographic, obstetric, and relevant clinical features of the patients will be summarized as counts and percentages for categorical variables and mean, median, and standard deviation for continuous variables. Categorical variables will be compared between two groups using chi-square tests, and continuous variables will be compared using t or Wilcoxon rank-sum tests.

Preliminary Findings: The primary objective is to compare the frequency of Letrozole versus Clomiphene Citrate prescriptions among patients diagnosed with infertility. Secondary objectives are to compare rates of conception and live birth between patients receiving these medications. Results expect to analyze the standard of care between patient groups and record outcomes.

Implications/Next Steps: ASRM has called for the public and providers to identify and further investigate barriers to
reproductive and infertility care with emphasis on underserved populations and expanding
coverage of care to lessen the economic burden. This study will be the first to investigate
infertility care in refugee patients as well as one of the few to provide further insight to uninsured
and Medicare patients, both of which should help identify and create more accessibility to
equitable reproductive and infertility care.

Relevance to Family Medicine: Family medicine physicians may be the first point of contact for patients with fertility concerns, particularly in underserved and safety-net settings. Oftentimes, patients may not have the opportunity to be seen at subspecialty infertility clinics due to cost, insurance limitations, immigration status, or geographic barriers. Understanding evidence-based ovulation induction practices and outcomes directly informs initial evaluation, counseling, and management that family physicians can safely provide.

On behalf of the Arizona Academic Family Medicine Innovation Conference, we sincerely thank you for your time, expertise, and invaluable contributions as a reviewer for our research poster presentations. Your thoughtful feedback and engagement were instrumental in fostering meaningful discussions and enhancing the quality of the research presented.

We truly appreciate your dedication to mentoring and supporting researcher and health professionals.

Once again, thank you for your generosity and commitment to advancing scholarship and innovation. We hope to collaborate with you again in the future.

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