



# 28<sup>th</sup> Annual Rocky Mountain Research Forum

## Scholarly Work Featured at the 2020 CAFMR Virtual Rocky Mountain Research Forum Shark Tank, Oral, and Poster Presentations

### Shark Tank Presentations

#### 1. Shark Tank 1

<b>Project Title:</b> Promoting Primary Palliative Care in a Residency Clinic: A Needs Assessment
<b>Authors:</b> Alex McCarty, MD; Jeff Manuel, MD
<b>Program:</b> Saint Joseph Family Medicine Residency
<b>Abstract:</b> Primary care physicians (PCPs) are uniquely positioned to deliver high quality primary palliative care support to their patients and caregivers. As the population ages and the supply of specialty palliative care physicians lags behind, it is increasingly important to arm primary care physicians with a robust palliative skill set. Primary palliative care in the PCP's office may include a variety of services from identifying distressing symptoms related to a chronic or serious illness to addressing advanced care planning and helping to align patients' medical treatment with their goals. We plan to conduct a needs assessment targeting 30 family medicine residents to evaluate resident-identified gaps in palliative care knowledge. This assessment will be utilized to guide future educational endeavors. Giving primary care physician residents a heightened sense of proficiency with primary palliative care will promote increased quality of life for patients and allow for more upstream palliative care interventions.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>Identify specific palliative care skills most high yield to master and utilize within the primary care context</li> <li>Appreciate the need for exposure to high quality primary palliative care didactics during residency training to promote optimal patient-centered care</li> <li>Conduct a gap analysis of family medicine residents to ascertain self-identified deficiencies in palliative care knowledge</li> </ul>
<b>Category:</b> Resident education/curriculum

#### 2. Shark Tank 2

<b>Project Title:</b> Improving Rates of Low Dose Aspirin Initiation in Patients at Risk for Preeclampsia
<b>Authors:</b> Maija Swanson, MD; Claire Bovet, MD; Megan Harper, MD
<b>Program:</b> Saint Joseph Family Medicine Residency
<b>Abstract:</b> Purpose: Preeclampsia is a leading cause of obstetric morbidity, and ACOG and the USPSTF recommend low dose aspirin for risk reduction in pregnant women at moderate or high preeclampsia risk. In our clinic, women with moderate risk factors had low rates of aspirin use. Our project aims to improve rates of aspirin initiation in women at risk for preeclampsia through implementation of a reminder checklist. Methods: We added a reminder checklist containing high and moderate preeclampsia risk factors to the clinic prenatal note templates and used chart review to compare rates of aspirin initiation before and after this intervention. Results: In the pre-intervention group, 68.8% (33/48) of patients qualified for low dose aspirin. While 100% of patients at high risk of preeclampsia received aspirin, only 7% (2/27) of patients with qualifying moderate risk factors did. Preliminary post-intervention data will be presented at the research forum.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>Describe implementation of an EMR-based checklist to improve aspirin use in patients with moderate or high preeclampsia risk factors</li> <li>Compare rates of aspirin use before and after checklist implementation</li> <li>Discuss challenges in improving aspirin use in residency-based prenatal care</li> </ul>
<b>Category:</b> Maternal and child health

#### 3. Shark Tank 3

<b>Project Title:</b> An ED Care Coordinator and Patient Education to Reduce Inappropriate ED Utilization
<b>Authors:</b> Jeff Utter, MD, MPH; Kenny Herring, MD, MPH; Alisa Malki, MD; Steve Spadafore, MD; Cristi Rabaza, MD; Naomi Malam, MD, MSPH

<b>Program:</b> University of Colorado Family Medicine Residency
<b>Abstract:</b> Overutilization of Emergency Departments (EDs) strains limited healthcare resources. Numerous intervenable components lead to many non-emergent ED visits. A multifaceted intervention may reduce non-emergent ED visits. This pre-test/post-test quality improvement project assessed the reduction of ED utilization via (1) patient education of triage line information (2) increased number of same-day appointments (3) ED coordinator outreach to assure clinic follow up. Primary outcomes include percentage of patients with one or more ED visits within a 90-day period pre- and post-intervention. Secondary outcomes include rates of non-emergent visits, clinic fill rates, visits preceded by triage calls, consistency of triage education, and number of after-hour/weekend triage calls received by residents. Pre-intervention: 436 patients (2.5%) had one or more ED visits, 36% of these visits were PCP appropriate (NYU algorithm). After hours calls per shift to the resident on call was 1.32. Post-intervention: We will report number of patients with an ED visit by quarter (Q2 2019 = 427). We saw an increase to 1.77 after hours calls per shift to the resident on call ( $p = 0.030$ ). Utilization of triage line education on after visit summary increased from 22% in November, to 62% in January, and 44% in February. March data pending. Educating patients on how to contact the clinic before going to the ED may decrease ED use and resulted in increased triage line use.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Explain the most common factors contributing to inappropriate ED utilization.</li> <li>• Apply the principles of access to care and patient education to decrease inappropriate ED utilization within a patient population of an outpatient clinic.</li> <li>• Understand the impact to the health system of decreasing inappropriate ED utilization.</li> </ul>
<b>Category:</b> Outpatient quality improvement (QI)

## Oral Presentations

### 1. Oral Presentation A

<b>Project Title:</b> Like a rock: Ethical Challenges in the Medical Management of a Unique Patient with Multiple Myeloma
<b>Authors:</b> Amanda mullen, MD PGY2; Jacob Anderson, DO PGY2
<b>Program:</b> Southern Colorado Family Medicine, Alamosa Rural Training Track
<b>Abstract:</b> The goal of this project is to discuss the ethics of managing Multiple Myeloma through a unique inpatient case. A 62-year-old transgender female with history of aortic dissection and schizophrenia was found down after a 1-week history of dizziness and weakness. She was hypertensive on admission with abnormal labs including SCr 8.19, BUN 81, and K 4.4. Nephrology was eventually consulted for further workup and patient was found to have a high amyloid, low kappa/lambda ratio, and renal biopsy with glomerulosclerosis consistent with multiple myeloma. Although the patient desired dialysis, frequent barriers to management were met including patient refusal of blood transfusions, physical examinations, and oncologic treatments. With capacity in question and no next of kin or powers of attorney in place, a team approach including psychiatry, case management, and the hospital medical ethics committee occurred over several months. Ultimately, the patient agreed to hospice services, and expired one day before official transition of care.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Apply the four principles of medical ethics (patient autonomy, beneficence, non-maleficence, and justice) to a unique case.</li> <li>• Discuss the difference between capacity and competence.</li> <li>• Discuss Colorado-specific medical law with determination of Medical Durable Powers of Attorney (MDPOA).</li> <li>• Consider health disparities of the Transgender community in caring for patients.</li> </ul>
<b>Category:</b> Case report

### 2. Oral Presentation B

<b>Project Title:</b> A Novel Approach to Optimization of Electronic Health Record Using the Sprint Development Model
<b>Authors:</b> Eric Kim, MD; Amber Sieja, MD; Katie Markley, MD; Heather Holmstrom, MD; Stephen Rotholz, MD; Cortney Arellano; CT Lin, MD
<b>Program:</b> University of Colorado Family Medicine Residency
<b>Abstract:</b> Electronic health record (EHR) deployment within a healthcare system can be challenging and resource intensive. Just as critical as deployment, EHRs must continuously be maintained and optimized. At the University of Colorado Health (UCHealth) system, the sprint model of software optimization has been partially adopted. Teams of health information technology (HIT) analysts, trainers, and expert clinical users

were deployed to local clinics to elicit problems, explore desired improvements, and actively pursue EHR solutions that empower instead of burden clinicians and clinical staff. At least one-quarter (and possibly as much as 50%) of items tracked were addressed with development of new workflows or training of staff about existing workflows. Interestingly, security access issues were an unexpectedly significant component of issues addressed. This novel approach provides a bottom-up approach to EHR optimization that answers a need for continuing improvement after first deployment.

**Learning Objectives: Participants will be able to...**

- Explain the difference between EHR maintenance and EHR optimization
- Describe the role of a sprint team in the user-centered optimization of the EHR
- Understand some of the preliminary implications of the UCH sprint team's work on future targets for optimization

**Category:** Health Information Technology

3. Oral Presentation C

**Project Title:** Acute Care Clinic: Improving Outpatient Access in a Resident Clinic

**Authors:** Ryan D Peterson MD, MPH; Tim Hutton MD; Lauren Thomas MD

**Program:** Saint Joseph Family Medicine Residency

**Abstract:** Timely access to care continues to be a challenge across healthcare settings. Bruner Family Medicine recognized this challenge as an opportunity to improve both patient health and satisfaction. An acute care clinic, staffed entirely by third year residents began in October 2019 and provided 10 additional same day appointments, thus increasing access to care for our patients. We collected data regarding patient experience including perceived ease/difficulty obtaining a timely appointment, and how that impacted their satisfaction/dissatisfaction with their care. We also collected data from the third-year providers surrounding their perceived utility of an expanded availability acute care clinic, and how that did or did not add value to their residency education. Overall, patients expressed increased satisfaction with the timeliness and quality of the care they received, while providers reported gaining experience with a wider breadth of medical issues than those typically seen in continuity clinic.

**Learning Objectives: Participants will be able to...**

- Evaluate the implementation and sustainability of an acute care clinic model.
- Gauge the impact on access to care within a family medicine residency outpatient clinic.
- Assess whether or not implementation of an acute care clinic within the outpatient residency practicum adds value to the residency experience.

**Category:** Outpatient quality improvement (QI)

4. Oral Presentation D

**Project Title:** Aligning Chronic Opioid Prescribing Practices at a Federally-Qualified Health Center with Current Guidelines

**Authors:** Anita Mathews, MD, MPH; TJ Staff, MD; John Weeks, MD; Morgan Schiller, MD; Alicia Wong, MD, MPH

**Program:** University of Colorado Family Medicine Residency – Denver Health

**Abstract:** There is variability in the opioid prescribing practices among clinic providers at Denver Health's Lowry Family Health Center. This can create confusion when patients on chronic opioid therapy (COT) are unable to see the same provider consistently due to access issues, as there is currently no standardized practice for prescribing and documenting COT. The aim of this quality improvement project was to determine the actual variation in prescribing practices and to develop a standardized practice throughout the FQHC that adheres with existing prescribing guidelines. The project involved a provider pre-intervention survey and patient chart reviews to assess current practices, developing standardized documentation, and conducting a post-intervention survey to elicit provider satisfaction. Results from the pre-intervention survey and chart reviews showed variable practices in frequency of Narcan prescribing, urine drug screening, and documentation of goal and duration of therapy. Implementation of the standard documentation is on-going.

**Learning Objectives: Participants will be able to...**

- recognize components of guideline-based chronic opioid therapy (COT)
- identify barriers to providing guideline-based COT

**Category:** Outpatient quality improvement (QI)

5. Oral Presentation E

**Project Title:** An Integrative Approach to Diabetes Care: Effect of Additional Pharmacy and Dietician Counseling on A1c Control

<b>Authors:</b> Sofia Davies, DO; Beth Buehrer, MD; Kelsey Sherman, MD
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Abstract:</b> OBJECTIVE: To determine the effect of increased contact with a pharmacist or dietician on A1c control for patients with poorly controlled diabetes. STUDY DESIGN: Family Medicine clinic patients 18 years or older with A1c >9% were enrolled in the study. Patients were assigned to either the intervention group or control group. Management in the control group included standard diabetes care with routine 3-month follow up. Management in the interventional group included an additional in-person visit with pharmacy or dietary prior to their routine 3-month follow up visit with their medical provider. RESULTS: Data will be pooled and analyzed using mean changes in A1c from the initial visit to the 3-month follow up visit between the interventional and control groups. CONCLUSIONS: The effect of additional pharmacist or dietitian counseling on A1c control among poorly controlled diabetics will be assessed.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Understand the effect of increased contact with pharmacists and dietitians on A1c control</li> <li>• Learn about the effect of an integrative approach to diabetes management</li> <li>• Leave with new ideas for comprehensive diabetes care in the outpatient setting</li> </ul>
<b>Category:</b> Outpatient quality improvement (QI)

#### 6. Oral Presentation F

<b>Project Title:</b> Point-of-Care Ultrasound use by Primary Care Physicians
<b>Authors:</b> Franklin Niblock, MD, MPH
<b>Program:</b> University of Colorado Family Medicine Residency
<b>Abstract:</b> This study aims to describe the adopters of POCUS in primary care using a retrospective claims-based approach. PCPs were defined as those specializing in FM, IM, GP, geriatrics, and sports. Physicians were identified using the Medicare Part B public use files and physician characteristics were supplemented by the AMA Master File. Logistic regression was used to determine associations between POCUS use and physician characteristics. Among PCPs seeing Medicare patients, 9.6% billed for ultrasound. FPs represented 49.0% of PCPs using POCUS. Physicians who use POCUS were older (53.4 years vs. 50.0 years, p<.0001). Male physicians (odds ratio (OR) = 3.12; 95% CI, 3.06-3.18), physicians in the SE (OR = 6.46; 95% CI, 5.49-7.53), rural physicians (OR = 1.60; 95% CI, 1.57-1.63), FPs* and those specialized in sports* were more likely to use POCUS. Few PCPs are using POCUS. Individual and regional variation exists in the adoption of POCUS. *Logistic regression pending
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Describe benefits of ultrasound use in primary care.</li> <li>• Name individual characteristics associated with ultrasound use.</li> <li>• Describe regional characteristics associated with ultrasound use.</li> </ul>
<b>Category:</b> Outpatient, medical technology

#### 7. Oral Presentation G

<b>Project Title:</b> Innovating the Resident Recruitment Process to Increase Workforce Diversity
<b>Authors:</b> Amelia Challender, MA; Cleveland Piggott, MD, Michael Benavidez, MD, Shontelle Jaramillo, BA, Chloe Finke, BA, Linda Montgomery, MD, MA
<b>Program:</b> University of Colorado Family Medicine Residency
<b>Abstract:</b> Background: Studies show that a more diverse workforce enhances team function and the quality of patient care. The 2019 ACGME Common Program Requirements required that residency programs describe how they are working to recruit and retain a diverse workforce. Objectives: Our residency innovated our recruitment processes with the goal of matching a more diverse residency class and evaluated our approach. Innovations: Changes were aligned with the AAMC's Holistic Review model and included: Changes to application review, workshop for recruitment team, interview evaluation rubric, interviewer training, improved marketing materials, and a second look event. Evaluation Methods: Interviewee survey, second look survey, and an analysis of ERAs data. Outcomes: Our analysis of ERAs data suggests our innovations may have been successful in increasing the diversity of those who applied (15.2% URM in 2017 to 19.2% URM in 2020), interviewed (11.4% URM in 2017 to 16.2% URM in 2020), and matched (30% URM or POC in 2017 to 45.5% URM or POC in 2019, but only 1 URM resident in both classes) at our program. Responses to our formative evaluation surveys suggested applicants viewed our innovations favorably.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Identify simple innovations their residency could implement to recruit more diverse residents.</li> <li>• Consider methods for defining and measuring diversity within a residency.</li> </ul>
<b>Category:</b> Resident education/curriculum

**\*\*\*This Oral Presentation is also being featured a Poster Presentation**

#### 8. Oral Presentation H

<b>Project Title:</b> Training Backward to Meet Future Scope of Practice Needs
<b>Authors:</b> Zebulon Friedly, MD; Randall Reitz, PhD
<b>Program:</b> St. Mary's Family Medicine Residency, Grand Junction
<b>Abstract:</b> This project, conducted by 4 residents in their first year of residency procured employer-level data from most counties of Colorado to measure the penetration of various aspects of scope within the urban/rural and large/small practice sites. After presenting these data, we will lead a discussion in which we compare current scope of practice needs with ACGME curricular requirements to answer the question of whether current training models are meeting the needs of future residents and future family physicians.
<b>Learning Objectives: Participants will be able to...</b> <ul style="list-style-type: none"><li>• To apply research findings about training to scope of practice in the residency setting</li><li>• To build training systems that address anticipated future family medicine scope of practice needs</li><li>• To engage in conversations with residents regarding their own preferences for scope of practice and shaping their training to support this vision.</li></ul>
<b>Category:</b> Resident education/curriculum

#### 9. Oral Presentation I

<b>Project Title:</b> Taking Our Own Temperature: Using an Annual Climate Survey to Evaluate Diversity, Equity, and Inclusion Efforts
<b>Authors:</b> Elizabeth Kvach, MD MA; Cleveland Piggott, MD; Allie Johnson, MD; Alexandra Targan, MD; Riley Smith, MD
<b>Program:</b> University of Colorado Family Medicine Residency
<b>Abstract:</b> One of the many goals of University of Colorado Family Medicine Residency's (UCFMR) Social Justice Work Group (SJWG) goals was to diversify our residency. As the residency diversifies, evaluation of the program climate is a priority to ensure inclusion, retention and well-being of residents and faculty, and identify areas for ongoing improvement. An annual climate survey was designed and administered anonymously online to residents and faculty in 2018 and 2019. In 2019, 95% of residents agreed that the program had made a genuine effort to recruit diverse residents, although half of residents remained dissatisfied with the number of underrepresented minorities in medicine residents. Residents of color were significantly more likely to endorse signs of burnout compared to white residents. Ten percent of respondents experienced discrimination or disrespect from within the residency. An annual anonymous residency climate survey is a promising tool for identifying strengths and areas of change within programs.
<b>Learning Objectives: Participants will be able to...</b> <ul style="list-style-type: none"><li>• Understand the importance of promoting equity and social justice within a family medicine residency program.</li><li>• Describe the successes and areas of potential growth in promoting DEI that the UCFMR identified through our climate survey</li><li>• Apply the lessons learned from our residency's experience to identify a goal for your own organization that would promote equity and social justice</li></ul>
<b>Category:</b> Resident education/curriculum

#### 10. Oral Presentation J

<b>Project Title:</b> Peace of Mind: Destigmatizing Physician Mental Health
<b>Authors:</b> Poorvi Pfenning, MD
<b>Program:</b> Swedish Family Medicine Residency
<b>Abstract:</b> The rate of physician suicide is significantly higher than the general population. The ratio of male physicians to the general male population to die by suicide is 1.41; for female physicians, 2.27. In one study of ACGME programs from 2000-2014, 324 residents died: 80 from malignancies, 66 by suicide. There are many reasons why physicians suffer from depression and unfortunately, sometimes die by suicide. Long work hours, high-pressure decisions, neglect of social support systems, and sleep deprivation are just a few of the oft-cited factors contributing to this disease process. Less tangible, and often more influential, is the hostile culture in medicine around physician mental illness and the barriers to care this culture creates. This presentation seeks to destigmatize physician mental health by sharing reputable data regarding this subject and offering practical

application of this information to the residency experience, ultimately seeking to break down barriers to care and reduce the rate of physician suicide.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Discuss the prevalence of depression and suicide among physicians</li> <li>• Discuss the many reasons for this high prevalence</li> <li>• Discuss how Joiner's Theory of Suicide applies to resident physicians specifically</li> </ul>
<b>Category:</b> Resident education/curriculum

## Poster Presentations

### Case Report

#### 1. CR1

<b>Project Title:</b> You Take My Breath Away - Losing Consciousness at 12,600 feet
<b>Authors:</b> Sterling Adams D.O. PGY1; Robert Petro D.O. PGY3; Kathryn Vidlock M.D. CAQ- PCSM
<b>Program:</b> HealthOne Family Medicine Residency at Sky Ridge Medical Center
<b>Abstract:</b> After running 45 miles in a 100-mile, high altitude race in the rocky mountains, contestants were torn between stopping to help a racer unconscious at 12,600 feet or being able to stay in the race they had been training years for. Medical personnel were required to race up the mountain on foot to evacuate the patient who was found going in and out of consciousness with coarse crackles noted on lung bases bilaterally, tachypnea/dyspnea, tachycardia and cough. Patient was safely transported off the mountain, with acute treatment in the field. He was then transported by helicopter to a large metropolitan hospital in a nearby city. The poster will address risk factors, preventative strategies and treatment of HAPE according to the new guidelines of the Wilderness Medical Society in 2019.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Identify the signs and symptoms of HAPE</li> <li>• Implement preventative strategies for HAPE</li> <li>• Execute treatments based on guidelines from the Wilderness Medical Society of 2019</li> </ul>
<b>Category:</b> Case report

#### 2. CR2

<b>Project Title:</b> Profound Hypothermia with an Empty Sella - A Myxedema Coma Case Study
<b>Authors:</b> Allison Costello MD, MBA; Megan Townsend MD, MPP; John Weeks MD; Leslie Guererro MD; Melissa Beagle MD, MPH
<b>Program:</b> University of Colorado Family Medicine Residency
<b>Description:</b> This case demonstrates the classic signs and symptoms of myxedema coma, and discusses the workup and treatment course appropriate for this condition.
<b>Abstract:</b> A 63 year old male with history of type 2 diabetes mellitus and remote traumatic brain injury was brought to the emergency department after being found acutely altered during a welfare check. Initial examination demonstrated profound hypothermia, bradycardia, volume overload, and acute encephalopathy. Further testing demonstrated partially empty sella turcica on head imaging, an elevated TSH, and normal T4. His TPO antibodies later were positive. Echocardiogram noted a mildly reduced ejection fraction. Broad workup included evaluation for adrenal insufficiency, carbon monoxide exposure, ingestion of substances, and environmental exposure, all of which were negative. The patient was externally rewarmed, diuresed, and received IV thyroid supplementation with drastic improvement in symptoms, and was diagnosed with hypothyroidism complicated by myxedema coma. This case demonstrates the classic symptoms of myxedema coma, and is a reminder that rapid identification and treatment of the condition may positively impact patient outcomes.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Describe the signs and symptoms of myxedema coma</li> <li>• Identify the causes of empty sella syndrome</li> <li>• Review the treatment course for myxedema coma</li> </ul>
<b>Category:</b> Case report

#### 3. CR3

<b>Project Title:</b> A rapidly progressive case of Calciphylaxis
<b>Authors:</b> Carmen Vandal, MD; Stephen Cheung, DO (PGY2); Bradford Winslow, MD

<b>Program:</b> Swedish Family Medicine Residency
<b>Abstract:</b> Background: Calciphylaxis is a serious skin disorder that is characterized by calcification, fibrosis, and thrombus formation that results in skin necrosis. It is associated with significant morbidity and mortality and is most commonly seen in patients with end-stage renal disease. However, there are also documented cases in non-ESRD patients. Here we describe a patient with cirrhosis who presented with wounds and diagnosed with calciphylaxis. Case: A 37 year old female with cirrhosis presented with necrotic painful lesions on her trunk. Skin biopsies were taken but results did not provide a clear diagnosis and she was presumptively treated for a vasculitis. Multiple specialists were consulted including dermatology, plastic surgery, gastroenterology, rheumatology, infectious disease, hematology, nephrology, and pathology. A repeat biopsy was consistent with calciphylaxis. The patient's condition progressed and she was transitioned to hospice. Conclusion: One of our main jobs as primary care physicians is to coordinate care. Given the complexity and seriousness of this case, it was very important for our team to coordinate care on a daily basis with specialists.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• demonstrate an understanding of calciphylaxis</li> <li>• consider a wide differential diagnosis when treating a patient that is not clinically improving</li> <li>• discuss the importance of coordinating care in the hospital</li> </ul>
<b>Category:</b> Case Report

#### 4. CR4

<b>Project Title:</b> Case Report: Septic shock from Fusobacterium necrophorum pelvic inflammatory disease in an 18 year old female following a spontaneous abortion
<b>Authors:</b> Abria Bonner, MD; Megan Harper, MD
<b>Program:</b> Saint Joseph Family Medicine Residency
<b>Abstract:</b> A 2007 article published in the American Society for Microbiology commented on 3 cases studies of post-partum or post-abortion Fusobacterium necrophorum. In this case report, an 18 year old female presented to St. Joseph Hospital in septic shock with vague infectious symptoms including fever, abdominal pain, and back pain. A pelvic examination was not originally performed upon presentation to the emergency department. Pelvic inflammatory disease can cause septic shock and even death if not diagnosed and treated in a timely manner. F. necrophorum is more commonly an oral pathogen; although, it can be found in the gastrointestinal tract, urinary tract, and female genital tract. This case underscores the importance of considering pelvic inflammatory disease in sexually active patients, especially those with high risk behaviors. It also reinforces the importance of detailed information gathering, including social history, and appropriate indications for pelvic exams.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Identify symptoms concerning for pelvic inflammatory disease and patients who are at higher risk</li> <li>• Identify patients who should be screened for pelvic inflammatory disease, and how to properly diagnose it</li> <li>• Discuss reasons for increased susceptibility to invasive disease by Fusobacterium necrophorum post-partum or post-abortion</li> </ul>
<b>Category:</b> Case report

#### 5. CR5

<b>Project Title:</b> Nephrotic syndrome
<b>Authors:</b> Alexandra King, DO; Jim Do, MD
<b>Program:</b> Southern Colorado Family Medicine, Alamosa
<b>Abstract:</b> Case presentation of patient presenting with anasarca, oliguria, generalized malaise, on high dose lasix for undetermined amount of time with no PCP follow up.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Presenting a difficult to manage case in a rural area with lack of nephrologists</li> <li>• Workup for nephrotic syndrome</li> <li>• Diagnosis of nephrotic syndrome</li> </ul>
<b>Category:</b> Case report

#### 6. CR6

<b>Project Title:</b> Case Report: Brucella melitensis infection with pulmonary and spinal complications.
<b>Authors:</b> Eric Kim, MD; Alexandra Targan, MD; Stephanie Eldred, MD; Daniel White, MD
<b>Program:</b> University of Colorado Family Medicine Residency

<p><b>Abstract:</b> Our patient was a 65 year old man who was sent to our hospital complaining of back pain and weight loss to rule-out tuberculosis. He had recently traveled to the US from Mexico. Despite a positive QuantiFERON, lung imaging suggestive of focal consolidations, and spinal imaging showing an epidural phlegmon, initial workup ruled out tuberculosis. Further history revealed that he was previously a butcher and had in the past year started drinking unpasteurized goat's milk. Culture of the epidural phlegmon eventually resulted brucella melitensis. Brucella is a zoonotic disease with significant livestock reservoirs still endemic to certain parts of the world. It is a highly contagious disease with multi-organ manifestations. Despite brucellosis's eradication in the US, this case serves as a cautionary tale to avoid anchoring bias, keep infectious differentials broad, and always ask about exposures.</p>
<p><b>Learning Objectives: Participants will be able to...</b></p> <ul style="list-style-type: none"> <li>• describe the circumstances under which brucella infection should be considered.</li> <li>• describe the possible manifestations of brucellosis.</li> <li>• describe the possible morbidity associated with brucellosis.</li> </ul>
<p><b>Category:</b> Case report</p>

## 7. CR7

<p><b>Project Title:</b> Medication Assisted Therapy is a Safe Alternative to Harmful OTC Drugs used to treat Opioid Use Disorder or Opioid Withdrawal</p>
<p><b>Authors:</b> Wade Davis, M.D and George Olsen M.D.</p>
<p><b>Program:</b> Swedish Family Medicine Residency</p>
<p><b>Abstract:</b> The goal of this Case Study is to further investigate Loperamide (an anti-diarrheal drug) that patients can use as OTC option for treatment of OUD (Opioid Use Disorder). This case study explores a case where a patient was self-treating OUD with high doses of Loperamide (up to 40 mg daily) with severe side effects. He was enrolled in our clinic's MAT program and started on soboxone, up titrating to a dose of 8mg/2mg (buprenorphine/naloxone), twice a day. By the 2nd week on soboxone he had stopped taking loperamide and was having normal bowel movements. He continues to be in remission.</p>
<p><b>Learning Objectives: Participants will be able to...</b></p> <ul style="list-style-type: none"> <li>• Understand the potential for patients to self treat OUD and opioid withdrawal with over counter medications and subsequently develop dependence and side effects</li> <li>• Describe how to use MAT to treat patients who are using OTC medications (such as loperamide) to treat opioid use disorder</li> </ul>
<p><b>Category:</b> Case report</p>

## *Inpatient Medicine*

### 1. IM1

<p><b>Project Title:</b> Peer-to-peer Teaching In The Inpatient Setting</p>
<p><b>Authors:</b> David Maurer, DO</p>
<p><b>Program:</b> St. Anthony North Family Medicine Residency</p>
<p><b>Abstract:</b> A critical component within any Family Medicine residency program is the efficient and accurate transfer of information between Residents. Our team composed an online-based bank of teaching presentations covering some of the most common medical conditions with the intention of being reviewed each morning on the Inpatient Medicine service. Resident perception of teaching efficacy and improvement in learning was monitored longitudinally through online surveys. Our results suggested over the course of 10 months there was a decrease in the perception of the need for teaching, the implementation of our teaching strategy, and an increase in the perception that residents are 'too busy' for structured morning teaching. Our results suggest there is continued room for improvement with our peer-peer transfer of information in the form of structured teaching.</p>
<p><b>Learning Objectives: Participants will be able to...</b></p> <ul style="list-style-type: none"> <li>• Develop and implement an effective peer-peer teaching program</li> <li>• Monitor longitudinal improvement in information transfer between peers</li> <li>• Continue to innovate new and effective teaching techniques</li> </ul>
<p><b>Category:</b> Inpatient medicine</p>

### 2. IM2

<p><b>Project Title:</b> Improving quality of computerized sign-out for inpatient family medicine</p>
<p><b>Authors:</b> Isaac Fonken, MD, PGY2</p>

<b>Program:</b> Fort Collins Family Medicine Residency
<b>Abstract:</b> Purpose: Handoffs are a key moment for patient safety; they require teamwork, accuracy and appropriate detail to accomplish efficiently. While computerized sign-outs are endorsed by some, specific components are not well-defined and vary by specialty. The purpose of this project was to make serial adjustments to the computerized sign-out to include key patient information relevant to a full-spectrum inpatient family medicine teaching service. Methods: A new sign-out tool was embedded into the electronic health record (EHR) on a resident inpatient service. Three “plan-do-study-act” cycles were used to identify and gradually edit the templates used for the EHR-based sign-out. Results: Post-intervention surveys showed mixed results. A portion of respondents disliked the “clutter” of the new tool. Many responses were neutral. Positive respondents cited universal workflow, less clicks, less inaccuracies, and automatic updates as the best features.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>describe key components of handoff specific to a full-spectrum inpatient family medicine teaching service</li> <li>identify methods of communicating critical information and minimizing extraneous detail by using standardized sign out templates</li> </ul>
<b>Category:</b> Inpatient medicine

*Integrative Medicine*

1. IntM1

<b>Project Title:</b> The Most Promising Natural Agents and Their Efficacy in Standalone or Augmented Treatment of Attention-Deficit/Hyperactivity Disorder, a Literature Review.
<b>Authors:</b> Andrew Xu, MD
<b>Program:</b> Southern Colorado Family Medicine, Alamosa Rural Training Track
<b>Abstract:</b> Attention-Deficit/Hyperactivity Disorder (ADHD) is a prevalent mental health disorder that often starts in childhood and persists into adulthood. Symptoms include limited attention and hyperactivity. Regarded as the most common childhood neuropsychiatric disorder, it may contribute to low self-esteem, troubled relationships, and difficulty at school or work. Traditional treatments include medication such as dopaminergic stimulants and behavioral therapy. While efficacious, medications such as Adderall and Ritalin come with a set of side effects that may not be tolerated. Supporting theories present that ADHD is due to a lack of endogenous brain chemicals or of essential nutrients which prevents optimal neurotransmission. If such is the case, it is reasonable to supply the brain with necessary nutrients either in augmentation-to or before the use of stimulant medications. There are a number of natural products, such as vitamins or botanicals, that have been tried for treatment of ADHD and have shown efficacy. This poster will give an overview of the top few natural supplements for the treatment of ADHD in its mechanisms, efficacy, and whether they present an effective therapeutic adjunct to traditional medication therapy.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>Summarize the most researched nutraceuticals and bio-molecules that have shown efficacy in treatment of mood and attention disorders.</li> <li>Contrast the efficacy of natural treatments to pharmaceuticals, and to show specific research about combination/augmentation therapy strategies</li> <li>Identify the circumstances that contribute to deficiencies in certain nutrients and the demographics that are most vulnerable.</li> </ul>
<b>Category:</b> Integrative medicine
<b>***This Poster did not undergo review by the proposal review committee</b>

*Maternal and Child Health*

1. MCH1

<b>Project Title:</b> Effects of a new scheduling strategy for labor and delivery coverage. A residency’s experience piloting a laborist coverage model for inpatient maternity care
<b>Authors:</b> Allie Johnson MD, Sean Buck MD, Swetha Iruku MD MPH, Katharine Kelly MD, Melissa Beagle MD MPH, Roxi Radi MD MPH, Charity Lehn MD
<b>Program:</b> University of Colorado Family Medicine Residency – Denver Health
<b>Abstract:</b> The proportion of FPs providing inpatient maternity care is small and rapidly decreasing (Barreto et al, 2017). Residents and faculty at the Denver Health (DH) Track of the University of Colorado Family Medicine Residency (UCFMR) are investigating the effects of shifting from home call to a laborist model on resident learning and faculty satisfaction, which started in October 2019. A pre-survey reported that 90.9% of residents

were satisfied with the teaching received from FM faculty under the home-call model. However, 90% of faculty members were dissatisfied with their experience under that same model. Key issues raised were lack of work-life balance (90% dissatisfied), low patient volume while on call (80% dissatisfied), and inadequate opportunities to teach residents (70% dissatisfied). We plan to repeat the survey in April of 2020, tracking effects of shifting to the laborist model on patient volume, resident learning, and faculty satisfaction.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• determine if a laborist model supports work life balance</li> <li>• consider changes to the structure of their own OB care</li> <li>• develop future improvements in labor and delivery coverage for FP physicians</li> </ul>
<b>Category:</b> Maternal and child health

## 2. MCH2

<b>Project Title:</b> Preliminary Observational Study of Delivery Statistics and Midwifery Practices in Remote Communities Along the Lower Napo River in the Peruvian Amazon
<b>Authors:</b> Kelly Baxter, MD; Kelsey Sherman, MD
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Description:</b> Investigation of midwifery practices, outcomes, and training in a remote area of the Peruvian Amazon. This study will be used to guide future targeted and desired education for midwives of this region.
<b>Abstract:</b> BACKGROUND: The Lower Napo River is a remote region along the Peruvian Amazon River. Access to medical care and formal medical training is extremely limited. OBJECTIVE: To collect data on delivery statistics and midwifery practices in this region, which will be used to provide targeted future education based on need and interest. STUDY DESIGN: Researchers traveled to 8 villages and interviewed 13 midwives. Data was collected regarding: years of experience in midwifery, training, number of deliveries, number of adverse maternal and neonatal outcomes, and interest in receiving formal training in the future. RESULTS/CONCLUSIONS: Pooled data revealed a broad range of experience (2-40 years) and deliveries (0-40 per midwife). 8 of 13 endorsed having at least one experience with formal training. This group also endorsed interest in future training. Although complications were reportedly rare, the primary issue and area of interest was postpartum hemorrhage.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Identify limitations and complexities to medical care in the remote region of the Lower Napo River.</li> <li>• Identify available maternal and neonatal healthcare as well as outcomes, as reported by midwives, in this region.</li> <li>• Identify level of training and interest in training of midwives on the Lower Napo River.</li> </ul>
<b>Category:</b> Maternal and child health

## 3. MCH3

<b>Project Title:</b> Are Progesterone-Only Contraceptives Safe in Women with Tobacco Use and Venous Thromboembolic Disease?
<b>Authors:</b> Bradford Winslow, MD; Garrett Urban, MD; Danielle Eves, MD; Emily Berger, MD
<b>Program:</b> Swedish Family Medicine Residency
<b>Abstract:</b> This small FPIN HDA review article aims to answer the question: Are Progesterone-Only Contraceptives Safe in Women with Tobacco Use and Venous Thromboembolic Disease? The evidence shows Progesterone-only contraceptives (POC's) do not increase the risk of recurrent venous thromboembolism (VTE) in women with tobacco use and a history of VTE (SOR: B, systematic review of cohort studies and case-control studies), although an elevated risk may exist for injectable POC's in all women. The guidelines also suggest the benefits outweigh the risks of progesterone only contraception use in all women except those with active VTE.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Assess the safety of progesterone-only contraception use in tobacco users</li> <li>• Assess the safety of progesterone-only contraception use in those with VTE</li> <li>• Apply the guidelines of the CDC and WHO regarding progesterone-only contraception use in women who use tobacco or have had a VTE.</li> </ul>
<b>Category:</b> Maternal and child health

## 4. MCH4

<b>Project Title:</b> Implementing Family Planning in an Underserved Community Clinic
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<b>Authors:</b> Katy L. Bochat, D.O., PGY-3
<b>Program:</b> Southern Colorado Family Medicine, Pueblo
<b>Abstract:</b> Pueblo is an underserved community in Southern Colorado with one of the poorest rankings in overall health outcomes in the state. The goal of this project was to raise awareness in family planning among women of childbearing age due to the high rate of teen births. Patients were established with Southern Colorado Family Medicine Clinic in Pueblo, Colorado. Upon rooming each eligible patient, medical assistants asked, "Would you like to become pregnant in the next year?" Handouts on pre-pregnancy and/or contraception were provided, and a follow-up visit to discuss family planning was encouraged. Prescription contraceptives were used as a potential surrogate for unplanned pregnancies. After completion of this six-month study in March 2020, total prescriptions for oral contraceptives and Depo-Provera increased from 219 to 263 and 38 to 69, respectively. Project barriers included religious affiliations of clinic and staff as well as additional time needed for screening.
<b>Learning Objectives: Participants will be able to...</b> <ul style="list-style-type: none"> <li>Identify negative maternal and neonatal outcomes associated with teen births</li> <li>Explain methods to implement family planning into clinic workflow</li> <li>Discuss additional project barriers</li> </ul>
<b>Category:</b> Maternal and child health

#### 5. MCH5

<b>Project Title:</b> Do prenatal choline supplements improve neurodevelopmental outcomes in infants?
<b>Authors:</b> Stephanie Baker, MD; Spencer Del Moral, MD
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Abstract:</b> Evidence Based Answer: Choline likely has benefit in the specific high-risk population of heavy drinkers of improving learning and memory in offspring when supplemented at high doses. There is likely a small benefit of choline supplementation in pregnancy, specifically in cognitive function as measured by IQ and information processing speed. Introduction: Choline is an essential nutrient and plays an important role in the metabolism of neurotransmitters in the brain and cognitive functions. The recommended intake of choline in pregnancy is 450mg, however, most pregnant women do not consume this amount. This project is important because it attempts to examine the importance of choline in pregnancy and the actual benefits and effects it has on infants.
<b>Learning Objectives: Participants will be able to...</b> <ul style="list-style-type: none"> <li>Name the associated cognitive benefits in offspring of choline supplementation in pregnancy.</li> <li>Name the specific high-risk population in which choline supplementation was found to be beneficial.</li> <li>Identify a dose dependent relationship between improved cognitive performance and choline supplementation.</li> </ul>
<b>Category:</b> Maternal and child health
<b>***This Poster did not undergo review by the proposal review committee</b>

#### 6. MCH6

<b>Project Title:</b> Breastfeeding Knowledge and Participation Improvement Project
<b>Authors:</b> Stephen Macari, MD
<b>Program:</b> Swedish Family Medicine Residency
<b>Abstract:</b> The aim of this research topic is to improve education around breastfeeding, especially in the underserved populations. Despite most early newborn care being centered around breastfeeding as the healthiest method of feeding, participation in exclusive breastfeeding for the entire first 6 months of life is not particularly high. The data shows that women tend to have an interest in breastfeeding, but for confidence or comfort reasons tend to abandon the idea before 6 months of life. My project is centered around gauging interest in and understanding of breastfeeding in all pregnant women at Swedish Family Medicine. The goal is to provide education during one in-person prenatal visit that can address the many pitfalls of breastfeeding, and look to measure interest and understanding afterward. Beyond this short term objective, data would continue to be collected in an attempt to observe a measurable increase in total women attempting breastfeeding and ultimately completing 6 months of breastfeeding-only nutrition with their newborns
<b>Learning Objectives: Participants will be able to...</b> <ul style="list-style-type: none"> <li>To understand the largest challenges facing new mothers when it comes to breastfeeding</li> <li>To develop a focused system for addressing these challenges in a way that changes perceptions</li> <li>To create a quick reference for FP residents to use that both opens the conversation to breastfeeding earlier in pregnancy, and gives them confidence in helping women who are struggling with it</li> </ul>
<b>Category:</b> Maternal and child health

\*\*\*This Poster did not undergo review by the proposal review committee

## Outpatient Quality Improvement

### 1. OQI1

<b>Project Title:</b> Lowering No Show Rates and Monitoring A1c Response in an Integrated Diabetes Clinic
<b>All Authors (as will appear in program):</b> Drew Blumberg, DO; Taylor Hart, MD
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Abstract:</b> The purpose of our project was to attempt to lower the "no-show" rate in our diabetes clinic and monitor if our integrated program has an effect on A1c levels. We implemented a protocol where patients were called prior to their upcoming appointment and educated on the process and benefits of our integrated visit. Patients were notified of the time and location of their appointment. We will compile and analyze data for no show rates (primary outcome) and A1c response (secondary outcome) 2-3 months after their diabetes clinic visit.
<b>Learning Objectives: Participants will be able to...</b> <ul style="list-style-type: none"><li>• Understand the basic structure and function of our Integrated Diabetes Clinic visits.</li><li>• Illustrate the effect our reminder call protocol had on appointment adherence rates.</li><li>• Explain if our methods were able to successfully improve diabetic outcomes via A1c monitoring.</li></ul>
<b>Category:</b> Outpatient quality improvement (QI)

### 2. OQI2

<b>Project Title:</b> Preventing cancer: increasing HPV vaccination rates among adolescents at a residency clinic
<b>Authors:</b> Emily Garban, MD; Anna Jameson, BSN, RN
<b>Program:</b> Fort Collins Family Medicine Residency
<b>Abstract:</b> The Human Papillomavirus (HPV) affects 80% of people in their lifetime and can lead to cervical, vulvar, vaginal, anal, penile, and head and neck cancer. The HPV vaccine can help prevent 90% of these cancers and yet HPV vaccination rates fall behind those of other adolescent vaccines. This project aims to increase the HPV vaccination rate among adolescents 12-18 years old. To meet this goal, staff at the Family Medicine Center were provided with an HPV vaccination presentation and completed pre- and post-surveys assessing their knowledge and comfort regarding HPV vaccination. In addition, letters were sent to adolescent patients 12-18 years old reminding them to complete adolescent health maintenance measures including the HPV vaccine. Once completed, the percent of adolescents overdue for their HPV vaccine before and 2 months after sending the letters will be compared with the goal of increasing the vaccination rate by at least 5%.
<b>Learning Objectives: Participants will be able to...</b> <ul style="list-style-type: none"><li>• Describe common barriers to HPV vaccination.</li><li>• Demonstrate methods to improve HPV vaccination rates in an outpatient clinic.</li></ul>
<b>Category:</b> Outpatient quality improvement (QI)

### 3. OQI3

<b>Project Title:</b> Improving Efficiency in Outpatient Hypertension Control
<b>Authors:</b> Jesse Troutman, DO; James Bowie, MD
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Abstract:</b> Hypertension is one of the most common chronic medical conditions. Chronic hypertension is associated with many serious health complications. We sought to improve blood pressure control in our patient population via logistical change during our standard outpatient visit appointments. The simple logistical change was to perform a repeat blood pressure reading for every patient with an initial elevated blood pressure reading, to give a blood pressure log for home blood pressure recording to every patient with persistent elevated blood pressure, and to schedule a follow-up appointment to re-evaluate the blood pressure 2 to 4 weeks after the initial evaluation. At the time of this writing, data is still being collected.
<b>Learning Objectives: Participants will be able to...</b> <ul style="list-style-type: none"><li>• Determine if increased frequency of in-office ambulatory blood pressure readings leads to improved blood pressure control.</li><li>• Determine if the collection of at-home blood pressure readings leads to improved blood pressure control.</li></ul>
<b>Category:</b> Outpatient quality improvement (QI)

### 4. OQI4

<b>Project Title:</b> Improving OB continuity through basic office interventions
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<b>Authors:</b> Kelsey Heinrich MD
<b>Program:</b> Fort Collins Family Medicine Residency
<b>Abstract:</b> The duration of pregnancy is a unique period of frequent office visits, which can be a very stressful time for patients when they see multiple providers. Residency clinics pose a special challenge of providing continuity when residents are frequently on inpatient rotations, nights, and away rotations, leading to patients seeing even more providers. Most patients, as demonstrated in a pre-intervention survey, wish to have more interaction with their OB provider leading up to delivery. This project implemented multiple methods to try to improve continuity between OB patients, their provider and the provider's color care team, including educating staff, in-room cues, and educating residents on their OB panel. After the interventions, we surveyed OB patients and found that patients felt they had more interaction with their provider leading up to delivery. This shows the power of basic interventions in setting, scheduling and communication can lead to improved patient satisfaction.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Describe the challenges of providing continuity OB care in a residency clinic.</li> <li>• Consider the pluses and minuses of basic interventions to increase OB patient continuity.</li> </ul>
<b>Category:</b> Outpatient quality improvement (QI)

## Preventative Care

### 1. PC1

<b>Project Title:</b> Knowledge Assessment of Naloxone Availability in Pueblo, Colorado
<b>Authors:</b> Gregory Bohuslav, D.O., Elsie Haynes, D.O., Chandra Jennings, D.O., MPH, Aaron Moore D.O., & Brad Dempsey, M.D. (Faculty)
<b>Program:</b> Southern Colorado Family Medicine, Pueblo
<b>Abstract:</b> The opioid epidemic has emerged as a leading public health crisis in the 21st century. Since the 1980s, the WHO has classified Naloxone as an "Essential Medication" for stemming public harm by prevention of overdose deaths. Throughout the United States, healthcare resources are being mobilized to address this health crisis. Efforts in Colorado to address this issue include the implementation of Senate Bill 15-053, which allows for creation of standing orders for Naloxone dispensation. This project's methods utilized a phone survey to assess awareness of Colorado's Naloxone standing orders in pharmacies in Pueblo, Colorado in 2017. Survey results identified increased awareness of state policy and Naloxone availability in large pharmacy chains in Pueblo. Independent pharmacies were unlikely to have Naloxone or dispense it without a written order. In conclusion, the project demonstrated limitations in awareness of state policy, which impacts Naloxone accessibility, a crucial barrier to prevention of overdose deaths.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• To describe physical and social barriers to Naloxone access</li> <li>• To explain Colorado's "Standing Order" Naloxone policy</li> <li>• To increase awareness of Naloxone availability in local pharmacies</li> </ul>
<b>Category:</b> Preventative care

### 2. PC2

<b>Project Title:</b> Preliminary Study to Determine if a Handout on Hypertension Improved Patient Knowledge and Blood Pressure Control
<b>Authors:</b> Kelly Baxter, MD; Theodore Bross III, MD; Kate Weniger, DO
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Description:</b> This study was designed to determine if brief patient education on modifiable lifestyle factors in a clinic setting helped improve patient knowledge, blood pressure control, and patient perceived benefit. The results of this study support our effort to increase access to integrative education tools within our clinic.
<b>Abstract:</b> OBJECTIVE: To determine if integrative education on hypertension using brief (<5 min) education and a supplemental handout is associated with improved blood pressure control, quiz scores, and patient perceived benefit. STUDY DESIGN: Clinic patients 18 years or older with a diagnosis of hypertension and blood pressure >130/80 were asked to take a pre-test and were provided standardized education. A post-test and repeat blood pressure were obtained at a subsequent visit. Educational topics included diagnosis, monitoring, risk factors, complications, diet, exercise, tobacco cessation, sleep, and mindfulness. RESULTS: Mean changes in test scores and blood pressure were pooled and analyzed and showed improvement of both data points. Patients endorsed perceived improvement of blood pressure control from this education. CONCLUSIONS: Clinic-based brief integrative education with a supplemental patient handout resulted in improved test scores and was associated with subjective and objectively improved blood pressure control.

<p><b>Learning Objectives: Participants will be able to...</b></p> <ul style="list-style-type: none"> <li>• identify if handouts and focused teaching helped patients understand hypertension and integrative management.</li> <li>• identify if blood pressure control improved after education.</li> <li>• identify if patient's thought this education helped them improve their blood pressure control.</li> </ul> <p><b>Category:</b> Preventative care</p>
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3. PC3

<p><b>Project Title:</b> DM2 group visits</p>
<p><b>Authors:</b> Wade Davis, MD</p>
<p><b>Program:</b> Swedish Family Medicine Residency</p>
<p><b>Abstract:</b> Diabetic group medical visits have been introduced in primary care as a way to meet the increasing demand for health care delivery to the growing number of Diabetic patients. I performed a systematic review of effectiveness of such visits at SFMR for patients with Diabetes and showed improved Blood glucose control, healthcare maintenance, and screening rates.</p>
<p><b>Learning Objectives: Participants will be able to...</b>  Patients who go to DM group visits have improved BG control, screening rates, healthcare maintenance  The ease of incorporating DM visits into primary care practice</p>
<p><b>Category:</b> Preventative care</p>

4. PC4

<p><b>Project Title:</b> Is intermittent energy restriction effective for weight loss in obese patients?</p>
<p><b>Authors:</b> Christine Pigott, MD</p>
<p><b>Program:</b> St. Anthony North Family Medicine Residency</p>
<p><b>Abstract:</b> A literature review was conducted to evaluate if intermittent energy restriction (IER) was an effective strategy for weight loss in obese adults. The review included a systematic review and meta-analysis of 6 trials, and a randomized controlled trial. The data suggested that IER is moderately effective for weight loss in obese patients, however, it is no more effective than continuous energy restriction (CER). While IER is effective for reduction in fat mass and waist circumference, hunger ratings are higher in IER compared to CER and may limit continuation.</p>
<p><b>Learning Objectives: Participants will be able to...</b></p> <ul style="list-style-type: none"> <li>• Define IER and CER.</li> <li>• Evaluate the effectiveness of IER for weight loss.</li> <li>• Compare the effectiveness of IER and CER for weight loss.</li> <li>• Evaluate the effect of IER on cardiometabolic risk factors.</li> </ul>
<p><b>Category:</b> Preventative care</p>

5. PC5

<p><b>Project Title:</b> Obstacles to Regular Physical Activity: A Comparison of Physician Assumptions and Patient Reports</p>
<p><b>Authors:</b> Brandon Sterry, MD</p>
<p><b>Program:</b> St. Anthony North Family Medicine Residency</p>
<p><b>Abstract:</b> This research project sought to identify what patients in our particular suburban family medicine residency clinic population perceived to be their main obstacles to physical activity, and then to find trends in the data that might further define the issues in greatest need of attention. It also sought to compare patients' actual responses to the "main obstacle to exercise" question with what physicians in our clinic network expected patients to answer.</p>
<p><b>Learning Objectives: Participants will be able to...</b></p> <ul style="list-style-type: none"> <li>• Better understand patients' perceived barriers to physical activity</li> <li>• Improve motivational interviewing skills for encouraging physical activity</li> </ul>
<p><b>Category:</b> Preventative care</p>

*Resident Education/Curriculum*

1. REC1

<p><b>Project Title:</b> Ultrasound Curriculum for Family Medicine Residency</p>
<p><b>Authors:</b> Molly Hoss, MD</p>

<b>Program:</b> University of Colorado Family Medicine Residency
<b>Abstract:</b> Ultrasound is becoming an important tool in family medicine. The UCFMR found a need for a formal ultrasound curriculum. A survey of residents showed 100% wanted more training. Objectives for the curriculum were developed with AAFP guidelines for POCUS. The curriculum consisted of a flipped classroom model with a five-minute video one week before didactics. The didactics was split into 20 minutes of lecture and 40 minutes of hands-on training. Compared to before the curriculum, residents had improved confidence with ultrasound basics and improved confidence in knowing indications for ultrasound. All respondents felt they would use ultrasound more in the future, and all respondents indicated the curriculum was beneficial to their residency training. New training has helped family medicine residents develop confidence and mastery of ultrasound. Next steps would include training faculty in ultrasound, evaluating for competence, create an ultrasound elective, and incorporate ultrasound in resident rotations.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Establish importance of ultrasound in family medicine</li> <li>• Describe ways to implement an ultrasound curriculum</li> <li>• Identify benefit of ultrasound curriculum in FM residency</li> </ul>
<b>Category:</b> Resident education/curriculum

## 2. REC2

<b>Project Title:</b> Development of a Treatment Program for Opioid Use Disorder in a Primary Care Residency
<b>Authors:</b> Emily Berger, MD, PGY3; Carmel Vandal, MD, faculty
<b>Program:</b> Swedish Family Medicine Residency
<b>Abstract:</b> Colorado is in the midst of an epidemic of opioid addiction, as is the greater United States. Overdose deaths from prescription and non-prescription opioids have surged in the U.S. over the last 10 years. There is an enormous need in our communities for safe and effective treatment for opioid use disorder (OUD), and primary care physicians are ideally placed to offer this treatment. Extensive research has shown the efficacy and benefit of prescribing medications to assist in the treatment of OUD. Buprenorphine specifically is a form of medication-assisted treatment (MAT) that is well-suited to be incorporated into a primary care setting. Our project seeks to establish a MAT program at the Swedish Family Medicine Residency clinic. We have developed protocols and procedures to safely and effectively incorporate this treatment modality into our office, taking into account the unique considerations of doing so in a residency clinic. Further, we have administered surveys to office staff before and after educational sessions regarding OUD and MAT, to gauge the effectiveness of such teaching.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• Diagnose opioid use disorder in a primary care setting</li> <li>• Identify and explain options for medication-assisted treatment for OUD</li> <li>• Advocate for the implementation of a MAT program into a primary care residency clinic, including the identification of necessary protocols and procedures</li> </ul>
<b>Category:</b> Resident education/curriculum

## 3. REC3

<b>Project Title:</b> Things I Wish I Knew: Lessons Learned Attempting an IRB-Approved Research Project in a Community Hospital Setting
<b>Authors:</b> Hailey Holland PGY3, Emily Parker PGY3, Emily Zerba PGY3, Sarah Liegl MD
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Abstract:</b> An IRB-approved residency research project is a challenging endeavor, especially in a community-based program. Most family medicine residents don't have an intimate understanding of the IRB process. Support systems at community programs may be unfamiliar with the approval process as well. The initial intent of our group's research project was to study intrapartum OMT and perineal laceration outcomes. It took about 12 months from initial inquiry to receiving IRB approval. By the time our project was approved, our three researchers' obstetrical rotations had passed and so had our opportunity to accrue a meaningful amount of data to fuel our project. There were many factors that lead to our project's failure to launch. In an effort to encourage and enable residents to perform robust research projects, we would like to share our experience and give advice regarding IRB-approval with the participants of the Research Forum.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>• By the end of this session, participants will be able to recognize the general steps in obtaining IRB approval for a research project.</li> <li>• By the end of this session, participants will demonstrate understanding of the overall time commitment for IRB approval needed before beginning a research project.</li> </ul>

**Category:** Resident education/curriculum

4. REC4

**Project Title:** Increasing hospital continuity and decreasing hand-offs through rotation template changes

**Authors:** Emily Bender, MD; Benjamin Smith, MD

**Program:** Fort Collins Family Medicine Residency

**Abstract:** Continuity of care is desirable to practicing family physicians and often cited as a pillar of patient-centered care. In order to increase continuity and decrease handoffs, the Fort Collins Family Medicine Residency redesigned their historically separate pediatrics and obstetrics services into Inpatient Maternal-Child Health (IMCH) and Outpatient Maternal-Child Health (OMCH) services for the 2019-2020 academic year. The changes were planned to be clinic-neutral, while decreasing intra-day handoffs and increasing patient continuity in the hospital and clinic during the week. Inpatient patient continuity has increased by designing a system where the IMCH team remains in the hospital the entire day, four days each week. On Friday mornings they round on patients then transition care to the OMCH team who has worked in our outpatient prenatal and family medicine clinic during the week. Handoffs have decreased from 6-8 per day to 1-2 per day. Resident patient visits results are pending.

**Learning Objectives: Participants will be able to...**

- Describe the challenges and benefits of combining pediatrics and obstetrics services into one Inpatient maternal child health service.
- Appreciate the complexity of making rotation template changes to core family medicine rotations.

**Category:** Resident education/curriculum

5. REC5

**Project Title:** Improving Resident Education Through a Structured Obstetrics Teaching Curriculum

**Authors:** Kale Flory, MS, DO; J. Bradley Stern, MD

**Program:** Fort Collins Family Medicine Residency

**Abstract:** Residency is an opportunity to build knowledge and confidence in patient care. Rotation restructuring within our family medicine program provided an opportunity to standardize the teaching within our high-risk obstetrics clinic, which is staffed by residents and community OB/GYN attendings. Using the first-year residents' schedule as a guide, daily topics were selected to correspond with the 1-week orientation and two 3-week block rotations. Topics would address common outpatient prenatal care needs. At the end of the first block rotation, a survey evaluated the perceived benefits, assessed topic discussion consistency, and elicited recommendations for additional topics or changes for the second block. The information collected was used to adjust the teaching topics and restructure the curriculum as appropriate. A second survey will be sent at the end of the 2019-2020 academic year to evaluate this prenatal clinic teaching calendar as a whole.

**Learning Objectives: Participants will be able to...**

- Standardize obstetric topic discussion in the outpatient clinic to assure equal learning opportunities for all residents.
- Evaluate improvement in perceived resident knowledge of the management of pregnant patients with the implementation of a scheduled, structured teaching curriculum facilitated by OB/GYN attendings in a high-risk outpatient clinic.

**Category:** Resident education/curriculum

6. REC6

**Project Title:** Innovating the Resident Recruitment Process to Increase Workforce Diversity

**Authors:** Amelia Challender, MA; Cleveland Piggott, MD, Michael Benavidez, MD, Shontelle Jaramillo, BA, Chloe Finke, BA, Linda Montgomery, MD, MA

**Program:** University of Colorado Family Medicine Residency

**Abstract:** Background: Studies show that a more diverse workforce enhances team function and the quality of patient care. The 2019 ACGME Common Program Requirements required that residency programs describe how they are working to recruit and retain a diverse workforce. Objectives: Our residency innovated our recruitment processes with the goal of matching a more diverse residency class and evaluated our approach. Innovations: Changes were aligned with the AAMC's Holistic Review model and included: Changes to application review, workshop for recruitment team, interview evaluation rubric, interviewer training, improved marketing materials, and a second look event. Evaluation Methods: Interviewee survey, second look survey, and an analysis of ERAs data. Outcomes: Our analysis of ERAs data suggests our innovations may have been successful in increasing the diversity of those who applied (15.2% URM in 2017 to 19.2% URM in 2020),

interviewed (11.4% URM in 2017 to 16.2% URM in 2020), and matched (30% URM or POC in 2017 to 45.5% URM or POC in 2019, but only 1 URM resident in both classes) at our program. Responses to our formative evaluation surveys suggested applicants viewed our innovations favorably.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>Identify simple innovations their residency could implement to recruit more diverse residents.</li> <li>Consider methods for defining and measuring diversity within a residency.</li> </ul>
<b>Category:</b> Resident education/curriculum
<b>***This Poster Presentation is also being featured as an Oral Presentation</b>

Other

1. Sports Medicine: SM1

<b>Project Title:</b> Does Physical Therapy Improve Long Term Outcomes in Chronic Back Pain?
<b>Authors:</b> Bryce Galbraith, DO, PGY3
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Abstract:</b> Patients often get referred to physical therapy for chronic (greater than six weeks) low back pain. The purpose of my research was to determine if it is worth doing physical therapy for patients with chronic low back pain or if conservative treatment is as effective. Multiple studies were reviewed and showed that after one year of the onset of treatment that the difference between groups that received physical therapy and those that had conservative treatment were ultimately the same, however the studies also show that after four weeks of physical therapy that the physical therapy groups do much better. Ultimately most people that develop low back pain do eventually get better regardless of how they are treated, this could be a reason why there really is not a significant difference over longer periods of time between these groups.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>Determine if physical therapy is worth doing for patients in the long run.</li> <li>Does physical therapy help with short term results in patients with chronic low back pain</li> <li>is there any other benefits to physical therapy in chronic low back pain patients?</li> </ul>
<b>Category:</b> sports medicine

2. FPIN: FPIN1

<b>Project Title:</b> Does Treating Subclinical Hypothyroidism Improve Patient's Quality of Life?
<b>Authors:</b> Julian Cammarano D.O.; Matthew Ludemann M.D.
<b>Program:</b> St. Anthony North Family Medicine
<b>Abstract:</b> Hypothyroidism has a high prevalence and is a medical disorder that is commonly seen in the setting of primary care. While positive effects have been well demonstrated in the treatment of hypothyroidism, this FPIN was meant to investigate what role thyroid replacement therapy has on quality of life parameters specifically in the setting of subclinical hypothyroidism.
<b>Learning Objectives: Participants will be able to...</b>
<ul style="list-style-type: none"> <li>What role does Levothyroxine administration play in quality of life improvement in those with subclinical hypothyroidism?</li> <li>Is there improvement in any symptomology w/ administration of Levothyroxine in those with subclinic hypothyroidism?</li> <li>Understanding the limitations of the cited studies.</li> </ul>
<b>Category:</b> FPIN

3. Follow Up Analysis Quality Improvement: FAQI1

<b>Project Title:</b> Comparing Hgb A1c reduction between patient participating in integrated diabetes clinic versus PCP DM follow up visits.
<b>Authors:</b> Jeremy Vollmer, DO; Peter Heng, MD
<b>Program:</b> St. Anthony North Family Medicine Residency
<b>Abstract:</b> Our goal was to evaluate the effectiveness of a dedicated integrated diabetes clinic in reducing Hgb A1c compared to diabetes follow-up visits with a patient's PCP. The diabetes clinic group showed that 27 patients had an average A1c of 10.76, 19 of these patients had 3 month A1c averaging 9.07, 14 patients had 6 month A1c averaging 8.89, and 7 patients had 8 to 11 month A1c averaging 10.59. The non diabetes clinic group showed that 44 patients had a baseline A1c averaging 10.13, 23 of these patients had 3-month A1c averaging 9.29, 28 patients with 6-month A1c averaging 9.40, and 18 patients with 8 to 11 month A1c

averaging 9.33. Diabetes clinic patients saw larger changes in A1c at 3 and 6 months than non diabetes clinic patients, but this change was not sustained at 8-11 months. There were no statistically significant differences between these two groups.

**Learning Objectives: Participants will be able to...**

- To identify barriers that prevent patients from controlling their diabetes.
- To understand the importance of integrated care when treating diabetes
- To identify strategies that may improve A1c in uncontrolled diabetics.

**Category:** Follow up analysis QI project

4. Medical Student developing scholarly work, mobile health: MH1

**Project Title:** Mobile health interventions in underserved populations: a medical scoping review.

**Authors:** Andrew Glerum, MS3; Ryan Henschell, MS3; Joshua Calvano, MS3; Kameron Black, MS3; Edwin Fundingsland, MS3; Joseph Fike, MS3; Brandon Bealer, MS3; Regan Stiegmann, DO; Cole Zanetti, DO; Rocky Vista University College of Medicine  
Shuhan He, MD; Massachusetts General Hospital

**School:** Rocky Vista University

**Abstract:** There is growing interest and pressure to incorporate emerging digital technologies into healthcare, with the practice of medicine rising to meet the needs of new and traditionally underserved patient populations. The purpose of this scoping review is to identify the efficacy of mHealth for improving patient outcomes, particularly in underserved populations. This review also seeks to identify gaps in current literature to guide future inquiry and study design. Our team of researchers performed a scoping review of 25 articles. We found that adoption of mobile technologies was associated with improvements in many healthcare metrics including patient education, disease prevention, medication compliance, outcomes of chronic diseases, and screening rates with marked utility in resource-poor populations of high-income countries. Though mHealth remains in the early stages of development and there is need for further research and standardization of information, it has already proven to be a uniquely effective, low-cost strategy for implementing and managing care between patient and provider.

**Learning Objectives: Participants will be able to...**

- Identify the important role that mobile health can play in educating, treating, and assisting undeserved populations.
- Identify areas in mobile health research needing increased testing and utilization to determine benefit.
- Identify the limitations involved with mobile health that could prevent under-served populations from benefiting from this type of service.

**Category:** Mobile Health

**\*\*\*This Poster is a Medical Student Poster, for Developing Scholarly Work**

**\*\*\*This Poster did not undergo review by the proposal review committee**