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Book of Abstracts

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Dear colleagues,

I would like to extend a warm welcome to all of you who are joining us for the first time as well as to those who have been long-time supporters of Research Forum. It is my pleasure to share with you the abstract book for OU-Tulsa's 2022 Research Forum. The OU-Tulsa Research Forum is an annual event to showcase student, staff, and resident research.

We are happy to offer the Research Forum in person this year. In addition to presenting posters live at the Research Forum, the trainees have an opportunity to upload their posters to the Open Science Framework (OSF). Posters uploaded to OSF will be more widely disseminated to a global community. We hope this will enhance what people can learn about each research project. Awards will be given for the strongest posters in each submission category.

In accordance with OU-Tulsa's commitment to inclusivity, we are continuing a Diversity, Equity, and Inclusion poster award this year. This award will recognize a poster that centers on social justice research and describes that research using inclusive language. In addition, a Convergence Research award will be presented again this year, speaking to OU-Tulsa's support of cross-disciplinary, collaborative work. Trainees have indicated if their work should be considered for one or both of these awards.

We hope members of the research community and the greater Tulsa community will enjoy the array of research projects presented this year. This book contains the abstracts of accepted posters for the OU-Tulsa 2022 Research Forum.

I would like to acknowledge the School of Community Medicine's Office for Research Development and Scholarly Activity and the OU-Tulsa Schusterman Library for their dedicated commitment in planning and organizing the OU-Tulsa 2022 Research Forum.

On behalf of the OU-Tulsa 2022 Research Forum Program Committee, we look forward to learning about the innovative research projects across our campus. Thank you in advance for your support of research in the Tulsa community.

Sincerely,

Kent Teague, PhD
Assistant Vice President for Research, OU-Tulsa

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*Please note that the abstracts in this book are from the authors' original submissions. Any revisions an author has made to an abstract upon acceptance are available to read when opening their poster on the Open Science Framework.

Biomedical

Abstract #10 CF-FIT: Cystic Fibrosis Fitness during Inpatient Treatment

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Dr. Richard Wong - University of California San Diego
Mrs. Amy Hendrix-Dicken - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Krista Kezbers - University of Oklahoma Health Sciences Center, Stephenson Cancer Center, Health Promotion Research Center
Dr. Laura Stuemky - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics,
Dr. Sarah Beth Bell - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Dr. Michelle Condren - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Introduction
Cystic Fibrosis (CF) is a progressive, genetic disease affecting over 30,000 individuals across the nation and results in decreased lung function. Physical activity has been shown to have a positive impact on CF symptoms and works to slow the decline in lung function. This study assessed whether using fitness trackers and providing a daily step goal would increase physical activity in hospitalized pediatric patients with CF.

Methods
This pre-post pilot study included participants 6-21 years of age who were admitted to the hospital for a pulmonary exacerbation of CF between October 2020-May 2021. Garmin Vivosmart® 4 wrist-based activity trackers were issued, and baseline data were tracked and analyzed for the first two study days. Pre-goal steps were defined as the average of steps taken on those two days. On study day three, a step goal and menu of activities designed to increase physical activity were shared with the participant. Steps after goal setting were defined as the average of steps taken on study day three and beyond while hospitalized, excluding day of discharge. Data were collected from the EMR and the activity tracker web-based profile and included the following: daily oxygen requirement, daily step count, sleep duration, overnight pulse oximetry levels, resting heart rate, calories expended, and intensity minutes. The primary outcome of change in daily steps and attainment of step goals was analyzed using descriptive statistical testing, means and standard deviations.

Results
Six patients, ages 6-18 years, completed the study. Mean baseline FEV_1 for study participants was 66% predicted (range 38 to 92%). Hospital length of stay ranged from 4-14 days. Participants took an average of 1772 ± 1011 steps before goal setting. This increased to an average of 3741 ± 1780 steps after goal setting. Overall, step goals were met 52% (Range 0-100%) of the time.

Discussion
This intervention shows promise, as daily steps doubled from baseline during the intervention period. There was great variability among the participants, suggesting the device may help some people more than others. Enrollment was initially planned for 20 patients; however, the SARS-CoV-2 pandemic and changes to CF therapy reduced hospitalizations during the study period. Though our results show a positive impact, further research is needed to determine the effect such an intervention would have on a larger scale. Future directions of research include having a larger sample size, conducting a multi-center study, and implementing prolonged follow-up to better assess long term benefits of intervention.

ABSTRACT #15 The Impact of Obesity on Hospital Inpatient Admissions in Oklahoma

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Dr. Kevin Smith - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Jesse Richards - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Robert Lim – University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
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Introduction
There are over 1.1 million Oklahomans who are obese. Obesity related health care needs costs Medicaid and other governmental health care systems approximately 1.6 billion dollars annually. Previous studies have found associations between obesity and increased hospital length of stay and charges. This study reviews the Oklahoma Inpatient Discharge Public Use Data File (PUDF), to analyze the impact of obesity on hospital charges, length of stay, and incidence of medical conditions and incidence of surgical procedures.

Methods
The Oklahoma Inpatient PUDF (2016-2019), which contains data from 98.6% of Oklahoma's hospitals was queried to evaluate admission of patients with obesity compared to non-obese. The most common medical and surgical conditions in obese patients were analyzed utilizing ICD-10 codes. IBM SPSS Statistics version 27 was used to compare common procedures and diagnoses frequency between obese and non-obese patients. The Number Needed to Treat (NNT) obesity was estimated to determine how many patients would need their obesity treated to prevent the medical and surgical conditions associated with obesity.

Results
There were 1,516,113 adult admissions (Age ≥20) in the state of Oklahoma from 2016 to 2019. Of those 216,252 (14.3%) had obesity in their diagnoses. Across all admissions, average hospitalization charges were $50,000 for non-obese and $55,300 for obese individuals (p<0.001). Obese patients were associated with more lower extremity osteoarthritis (8.3% vs 4.5%, NNT 30, p<0.001), acute myocardial infarction (4.3% obese vs 4.1%, NNT 500, p<0.001), COPD (20.4% vs 17.7%, NNT 36, p<0.001), AKI (17.3% vs 16%, NNT 76.9, p<0.001), heart failure (24.3% vs 17.7%, NNT 15.1, p<0.001). In procedure codes, admission with obesity was associated with more lower extremity joint replacement (7.6% vs 4.1%, NNT 28.6, p<0.001), coronary artery bypass graft (1.3% vs 0.7, NNT 166.7, p<0.001), percutaneous coronary intervention (2.5% vs 1.9%, NNT 166.7, p<0.001), cholecystectomy (1.5% vs 0.8%, NNT 142.9, p<0.001), and central line placement (indicator of intensive care status) [5.7% vs 4.9%, NNT=125, P<0.001].

Discussion
Obesity causes a significant strain on our healthcare system in Oklahoma. This study contributes to the knowledge of the obesity burden in Oklahoma by highlighting obesity correlations with common hospital admission diagnoses and surgical interventions. Given the low NNT, this study highlights the need to aggressively treat obesity and justifies proactively preventing those at risk from becoming obese. Early intervention and treatment of obesity may lead to decreased hospitalizations, lower hospital charges and costs, decreased surgical interventions, and improved health for Oklahomans.

ABSTRACT #18 Metheclampsia: Amphetamine Use and the Development of Pre-Eclampsia

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Dr. Mark Harman - University of Oklahoma, OU-TU School of Community Medicine, Department of Obstetrics and Gynecology

Introduction
Substance abuse remains a difficult avenue to research in pregnancy however use is increasing. From 1988 to 2004, hospitalization for amphetamine abuse among pregnant women doubled. Based on observations by OU providers at Hillcrest Medical Center in Tulsa, Oklahoma, clinically there appears to be a possible association between recent amphetamine use and a diagnosis of pre-eclampsia intrapartum. Based on observations, it was hypothesized that amphetamine users would be diagnosed with pre-eclampsia at a higher rate

Methods
This study was retrospective chart review of patients that were admitted to OU Obstetrics labor and delivery service at Hillcrest Medical Center from the time Epic was implemented, March 3rd 2018, through April 21st 2021. There were two arms of the study: Patients with a positive urine drug screen for amphetamines. Patients with a urine drug screen that was collected on admission but negative for amphetamines. The diagnosis of pre-eclampsia based upon *ACOG Practice Bulletin #202: Gestational Hypertension and Pre-Eclampsia.* Inclusion criteria was a urine drug screen collected on admission to labor and delivery. Exclusion criteria was no urine drug screen collected. Data was analyzed with the following statistical methods: Chi-square test, Fisher's exact test, Mann-Whitney U test. Logistic regression analysis was then performed to control for patient characteristics.

Results
A total of 2,834 deliveries performed within the timeline were reviewed. 617 charts were eligible for inclusion with 490 of these having a urine drug screen negative for amphetamines and 127 positive for amphetamines. Of the 134 diagnosed with pre-eclampsia, 74 were amphetamine users (p=0.02). When logistic regression analysis was performed, the apparent risk of pre-eclampsia with amphetamine exposure was strengthened with an adjusted OR of 3.57 (2.08, 6.13) and 3.80 (2.24, 6.47) using two models. Secondary statically significant associations with a positive drug screen for amphetamine included earlier gestational age at delivery, lower maternal BMI, older maternal age and increased gravity.

Discussion
We have shown that there is an association between amphetamine use and an increased rate of diagnosis of hypertensive disorders intrapartum. This provides physicians the opportunity to expand their education to known amphetamine users in antenatal care and consider risk reduction strategies such as aspirin. It heightens clinic suspicion intrapartum and may allow for quicker treatment. The retrospective nature of this investigation limits its strength however it would not be ethical to obtain consent in a state of acute amphetamine use as these patients would be unlikely to properly consent.

ABSTRACT #25 Predicting Fluctuations in Reported COVID-19 Cases using Wastewater Surveillance of SARS-CoV-2

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Mr. Kiran Duggirala - Tulsa Health Department
Dr. Katrin Kuhn - University of Oklahoma, College of Public Health
Dr. Mary Williams - University of Oklahoma, College of Public Health
Mr. Eric Lee - Tulsa Health Department
Mr. Adam Austin - Tulsa Health Department
Ms. Monica Rogers - Tulsa Health Department
Dr. Bradley Stevenson - University of Oklahoma, Department of Microbiology and Plant Biology
Dr. Jason Vogel - University of Oklahoma, School of Civil Engineering and Environmental Science

Introduction
Individuals infected with Severe Acute Respiratory Coronavirus 2 (SARS-COV-2) can shed viral particles in their feces, often before symptoms manifest. Therefore, monitoring community sewage for fluctuations in SARS-COV-2 is a novel method being explored for outbreak surveillance to predict fluctuations in COVID-19 cases in the community. This method may be a valuable tool to supplement individual testing, which has implications for public health. We aim to demonstrate the correlation between weekly COVID-19 cases and SARS-CoV-2 sewage concentration (SC) and to determine if SC can predict future caseloads within Tulsa County for local public health surveillance.

Methods
Wastewater samples were collected weekly from three wastewater treatment facilities within the City of Tulsa using time-weighted composite sampling from March to September 2021. Daily COVID-19 case data was provided by the Tulsa Health Department and Oklahoma State Health Department for the three regions served by the sewers studied and were converted into weekly case averages. SCs were obtained weekly and converted to log10 concentrations for analysis. Furthermore, Spearman's correlation coefficients and Poisson regression models were utilized to determine strength of correlation between weekly case counts and SCs and for predictions on future case counts, respectively. Four time periods were evaluated: 4, 7, 10, and 14 days after the sewage was measured. All statistical analysis were performed in SAS 9.4.

Results
During this time period, the weekly averaged cases ranged from 1.86-127.57, and the log10 SARS-CoV-2 concentration ranged from 2.99-6.94. The strongest correlation found was between log10 SARS-CoV-2 concentration and the case counts four and seven days after the SC was measured (Spearman's Rho=0.70-0.75, $p<0.0001$; Rho=0.71-0.76, $p<0.0001$, respectively). The results of the regression analysis found for each unit increase in log10 viral concentration, on average, 8 additional COVID-19 cases were reported 7 days later in that catchment area.

Discussion
Our results found that sewage surveillance for SARS-CoV-2 genome particles has a strong positive correlation to case numbers 4-7 days later. Theses results are similar to findings in the literature, where increases in SARS-CoV-2 in wastewater preceded increases in reported cases by 2-8 days. Additionally, the Poisson regression analysis provided further evidence for using viral SC to predict trends in daily reported cases in the near future. Coupling sewage surveillance with generalized linear modeling can provide a straightforward approach to predicting case counts, enabling stakeholders to monitor for outbreaks of infectious agents detected in sewage, such as COVID-19, without complete reliance on individual testing.

Abstract #30 Developing Functional Biomarkers in Healthy and Diseased Spinal Cords

Ms. Grace Haynes - University of Oklahoma
Dr. Zachary Smith - University of Oklahoma Health Sciences Center
Dr. Lei Ding - University of Oklahoma
Dr. Fauziyya Muhammad - University of Oklahoma Health Sciences Center
Dr. Kenneth Weber - Stanford University

Introduction
Cervical Spondylotic Myelopathy (CSM) is a degenerative spinal cord disease in which age causes compression of the cervical spinal cord and subsequently inhibits motor movement and creates sensory pain in patients. CSM can be diagnosed via pain surveys and magnetic resonance imaging (MRI) and can be alleviated with decompression surgery. However, there is currently no evidence to suggest a standard to determine whether a patient needs surgery. In this pilot study, we used MRI to map the functional connectivity and image the anatomical structures of healthy cervical spinal cords. In addition, we imaged CSM patients to develop functional biomarkers in the spine and determine the extent of motor and sensory inhibition due to compression in comparison to that of healthy controls (HCs).

Methods
Using a 3T MRI scanner, we imaged the structural and functional spinal cord aspects of 9 HCs and 8 CSM patients. CSM patients were recruited from OUHSC neurosurgery clinics, and age-matched HCs were recruited from the Laureate Institute of Brain Research (LIBR) in Tulsa. Participants were electrically stimulated inside the scanner at the median nerve during two functional MRI (fMRI) sessions, which included stimulation 15% below motor-threshold and at motor-threshold. Motor-threshold was determined before the participants were imaged. A Kruskal-Wallis ANOVA was applied to find significant sub-motor and motor voxel-level activation between the HC and CSM populations. Participants were also evaluated with the NIH Toolbox Sensation and Motor measurements and standardized pain surveys.

Results
After preprocessing, the number of activated voxels in individuals was averaged for each condition and compared. Sub-motor activations between HCs and CSM patients were found to have no significant differences, but the number of motor-activated voxels did ($p<0.05$). Similarly, an increase in electrical stimulation strength in HCs significantly increased the number of activated voxels ($p<0.01$) but did not with patients. For the NIH Toolbox Motor measurements, it was found that HCs performed significantly ($p<0.01$) better than patients in all measurements.

Discussion
The preliminary results of this study indicate that motor-threshold activations in the spinal cord are impacted by CSM and remain approximately the same when compared to sub-motor activations, whereas activation responses to motor-threshold stimulation increased in HCs. To verify these preliminary results, additional participants will be recruited, and two more fMRI runs will be added with resting state (no simulation) and supra-motor threshold conditions to achieve a complete picture on stimulation-related fMRI responses in HCs and their changes in CSM patients.

Abstract #38 Feasibility of a Focal Vibration Device on Upper Extremity Rehabilitation in Stroke

Ms. Grace Duginski - University of Oklahoma
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Dr. Shirley James - University of Oklahoma Health Sciences Center
Dr. Hazem Refai - University of Oklahoma, College of Engineering
Dr. Yuan Yang - University of Oklahoma, Department of Biomedical Engineering

Introduction
Stroke is the fifth leading cause of death in the U.S. overall and in the state of Oklahoma, and a leading cause of long-term disability. Focal vibration is one promising treatment option, because it is thought to activate the Ia afferent muscle spindle fibers on the patient's affected side. However, focal vibration has not been extensively studied to find the ideal treatment parameters (such as amplitude and frequency) or appropriate dosage for maximum results due to the lack of availability of the technology. We have developed a new focal vibration device that can be used to deliver individualized vibration parameters and dosage in a wearable format. Therefore, the objective of this project is to investigate the feasibility and preliminary efficacy of this novel wearable focal vibration device in patients with stroke.

Methods
Participants were a convenience sample of five chronic stroke participants. Four of the participants completed the whole study. The intervention was focal vibration for 10 minutes with a 30 second interval at each of the following muscles: biceps, triceps, wrist flexors, and proximal and distal wrist extensors. The outcome measures we assessed were Fugl-Meyer upper extremity (FMA-UE), Chedoke Arm-Hand Activity Inventory (CAHAI-7), grip strength, and a qualitative survey.

Results
FMA-UE scores either increased by 0 to 8 points, out of 126. CAHAI-7 scores increased by 0 to 6 points, out of 49. Grip strength either increased or decreased by an insignificant amount. Participants noted the device was comfortable and led to more normal tone in the upper extremity.

Discussion
Based on preliminary results, short-term focal vibration intervention demonstrates promise for lowering spasticity and increasing function. Grip strength may have decreased due to lower levels of abnormal tone. Future studies will include a measure of spasticity since this device appears to assist with tone. Long-term home use of the device where the patient receives focal vibration a few days a week for several weeks may assist with tone, pain, and function.

Abstract #45 Rethinking Insulin Resistance Risk Measures in People with HIV: Comparison Methods

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Dr. Mary Williams - University of Oklahoma, College of Public Health
Mrs. Lacey Caywood - University of Oklahoma Health Sciences Center
Ms. Casey Bakhsh - Tulsa CARES
Dr. Marianna Wetherill - University of Oklahoma, College of Public Health

Introduction
While advances in treatment have significantly increased life expectancy for people with HIV (PWH), co-morbidities such as insulin resistance (IR) and diabetes disproportionately affect this population. Waist circumference (WC) is associated with IR, prediabetes, and diabetes risk. Among PWH, fat loss in extremities is considered an additional risk for IR. Segmental bioelectrical impedance analysis (BIA) non-invasively estimates regional body fat (e.g. arms, legs, and truncal regions) as a percentage of total body fat (BF%). While BIA is a standard of care for identifying malnutrition among PWH, its potential use identifying IR risk is unexplored. The primary aim of this study was to explore correlations between WC and truncal BF% in PWH to inform future research on truncal BF% as an alternative predictor of IR in PWH.

Methods
As part of the Nutrition to Optimize, Understand, and Restore Insulin Sensitivity in HIV for Oklahoma (NOURISH-OK) study, we assessed WC and BF% among PWH using trained research personnel. WC was measured in centimeters using standard procedures. We defined high-risk WC using National Heart, Lung, and Blood Institute guidelines of >102cm for men and >88 cm for women. Segmental BF% was measured using BIA with truncal BF% representing the proportion of total BF mass in the truncal region. We measured correlations between WC and truncal BF% and compared mean differences in truncal fat mass (kg) between sex-specific WC risk groups using t-tests. Statistical analyses were conducted in SAS v9.4.

Results
Among the 136 PWH, WC ranged from 71.7cm-143.2cm in men and 70.6cm-159.4cm in women with more women (80.8%) than men (47.2%) having a high-risk WC. The average truncal BF% was higher for men (Mdn=61.6, IQR=3.4) than women (Mdn=55.3, IQR=7.3). WC was more highly correlated with truncal BF% in women ($r=0.82$, $p<0.0001$) than men ($r=0.52$, $p<.0001$). Among men, truncal BF mass was significantly higher in those with high-risk WC than those with lower risk WC (M=22.4kg vs M=10.8 kg; $p<0.0001$). Among women, truncal BF mass was also greater in those with high-risk WC than those with lower risk WC (M=13.5 kg vs M=3.0 kg; $p=0.0039$).

Discussion
Truncal BF% was correlated with WC in a community-based sample of PWH with a stronger association among women. Future studies should explore possible factors related to sex differences. An extension of these analyses will examine if truncal BF% is a stronger predictor of IR compared to WC.

Abstract #50 Impact of Obesity on Labor and Delivery Outcomes and Complications in Oklahoma

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Dr. Sarah Beth Bell - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Dr. Spenser Perloff – University of Oklahoma, OU-TU School of Community Medicine, Department of Obstetrics and Gynecology
Dr. Jameca Price - University of Oklahoma, OU-TU School of Community Medicine, Department of Obstetrics and Gynecology
Dr. Zhamak Khorgami - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery

Introduction
By 2030, it is estimated that 78% of Americans will be overweight or obese, demonstrating a continued upward trend. In Oklahoma, over 36% of adults have a BMI over 30. Obesity, which is often related to social determinants of health, is associated with many negative health outcomes, and in some studies has been linked to increased length of hospital stay and accumulated cost. In obstetrics, maternal obesity is associated with many labor and delivery complications, including increased risk of cesarean section, perineal lacerations, and wound infection. This study aims to evaluate the current impact obesity has on the prevalence of labor and delivery outcomes, complications, and associated overall cost.

Methods
This study utilized the Oklahoma Inpatient Discharge Public Use Data File, encompassing hospital admissions from 2016-2019 from all but two Oklahoma hospitals. ICD10 codes were utilized to stratify obese patients versus non-obese patients. To further look at obstetrical data, ICD10 codes were utilized to identify pregnant patients (n=189,821). We analyzed the impact of obesity on common obstetric complications and outcomes and length of admission. A number needed to treat (NNT) for each outcome was calculated, with non-obesity considered treatment.

Results
Of 189,821 admissions with pregnancy, 12,783 (6.7%) were recorded with obesity. C-section deliveries were more common in obese patients [53% vs 33.8%, p<0.001, NNT=5.2]. Obese patients suffered more complication such as pre-eclampsia [15.9% vs 5.7%, p<0.001, NNT=9.8], gestational hypertension [14.3% vs 7%, p<0.001, NNT=13.7], group B strep [18.4% vs 13.9%, p<0.001, NNT=22.4], gestational diabetes [20.3% vs 6.8%, p<0.001, NNT=7.4], and abnormal fetal heart rate at delivery [14.7% vs 11.4%, p<0.001, NNT=30.6]. For c-section, median (interquartile range) length-of-stay for obese vs non-obese patients was 3(1) and 2(1), respectively (p<0.001). Median (interquartile range) of total hospital charges for c-section for obese vs non-obese patients was $16,900 ($11,900) and $11,300 ($7400), respectively (p<0.001).

Discussion
Maternal obesity is associated with increased rate of cesarean section and multiple obstetric complications. BMI's higher than 30 are associated with increased length of hospital stay and increased accumulated charges for cesarean section, indicating that obesity has a measurable cost to patient outcomes and the health care system of Oklahoma. Addressing the rising rate of obesity in Oklahoma may decrease this cost and improve obstetric outcomes.

Abstract #51 The Impact of Type 2 Diabetes Mellitus on Hospital Inpatient Admissions in Oklahoma

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Dr. Zhamak Khorgami - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery

Introduction
Type 2 diabetes mellitus (T2DM) occurs when insulin resistance is greater than pancreatic production. Factors such as body size, diet, exercise, genetics, and social determinants of health predispose patients to developing T2DM. It has been shown that roughly 50-80% of cases of T2DM can be mitigated via treating higher weight patients with patient-centered medical and surgical therapies. Oklahoma is of the highest rates of diabetes in the country, although the impact of T2DM on Oklahoma healthcare systems has not been thoroughly studied. Here we evaluate the impact of T2DM on Oklahoma and demonstrate the role bariatric surgery may play in mitigating this impact.

Methods
The Oklahoma Inpatient Discharge Public Use File, managed by Oklahoma's Department of Health, reports on hospital admissions in the state from 139 out of 141 inpatient facilities. Data such as charges, length of stay, and discharge disposition are reported to this database annually. From 2016-19, admissions data was categorized with and without T2DM and stratified by ICD-10 diagnosis codes and CPT procedure codes.

Results
409,599 (27.0%) of 1,516,111 admissions were of patients with diabetes. These patients had a longer hospital stay [5.8 v 4.9 days (P<0.001)] and, on average cost [$56,300 v $50,400 (P<0.001)] more compared to patients without T2DM. Admissions with T2DM demonstrated a higher rate of sepsis [11.1%vs8.5%, attributable risk reduction (ARR) = 2.5%, *p*<0.001], heart failure [30.7%vs14.2%, ARR=16.5%, *p* <0.001], and AKI [24.5%vs13.1%, ARR=11.5%, *p*<0.001]. T2DM was associated with increased rates of coronary angioplasty [3% vs 1.6%, number-needed-to-treat (NNT)=72.0 *p*<0.001], more lower limb amputations [1.7%vs0.2% NNT=66.2, *p*<0.001], and higher rates of central line placement [6.4%vs4.5%, NNT=51.6, *p*<0.001]. Importantly, bariatric surgery decreased the risk of admission with diabetes by 16% (relative risk [RR] 0.84, confidence interval [CI] 0.83-0.86, P<0.001).

Discussion
T2DM has a significant impact on the health of Oklahomans, where 27% of hospital admissions were related to T2DM. Patients with T2DM have longer hospital stays, higher hospital charges, and higher rates of sepsis and major organ failure than non-diabetic patients; as well as an increased risk of necessitating cardiac intervention, intensive care, and limb amputation. Key approaches to preventing the negative sequalae of diabetes include increasing public efforts in reducing the incidence with directed public health efforts, minimizing the impact of T2DM after diagnosis with patient centered interventions, and diminishing the prevalence of diabetes with medical and surgical obesity treatments. Future work should include advocating for state level interventions to further develop these approaches.

Abstract #52 Risk Factors for Poor Outcomes with COVID 19 in the Early Pandemic

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Dr. Anuj Malik - Ascension St. John - Medical Center
Dr. Martina Jelley - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Mallory Hall - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Sarah Beth Bell – University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Mr. Nick Hollman - University of Oklahoma, College of Public Health

Introduction
Most people infected with COVID-19 experience mild to moderate respiratory illness, recovering without special treatment. However, some become seriously ill and require hospital admission. We analyzed the correlation between patient outcomes and pre-existing comorbidities with a sample of patients at a Tulsa hospital early in the pandemic.

Methods
Data collected in this study include demographics, month of admission, length of stay, body mass index, and mortality. Labs analyzed include lymphocyte count, procalcitonin, CRP, LDH, ferritin, D dimer, and fibrinogen. Complications such as pulmonary embolism and stroke were noted. Pre-existing conditions, such as chronic kidney disease (CKD), diabetes mellitus, and immunosuppression were also evaluated. All of the patients in this sample were unvaccinated, as COVID-19 vaccinations were not available in the window data was collected.

Results
In this sample of 99 individuals with COVID-19, the overall mortality rate was 17.2 per 100 individuals. Those with diabetes had significantly higher odds of death compared to those without (OR=3.08, p=0.03). Chronic kidney disease was not significantly associated with higher odds of death (OR=1.72, p=0.35). Immunosuppression was also not significantly associated with higher odds of death (OR=2.37, p=0.31). Obesity status did not affect odds of death (OR=0.96, p=0.94).

Discussion
In our sample, all patients were unvaccinated. Echoing previous literature, people with diabetes had significantly higher odds of death. People with chronic kidney disease and immunosuppression had higher odds of death, but this effect was not significant. The sample size may not have had enough statistical power to detect a potential difference, though more data would be needed to confirm that possibility. The most notable finding of this study was that obesity status did not affect odds of death at all. It is possible that obesity in and of itself may not be a risk factor for mortality from COVID-19 in all patients. A BMI level substantially above BMI=30.0 might affect mortality; though this sample size did not have many people with BMIs above 35.0. Conditions comorbid with higher weight people may drive differences seen in other literature. It is important to note that body size is associated with social determinants of health, which may also contribute to outcomes in some patients. Further research with a larger sample size could help determine the extent to which obesity status may or may not play a role in COVID-19 mortality in an unvaccinated patient population.

Education

Abstract #8 Teledermatology Simulation: A Module Teaching Teledermatology to Medical and Physician Assistant Students

Ms. Elizabeth Soo - University of Oklahoma, OU-TU School of Community Medicine
Dr. Blake Lesselroth - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Helen Monkman - University of Victoria
Dr. Ryan Palmer - Kennedy and Company
Dr. Andrew Liew - University of Oklahoma School of Community Medicine, Department of Psychiatry
Ms. Shannon Ijams - University of Oklahoma School of Community Medicine, Physician Assistant Program
Ms. Liz Kollaja - University of Oklahoma, OU-TU School of Community Medicine
Ms. Kristen Rodriguez - University of Oklahoma, OU-TU School of Community Medicine
Dr. Juell Homco - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
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Introduction

Expansion of telemedicine (TM) during the COVID-19 pandemic has highlighted a potential to improve access-to-care for underserved communities. To maximize impact, health professional learners must practice using TM in various primary care situations. Considering that 6-7% of primary care visits are for a dermatologic complaint, faculty at the University of Oklahoma School of Community Medicine developed a teledermatology simulation to teach TM and evaluate competency development.

Methods

Third-year medical students and second-year physician assistant (PA) students take a health-systems science course that includes a primary care clinic, a quality-improvement practicum, and workshops on practice management. For one workshop, faculty worked with learners to develop a dermatology-focused instructional module. The module included: (1) pre-session reading; (2) a multiple-choice quiz; (3) didactics on common dermatologic conditions and teledermatology; (4) a simulated TM encounter with a standardized patient (SP) and; (5) a faculty-led large group debrief. We used a case of Tinea versicolor to simulate both store-and-forward and live videoconferencing workflows. In the simulation, learners needed to review a furnished history, inspect digital photos of skin, interview the patient, make a diagnosis, and suggest treatment. Beyond our multiple-choice quiz, we measured module effectiveness several ways. For skill acquisition, we mapped AAMC telemedicine competencies to three entrustable professional activities (EPAs). SPs scored students on these EPAs using a 3-point scale. To measure learner attitudes about the simulation, we used an online survey adapted from Levett-Jones et al. We also collected field notes during piloting.

Results

Forty-nine students completed the module. The average quiz score was 9.6 (s = 1.3). The SPs indicated 70-97% of students were entrustable or approaching entrustment for each EPA. At the time of writing, we received 26 survey responses (53%). While, learners harbored mixed attitudes about the value of the experience, 88% said the session met or exceeded their expectations. Most applied the didactic content effectively to complete the simulation and manage diagnostic uncertainty. Several students had difficulty finding and reviewing the images saved on computer desktops.

Discussion

Entrustment scores showed most students met learning objectives. However, we identified ways to improve the module. First, may use stage make-up to simulate skin findings and provide students with more practice honing exam skills. Second, we will stream pre-recorded excerpts from real or simulated encounters to show examples of best-practice workflows. Third, we must study how to provide learners practice troubleshooting technology failures while still providing a realistic and standardized educational experience.

Abstract #17 Reproductive Health Symposium: A Student Approach to Address Inequalities in Health Education

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Ms. Lauren Oliver - University of Oklahoma College of Medicine
Mr. Ian Peake - University of Oklahoma, OU-TU School of Community Medicine
Dr. Sarah Beth Bell – University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Ms. Kylie Hagerdon - University of Oklahoma College of Medicine
Mr. Zachary Simpson - University of Oklahoma College of Medicine
Ms. Kirsten Wheeler - University of Oklahoma College of Medicine
Ms. Kayla Stromsodt - University of Oklahoma College of Medicine
Dr. Alexandra Regens - University of Oklahoma, College of Medicine, Department of Obstetrics and Gynecology

Introduction
Diversity, equity and inclusion constitute major focus areas in the education of future health professionals. Many students face curricula that are not yet comprehensive enough to meet the need for more diverse and inclusive care. The student-led Reproductive Health Symposium aimed to provide training to address this educational gap. Pre- and post- conference surveys were used to evaluate effectiveness by assessing participants' knowledge and preparedness to address diverse reproductive and gender-based healthcare needs.

Methods
The symposium included a keynote speaker and nine break-out sessions featuring topics from multiple health professions. Session topics included health barriers for LGBTQ+ and racial/ethnic minority populations, ethics discussions, perinatal care, and legal advocacy. Graduate and health professions students were invited via e-mail, social media posts, and flyers. Upon registration, students could complete a voluntary, 12-question, pre-conference survey designed to assess baseline knowledge related to reproductive and gender-based healthcare needs. Post-conference attendees were sent an identical survey to gauge change in knowledge and preparedness. Survey questions assessed respondents' knowledge about barriers to healthcare, identification and management of biases, and preparedness to work on a team to address patients' reproductive and gender-based healthcare needs.

Results
Comparison of pre- (n=163) and post- (n=31) conference survey data, analyzed as independent groups, revealed that attendees felt more competent addressing concerns related to reproductive health in their field ($p=0.022$), better understood how reproductive health affects minority populations ($p<0.001$), increased their ability to evaluate and manage their biases with regards to reproductive health ($p=0.001$), better understood barriers LGBTQ+ individuals face in obtaining healthcare ($p=0.001$), and better understood the barriers to reproductive health in Oklahoma ($p=0.001$). The size of these effects were all medium to large. However, no significant changes were observed in regards to knowledge about how barriers to care may disproportionately affect minority populations, ability to counsel patients regarding birth control, working on a team with other health professionals, and communicating a patient's reproductive healthcare needs to another health professional.

Discussion
The Reproductive Health Symposium, measured by pretest-posttest design, increased attendees' knowledge and preparedness across several key areas. This indicates that the Symposium is an effective option to train students regarding patient-centered care for increasingly diverse populations. Student-organized conferences similar to this one may be a practical and efficient way to enhance interested learners' experience with reproductive and gender-based health outside of the standard curriculum.

Abstract #22 Preservice Teachers' Tpack Growth on Technology Integration Course in Early Childhood Education

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Introduction
The purpose of this research is to examine how technology integration in teacher preparation courses impacts preservice teachers' (PSTs) beliefs and use of technology with children. Despite the growing availability of newer mobile devices and COVID-19 influences, actual classroom usage of technology remains uncommon, particularly in early childhood education (ECE). Furthermore, when technology is employed is frequently integrated into more traditional methods rather than used in meaningful ways. Given the significant impact of teacher educators' pedagogical modeling on new teachers' ability to use technology to promote young children's learning, this research seeks to answer two related questions:(a) How do PSTs describe their own beliefs on technology? (b) How are PSTs growing their TPACK; how are they increasing confidence for each area of TPACK?

Methods
The evidence for these questions came from a mixed-method analysis of quantitative and qualitative survey responses from 22 PSTs in early childhood education who have combined extensive field experience with current academic coursework at a Midwest university in 2019-2020. The Teaching and Learning two-course series (6 credit hours), which focused on preschool-age children and had a related practicum, was included. This course was one of the first classes the PSTs took as freshmen, and they spent three hours each week in their preschool (ages 3-5) field classroom in 2019, and virtual placement was in 2020. Quantitative pre-post survey data were analyzed by parid sample t-test in SPSS, and a three-level qualitative analysis was conducted.

Results
After the course, the results show that PSTs have an increasingly positive attitude towards educational technology. Based on qualitative survey responses, PSTs' attitudes change to integrate technology actively, and PSTs' thoughts of appropriate ages of technology use also became younger. Instead, PSTs had cautious thoughts of using technology for young children before the course "can be confusing, and as long as it does not overpower the user" PSTs changed applying technology in their classroom after the course. From the quantitative analysis, PSTs' pedagogical knowledge, technological content knowledge, technological pedagogical knowledge, and overall TPACK increased statistically significant scores.

Discussion
Teachers and teacher education programs need to know the importance of technology integration and alleviate misunderstandings in ECE. After the Covid-19-pandemic, the desire for properly integrating technology into ECE has been increased. This study suggests transformations and adaptations in preservice teacher education, including innovative student-teacher placements. In addition, implications for in-service professional development opportunities ensure that teachers are better prepared for teaching and learning in technology.

Abstract #39 Are We Meeting 2017 ASCCP Documentation Standards?

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Introduction
In 2017, the ASCCP (American Society of Colposcopy and Cervical Pathology) published updated documentation standards for colposcopic evaluation. Due to a wide-range of providers who perform colposcopy, the standards were published to improve consistency and to decrease the rate of missed high-grade pathology on colposcopy. Our project aim is to assess compliance with 2017 ASCCP Colposcopy Standards at OU Women's Health Care (OU). This was compared to other providers in the community and at Oklahoma Cancer Specialists and Research Institute (OCSRI). Our goal was to determine any need for improvement in documentation and performance in order to adhere to current ASCCP guidelines.

Methods
A chart review was conducted including colposcopies performed at OU, OCSRI, and in the community. All colposcopies performed between January 1, 2018 and December 31, 2019 were included. Data collected included date, site of evaluation, BMI, parity, LMP. Whether or not a provider documented visualization of the lesion, cervix, squamocolumnar junction, location of lesion, and colposcopic impression was also included. Finally, if a lesion was identified, were two or more samples collected?

After data collection, categorical variables were analyzed utilizing chi-squared or Fisher test. Continuous variables were analyzed using T-test.

Results
The primary outcome was compliance with quality measures detailed in the 2017 ASCCP Colposcopy Standards. Our study found heterogeneity between locations. Overall, all provider groups consistently documented presence and location of a lesion, if present. Providers at OU and OSCRI had a significantly higher rate of documenting impression compared to providers in the community; however, if a lesion was visualized, providers in the community had a significantly higher rate of taking 2 or more biopsies.

Discussion
All locations demonstrated a need for improved documentation to adhere to ASCCP recommended standards. Standardizing documentation may lead to improved communication and identification of cervical pathology. Utilization of a standardized form seems to greatly impact appropriate documentation. A limitation of this study is the high incidence of pregnancy in the population at OU compared to the other study sites. As pregnancy can limit the ability to perform a satisfactory colposcopy and may make providers hesitant to take biopsies, this may have impacted the data. Pregnancy status was not collected in this data-set and cannot be analyzed in this study.

Abstract #49 Implementation of “Giving Serious News” Module in Second Year Clinical Medicine Curriculum

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Introduction
Medical knowledge and skills are often field-specific, however, the technique of giving serious news extends across specialties. Presently, curriculum related to serious diagnosis delivery is generally provided to undergraduate medical students within their last two years of education. In order to promote both perceived confidence and longitudinal learning, we propose that this skill be introduced prior to beginning clinical rotations. At both the University of Oklahoma Health Sciences Center College of Medicine (COM) and School of Community Medicine (SCM), we presented a module teaching Serious News Delivery to second-year medical students. Here, we discuss preliminary findings assessing student confidence and competence in delivering serious news.

Methods
This module was adapted from Baile et al. and the National Center for Ethics in Health Care. Second-year medical students participate in a yearlong Clinical Medicine course, allowing them to learn and practice the application of communication skills in various settings. This module was added as a part of Clinical Medicine II, and includes: 1) a didactic session teaching a standardized protocol, 2) simulation lab sessions with standardized patients, and 3) a faculty-led group debrief. Simulated session cases included: glioblastoma, pancreatic cancer, type 1 diabetes, and sudden cardiac death. To assess student confidence and competence, questionnaires were provided before and after the module to participating students.

Results
Thus far, 320 second-year students from the COM & SCM classes of 2023 and 2024 have completed this module. Of these students, 72.5% completed the pre-survey and 57% completed the post-survey. Survey responses showed higher confidence levels between pre and post measures, and an independent samples t-test revealed a significant increase in confidence following training ($t(387)=8.74$, $p<0.001$, effect size $d=0.89$). Additionally, survey responses indicated a significant increase in feelings of learner preparedness, ($t(375)=11.60$, $p<0.001$, effect size $d=1.20$). This preliminary data indicates learners benefit and appreciate learning how to deliver potentially difficult information with patients prior to clinical training.

Discussion
During this module, students met didactic goals and successfully implemented the learned protocol during simulated sessions. Students also felt significantly more prepared and confident in utilizing this skill. Moving forward, we plan to perform one and two years’ post-course surveys, to assess further development of these skills during clinical exposure. This will include data on perseverance of learner confidence in continuing skill application and the effects on patient perceptions. Additionally, we aim to expand use of this module to other healthcare professional programs including the SCM Physician Assistant (PA) program.

Engineering

Abstract #24 A DRL-Based Demand-Driven Elastic User-Centric Ran Optimization for 6g & Beyond

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Introduction
With highly heterogeneous application requirements, 6G and beyond cellular networks are expected to be demand-driven, elastic, user-centric, and capable of supporting multiple services. A redesign of the one-size-fits-all cellular architecture is needed to support heterogeneous application needs. While several recent works have proposed user-centric cloud radio access network (UCRAN) architectures, these works do not consider the heterogeneity of application requirements or the mobility of users. Even though significant gains in performance have been reported, the inherent rigidity of these methods limits their ability to meet the quality of service (QoS) expected from future cellular networks. This paper addresses this need by proposing an intelligent, demand-driven, elastic UCRAN architecture capable of providing services to a diverse set of use cases including augmented/virtual reality, high-speed rails, industrial robots, E-health, and more applications.

Methods
The core research objective of this work is to develop a solution that can dynamically solve a multi-objective optimization problem in UCRAN to achieve a Pareto-optimal solution in real-time based on changes in the varying application demands and user mobility. The multi-objective optimization problem is formulated to maximize important key network performance indicators (KPIs) such as area spectral efficiency, network energy efficiency, user service rate, and throughput satisfaction. The user-centric virtual cell size serves as a control parameter to form a Pareto-optimal trade-off among these KPIs. Inspired by our earlier work on utilizing wireless network telemetric big data for enabling zero-touch optimization in future wireless networks, we propose a DRL-based framework to solve this problem. The proposed framework uses the massive amount of control, signaling, and contextual data in the UCRAN network to update network parameters dynamically to optimize the KPIs of interest in real-time. Our choice to leverage DRL is motivated by its superiority over all other alternatives for the particular problem at hand.

Results
We evaluate the convergence, efficacy, and adaptability of the proposed framework to the non-stationary environment through numerical results. We also compare the proposed framework's performance against brute-force and state-of-the-art metaheuristics such as simulated annealing (SA). The simulation results show that the proposed framework can achieve a gain of up to 45% in the network-wide utility compared to an SA-based solution.

Discussion
This paper has the potential to change network mode from rigid cell-centric to elastic user-centric through the use of an intelligent module that allows optimization of S-zones in real-time, resulting in enhanced user experience, greater system capacity, and improved energy savings.

Quality Improvement

Abstract #7 Putting "Community" Back into "School of Community Medicine"—A Quality Improvement Project

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Introduction
The COVID-19 pandemic decreased both connectivity between residents and their involvement in communities during the 2020-21 academic year. In response, our Pediatric Chief Resident organized monthly opportunities to promote engagement and community service once pandemic related restrictions were lifted.

Methods
Our goal was to achieve 75% resident engagement in community-centered activities within 12 months. To do this, we collaborated with community partners to plan monthly community-oriented activities. A total of 25 pediatric residents were invited to volunteer for these events. Participation in each event was documented and used to follow resident engagement over time. Cycle 1 consisted of three events taking place at a local farmers' market as a public health initiative to educate families on summer safety. Cycle 2 incorporated other opportunities to accommodate varying interests and schedules, including a teddy bear clinic and clothing drive for a local summer camp. Cycle 3 implemented a sign-up to provide a formal invitation and commitment to participate, in addition to new activities such as a Halloween event at the local zoo, gathering donations for youth experiencing homelessness, decorating the local youth shelter, and cooking food at the Ronald McDonald House.

Results
Prior to Cycle 1, participation in residency program community service activities was scarce. Four residents (16%) participated in Cycle 1. With the incorporation of different activities in Cycle 2, resident engagement increased to 9 (36%) including the previous 4 residents and an additional five new residents. In Cycle 3, 14 residents (56%) attended, with 5 first-time participants. Sixteen residents (64%) have participated in community involvement in the first ten months of the initiative.

Discussion
Community service restores the connectivity between residents and the surrounding community we serve. Our program's resident engagement in the community is improving over time as more opportunities are offered. Extending a variety of service opportunities and providing a sign-up sheet has shown to increase resident engagement. The goal of 75% participation has not yet been reached, but ideas for future community service activities which cater to various interests and schedules are emerging.

Abstract #13 Reducing Documentation Queries in a Community Hospital: A Multi-Specialty Quality Improvement Initiative

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Introduction
Clinical documentation (CD) portrays a patient's severity of illness and directly affects hospital reimbursement. Clinical Documentation Improvement (CDI) departments have been established to help providers with documentation challenges. However, increased queries from CDI can lead to provider frustration and burnout. It is essential to find a balance between improving provider CD and maintaining time for high quality care.

Methods
A quality improvement (QI) project was implemented to affect CD and reduce queries by 20% in two community-hospital based academic teams. Plan-Do-Study-Act (PDSA) cycles were implemented and involved education with a lecture and handout, as well as a multi-disciplinary intervention. The education included proper ways to document conditions such as acute renal failure and acute respiratory failure, as well as the value of identifying if complications were present on admission or not. The multi-disciplinary approach utilized registered dietitians (RD) to consult on patients at high risk for malnutrition. Attending physicians were required to co-sign RD's notes, allowing them to be considered for CD by the coding department. The primary outcome was the total number of documentation queries. The secondary outcomes included risk assessment and impact on quality measures. A Shewhart XmR control chart was used to analyze retrospective and prospective data.

Results
The QI project resulted in a 44.9% reduction in total number of documentation queries. The most significant reductions were in clinical diagnosis clarifications and malnutrition categories, 85.9% and 89.3% reduction in total queries respectively. The most effective PDSA cycle was the multidisciplinary approach to CD which involved registered dietitians, this resulted in an 82.9% decrease in malnutrition related documentation queries over the next year. The hospital case-mix index, which is used to determine hospital reimbursement from medicare and medicaid, increased from 1.8 to 1.88 over 3 years resulting in $800,000 per 1000 patient encounters in financial savings.

Discussion
CD directly affects reimbursement for a healthcare system. Physician documentation can fall short of accurately representing the complexity of patients. Documentation queries are a solution to improvement, but have limitations. Educating hospitalists is important, but education must also address the impact on hospital systems and patient outcomes. Ultimately, a multi-disciplinary approach had the most sustainable impact, though this topic requires further research.

Abstract #20 Piloting Clinical Response Procedures for Food Insecurity: An Interdisciplinary Quality Improvement Project

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Introduction
Food insecurity is independently associated with diabetes and hypertension, which can impede chronic disease self-management ability and medical treatment outcomes. Routine food insecurity screening in outpatient settings is recommended by the American Diabetes Association for patients with diabetes; however, limited guidance exists on designing and implementing effective response models. The Food First Pharmacy is an interprofessional food insecurity response strategy designed to address food insecurity and associated health outcomes among medically-complex patients receiving care through a student-led, longitudinal clinic.

Methods
We used the Plan-Do-Study-Act (PDSA) model to inform the planning and implementation of this quality improvement project. Between September and October 2021, our initial planning phase involved semi-structured interviews with existing patients to understand unmet food needs, food preferences, and barriers to healthy food preparation. This patient input informed selection of cooking tools and nutritious shelf-stable foods to be supplied through the program. With active participation from nursing and social work teams, we developed an interprofessional food insecurity screening and response protocol, consisting of new clinic flowchart, written procedures, and accompanying patient screening form, containing a validated two-item food insecurity screener and two additional items about interest in Supplemental Nutrition Assistance Program (SNAP) and Food First Pharmacy enrollment. Medical and physician assistant students received an in-person, lecture-style orientation to the new program in September 2021. The initial screening form was beta tested during a single clinic day in December 2021. After slight adjustments, the screening form was finalized and procedures were communicated via email to all clinical students before the official full project launch on January 25, 2022. Across three clinic dates, we then reviewed completion rates of new procedures.

Results
Across the three clinic dates, 41 (74.5%) of the 55 patients completed the food pharmacy form with 30 (73.2%) screening positive for food insecurity, 11 (26.8%) requesting social work referral, and 35 (85.4%) requesting food pharmacy enrollment. Social work completed 100% of requested referrals and food pharmacy staff enrolled 28 (80%) of the interested patients. Documentation of food insecurity was identified in only 1 (3.3%) of 30 medical care plans.

Discussion
Findings from this quality improvement initiative confirm that food insecurity is highly prevalent in this clinical setting, interprofessional collaboration is feasible, and that a majority of affected patients desire clinic-based food assistance. Additional clinical reminders may be needed to ensure food insecurity is documented in medical treatment plans to further support delivery of patient-centered assessment and care.

Abstract #21 Validating EHR-Enable Patient Inclusion Methods when Constructing a Heart Failure Registry

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Introduction
Studies consistently show that guideline-directed medical therapy (GDMT) can improve clinical outcomes in patients with reduced ejection fraction heart failure (HFrEF). Yet in real-world settings, less than 5% of patients are on GDMT. Our informatics team sought to develop an electronic clinical data registry (CDR) to optimize management of our OU internal medicine patients with heart failure. However, published descriptions of such registries do not provide detailed methods for identifying candidate patients. Our objectives included (1) creating an automated query for HFrEF patients using structured electronic health record (EHR) data; (2) measuring the accuracy of this query; and (3) identifying best-practices to inform CDR reporting guidelines.

Methods
We defined HFrEF as a charted diagnosis of heart failure with an echocardiogram (ECHO) showing an ejection fraction ≤ 40%. We interviewed clinic faculty to identify 32 ICD-10 codes (e.g. *I50.21 acute systolic (congestive) heart failure* and *I50.9 heart failure, unspecified)*, two CPT codes, plain language terms, and EHR data relevant to heart failure. We queried the EHR using ICD-10 codes to identify patients with at least one diagnostic code for heart failure. To develop a reference standard, two members of the team independently reviewed a random sample of retrieved records using a standard protocol. We calculated a kappa statistic to measure inter-rater reliability and used our reference standard to calculate the *precision* (positive predictive value) and *recall* (sensitivity) of the automated query.

Results
Using ICD-10 codes, we identified 361 patients with a diagnosis of heart failure. We completed manual chart reviews on one subset of patients with a diagnosis of HFrEF (n=22) and another with a non-specific heart failure diagnosis (n=28). Our kappa score was 0.66 and our automated query had a precision and recall of 0.59 and 0.65, respectively. We identified relevant ECHO data in 20 charts (40%) that would have been missed had we only searched using standardized procedure (CPT) codes.

Discussion
Our automated query using specific ICD-10 diagnostics codes to identify patients with HFrEF was error-prone. Additionally, had we ignored patients with a non-specific heart failure diagnosis, we would have missed relevant cases. We also found that CPT codes were not sufficiently sensitive for identifying ECHO data. Relevant information was found in a range of documents, including discharge summaries and outpatient cardiology notes. In conclusion, an accurate HFrEF registry using automated query tools would require a combination of search strategies, improved documentation practices, and potentially, natural language processing.

Abstract #27 Improving Pediatric Residents as Teachers

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Dr. Michelle Condren - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Introduction
A medical students' or physician assistant (PA) students' interest in different medical specialties is largely shaped by the teaching interactions they have with both resident and attending physicians. In most learning environments, students spend more time and have more instructional opportunities with residents. Many residents express they have inadequate time and knowledge to effectively teach. The goal of this Quality Improvement project was to provide resident teaching development to improve student evaluations of residents as teachers and resident teaching self-evaluations in the inpatient setting.

Methods
Third year medical, and second year PA students completed a ten item survey at the end of their inpatient rotation. Residents completed a self-evaluation survey with similar questions regarding their teaching experience. Surveys covering the first three rotations of the academic year served as baseline data. Teaching interventions were then implemented after rotation 3 with a goal to increase average scores in items scoring less than 4.0/5.0. Interventions included formal lecture instruction to residents regarding teaching topics and constructing digital and print "micro-lecture" slides for students. Post-intervention student surveys were collected after subsequent rotations with plans to continue collection until the end of the sixth rotation. A post-intervention resident survey was administered at the conclusion of the fifth student rotation.

Results
Eighteen students (90%) and seventeen residents (70.8%) completed the baseline survey. At baseline three out of ten items in the student-reported scores were below an average score of 4. The lowest student-reported scores related to residents were: teaching how to adapt physical exam skills to the examination of children of different ages (3.65/5), emphasizing important exam material (3.88/5), and directing students to useful pediatric literature (3.92/5). Residents similarly self-reported low scores regarding physical exam education (2.88/5), emphasizing exam material (2.88/5), and directing students to important pediatric literature (2.76/5).

Twelve students (100%) and thirteen residents (54%) completed the post-intervention survey. Student scores decreased regarding physical exam education (3.17/5), and being directed to important pediatric literature (3.70/5); however, the score increased for residents emphasizing exam material (3.97/5). Resident self-reported scores increased for physical exam education (2.92/5), directing students to important pediatric literature (2.85/5), and emphasizing exam material (3.47/5).

Discussion
The goal of increasing all low scoring items was not achieved; however, we observed some improvements across both student and resident scores. With future cycles we will provide specific support to residents to strengthen their experience as teachers, modeled after student-perceived weakness in resident teaching.

Abstract #31 Social Residents: Establishing an Increasingly Engaging Social Media Presence

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Introduction
Given the abrupt shift to virtual platforms for the 2020-2021 residency interview season, social media's impact on recruitment and perception of a residency program has grown in importance. In response to this, a number of residency programs in the country started to develop their social media presence. Given this, the goal of this quality improvement project was to create an increasingly engaging social media presence on Instagram for the OU Tulsa Pediatric residency program.

Methods
OU Tulsa Pediatrics' Instagram launched February 16, 2021. The launch goal was to establish a social media presence and grow to over 100 followers allowing for Instagram analysis data to be available. This was done though stories and posts being shared and through word of mouth during Pediatric Residency events. On July 4, 2021, the account exceeded 100 followers.
In October 2021, followers were polled regarding preference between stories vs posts, photographs vs graphics, and resident life vs general pediatric information. Improvement cycle one occurred in December 2021, with a goal to increase engagement to 10% of followers by focusing on followers' expressed preferences. Evaluation of engagement was determined by reviewing the "accounts engaged" metric within Instagram's insights page. With cycle two, the goal shifted to increasing engagement by 10% every 7 days from January 18 to January 31, 2022.

Results
During polling prior to Cycle 1, 78% of responders indicated they preferred stories to posts, 100% of responders preferred photographs to graphics, and 100% of responders preferred resident life topics over general pediatric information. Posting decreased at this time, resulting in a 0% engagement rate in November 2021.
Cycle one resulted in 16% engagement with 19 engaged accounts and 118 followers, exceeding the pre-determined goal. During Cycle two, daily posts, both thread and stories, were created resulting in an increase in engagement the first and second weeks. Overall engagement increased to 31% (36 engaged accounts) by the last week of January. The last two weeks of January, resulted in an 89% increase in engagement compared to cycle one.

Discussion
Targeted posts more in line with follower preferences were successful in increasing engagement during the first cycle. The second cycle's drastic increase in engagement revealed the importance of having a persistent presence in increasing engagement and the use of both stories and posts to increase engagement. However, maintaining an account like this is time intensive and will require more than one account manager to continue to be successful.

Abstract #37 Pediatric Telehealth Project: A Quality Improvement Project

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Introduction
The Pediatric Telehealth Project was created at the onset of the COVID-19 pandemic when telemedicine visits became an important option to access care without increasing exposure to COVID-19. The goal of this project was to improve clinician confidence in diagnosis and treatment via telemedicine and reduce exposure of vulnerable populations to COVID-19.

Methods
Clinicians at OUFMC were surveyed to evaluate clinician confidence in diagnosis and treatment during telemedicine visits. Parents of patients aged newborn to 2 years were given a Pediatric Kit containing tools to collect vitals and resources for parents. Parents completed a survey to identify access to resources and concerns with telemedicine visits. Two PDSA cycles have been completed. The first examined changes in clinician confidence over a one year period after implementation of the Pediatric Kit. Then, we asked clinicians what should be added and discussed appropriate telehealth visit scheduling.

Results
There were 25 and 18 respondents to the June 2020 and September 2021 clinician surveys, respectively, which is an 89% and 64% response rate. Independent t-test analyses were conducted comparing clinician responses prior to and after pediatric kit implementation. There were no statistically significant differences in responses to the three questions of greatest interest: confidence in performing a newborn visit via telehealth ($p=0.08$), confidence in reaching the correct diagnosis via telehealth ($p=0.33$), and confidence in reaching the correct diagnosis in-person ($p=0.40$). Ninety-three percent of parents reported confidence in clinicians reaching the correct diagnosis via telehealth ($n=15$).

Discussion
From June 2020 to September 2021, there was no significant increase in clinician confidence in performing a newborn visit via telehealth, reaching the correct diagnosis via telehealth, or reaching the correct diagnosis in-person. The small number of respondents likely contributes to the results. Future goals of this project include improving the Pediatric Kits; expanding the populations we are studying to patients of all ages with specific diseases; and providing resources and training on virtual visits to clinicians and staff.

Abstract #47 Improving Access to Anti-Obesity Medications. An Education-Based Quality Improvement Project

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Introduction
Obesity is a chronic neurobehavioral disease resulting in adverse metabolic, biomechanical and psychosocial health consequences. It is a rising concern throughout the US with links to some of the leading causes of preventable deaths including heart disease, stroke, diabetes, and multiple types of cancer. In 2018, US obesity prevalence was 42.4%, and Oklahoma had the 10th highest obesity prevalence in the nation, with 33% of adults classified as obese. Obesity is not restricted to the adult population. Children in Oklahoma ages 10-17 have the 6th highest obesity prevalence in the nation attributing to 1 in every 6.

Education on anti-obesity medication is not currently a standard part of the medical school curriculum. Our goal was to increase resident and faculty education on anti-obesity medication in an effort to improve provider comfort and our patients' access to these medications. By doing so, we aim to address obesity in a multi-modal fashion, and ultimately decrease our clinic obesity rate.

Methods
We distributed and analyzed surveys among our residents and faculty regarding their comfort in treating obesity as a chronic and relapsing disease. This was followed with a presentation by an Obesity Medicine Specialist given on two separate occasions. The first lecture was to residents to encourage treatment in clinic. The second lecture was to faculty to discuss medications and concerns/hesitancy in both personal prescribing habits and supervision of residents in prescribing these agents. Pre- and post-surveys were distributed for both lectures to measure change in knowledge and attitude on anti-obesity medications.

Results
Fourteen residents and ten faculty completed surveys before and after the presentation; response rates were 70% and 83%, respectively. The mean difference and 95% confidence interval was calculated for the three questions of highest interest, each question showing significant increase for residents and faculty. Comfort discussing obesity with patients: residents, MD=0.57; 95% CI, 0.19-1.54 and faculty, MD=0.2; 95%CI, 1.21–1.59. Comfort discussing anti-obesity medications: residents, MD=1.52; 95%CI, 0.89-1.29 and faculty, MD=1.3; 95%CI, 0.81–1.19. Comfort prescribing anti-obesity medications: residents, MD=1.19; 95%CI, 0.18–0.91 and faculty, MD=1.1; 95%CI, 0.29–1.11.

Discussion
Primary care physicians (PCPs) routinely see patients who have obesity, a disease with multiple adverse health consequences. Education on anti-obesity medications can improve physician comfort with the prescription of these agents, and allow PCPs to have a more effective multi-modal treatment approach to the growing epidemic.

Social/Behavioral

Abstract #2 Coexistence of Child Maltreatment and Intimate Partner Violence: A Retrospective Outcomes Assessment

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Introduction
The term intimate partner violence (IPV) describes physical or sexual violence, stalking, or psychological harm by a current or former intimate partner or spouse. The literature establishes a strong association between IPV exposure and childhood maltreatment, which often co-occur. We hypothesize children experiencing both maltreatment and IPV exposure at their index medical exam are more likely to have medical exams for additional abusive events in the future.

Methods
A retrospective cohort study was conducted following children diagnosed with one or more forms of confirmed/suspected maltreatment at the Tulsa Children's Advocacy Center (CAC) from October 2016 through September 2019. Each child's first visit during the study timeframe acted as the index encounter for IPV exposure. Hospital consults were excluded from analysis; however, hospital follow-up visits were included as index visits. Demographic, medical, and social history data were collected from the electronic medical record for visits with a suspected or confirmed child maltreatment ICD-10 code. Analysis included descriptive statistics and Welch's ANOVA comparing the mean number of events for children with known IPV exposure vs those without.

Results
A total of 1369 children met study inclusion criteria with most being white (n=810, 59.2%), non-hispanic or latino (n=809, 59.1%), and female (n=723, 52.8%) with a mean age of 7+4.59 years. The top diagnosis codes used were Child Physical Abuse, Suspected (n=609, 42.8%), Child Physical Abuse, Confirmed (n=353, 24.8%) and Child Sexual Abuse, Suspected (n=298, 20.9%). Two hundred and ninety-three children (21.4%) had a documented history of IPV exposure in their initial medical exam. Eleven children with known IPV exposure had additional medical exams prompted by new abuse allegations compared to 26 children without. There was not a statistically significant difference in the mean number of medical exams between the IPV exposure and no-IPV exposure cohorts (p=0.314).

Discussion
While this analysis did not yield statistically significant results, additional questions emerge regarding the effectiveness of screening, and if the presence of IPV exposure influences the decision to remove children from the home, mitigating the chance for future abusive events. We postulate standardized IPV screening during CAC visits is needed to fully assess the presence or absence of violence in the home due to the multifactorial nature of disclosing, as well as the taboo nature of family conflict.

Abstract #6 Hope as a Protective Factor against Burnout in a Human Service Organization

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Introduction
Without mitigation and intervention, ongoing workplace demands can lead to employee burnout resulting in decreased job performance and turnover. The additional demands stemming from the COVID-19 pandemic have placed significant stressors on the human service organizations charged with providing welfare assistance to vulnerable children and families. Employees of a large human service state agency were invited to answer questions related to burnout, organizational support, leadership effectiveness, and hope during the early stages of the pandemic (March 2020) and remote work transitions. The purpose of this study was to examine, 1) the relationship between burnout, leadership effectiveness, organizational support, and hope; and 2) examine if hope would account for significant variance in burnout over-and-above leadership effectiveness and organizational support.

Methods
A large sample of non-supervisor human service employees (N = 2,235) participated in an anonymous web-based survey. The response rate was approximately 50%. However, since the agency administered the survey and provided the dataset, the actual rate was not available. Participants were asked to voluntarily complete a series of questions including the Oldenburg Burnout Inventory, Perceived Organizational Support, Leadership Effectiveness, and the Adult Hope Scale. This protocol was approved by the university and state agency IRB.

Results
In support of the hypotheses, results of the correlation analyses demonstrated significant negative associations between burnout and leadership effectiveness ($r = -.45$; $p < .01$), perceived organizational support ($r = -.50$; $p < .01$), and hope ($r = -.65$; $p < .01$). Results of the hierarchical regression analysis showed that hope accounted for significant variance ($\Delta R^2 = .09$; $p < .01$) in burnout over-and-above leadership effectiveness and perceived organizational support ($R^2 = .38$; $p < .01$).

Discussion
Results of this study are consistent with a growing body of evidence that hope is a significant factor in wellbeing. In the context of employees that provide direct services to vulnerable children and families, burnout is an ongoing concern for organizational leaders. This study adds to the literature by demonstrating that hope may serve as an important and malleable resource potentially buffering the ever-present demands of direct service to those experiencing adversity. Consequently, leadership attention to the core elements of hope (goals, pathways, and agency) has the potential to reduce burnout and increase leadership effectiveness.

Abstract #19 Foster Parent Attitudes and their Association with Hope, Perceived Stress, and Flourishing

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Introduction
Few studies have assessed the attitudes and experiences of foster parents. The Foster Parent Attitudes Questionnaire (FPAQ) assesses characteristics of supportive, nurturing, and viable foster placements. Yet little research exists to validate the FPAQ as a viable measure of the psychological state of successful foster parent. The aim of this study was to assess the relationship of FPAQ scores with hope, perceived stress, and flourishing scores. We hypothesized that if the FPAQ is an adequate measure of the potential of foster parenting of success, caregivers with higher FPAQ scores would also have high hope, low perceived stress, and high flourishing scores.

Methods
A cross-sectional study was conducted of foster families with children being seen at a pediatric medical home for children with history in the foster care system. A survey including the FPAQ, Perceived Stress, Dispositional Hope, and Flourishing scales was utilized. Descriptive statistics were calculated for study variables and assessed for meeting the assumption of normality.

Results
Cronbach's alpha of >0.70 was utilized to assess the internal consistency of all scales. While the other measures all exhibited adequate alphas from the outset, the full FPAQ exhibited poor internal consistency, α=0.138. As a result, 11 items were removed to achieve adequate internal consistency, α=0.710. Once adequate internal consistency was established for all measures, Pearson correlation statistical tests were applied to test the relationships between each scale.
The majority of participants were female (n=48, 91%), white (n=37, 70%) and non-Hispanic or Latino (n=49, 93%). The FPAQ score had a statistically significant positive, moderate relationship with the flourishing score (r=0.429, p=0.002). While the FPAQ score had a positive, weak relationship with the hope score (r=0.211, *n.s.*), and a negative, weak relationship with perceived stress score (r= -0.274, *n.s.*), neither were statistically significant.

Discussion
While the relationships between the nine-item FPAQ, and other validated scales were as we had hypothesized, it appears that the full FPAQ measure may not be as methodologically robust or reliable as noted within its original validation study. Notably the poor internal consistency of the full FPAQ scale should not be ignored, and future researchers should utilize it with caution. Further research should explore the abbreviated nine-item measure as well as other approaches to assess attitudes and experiences of foster parents.

Abstract #26 Lower Limb Amputation Rates over Twelve Years in Oklahoma

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Introduction
Vulnerable groups often underrepresented in national studies and at risk for limb loss are common in Oklahoma — including one of the highest proportions of American Indians and uninsured patients of any state. This study examines amputation trends in Oklahoma among patients with diabetes and/or peripheral artery disease (PAD) and potential risk factors related to amputation, setting a foundation for a new statewide limb-salvage program.

Methods
We conducted a 12-consecutive-year retrospective observational study using Oklahoma's hospital discharge administrative data from 2008-2019. Diagnoses and procedures prior to and after September 30, 2015, were coded using ICD-9 and ICD-10 diagnoses codes, respectively. The study population included patients ≥ 20 years of age with a primary or secondary diagnosis of diabetes and/or PAD. Major and minor non-traumatic amputation rates were calculated per 1,000 hospital discharges. The trends in amputation rates were measured through annual percent change (APC). Further analysis included univariate and multivariable analyses with an estimation of prevalence ratios with 95% confidence intervals (CI) and p-values.

Results
Approximately 500,000 inpatient discharges occurred each year from Oklahoma hospitals. Diabetes and/or PAD were present in 24% of discharges. The overall amputation rate was 12 per 1,000 discharges with diabetes and/or PAD and increased from 8.6 in 2008 to 16.2 in 2019 (APC: 6.0, 95% CI: 4.7-7.3). Minor amputations represented about 60% of all amputations and increased more rapidly (APC: 8.1, 95% CI: 6.7-9.6) than major amputations (APC: 3.1, 95% CI: 1.5-4.7). Amputation rates ranged from 2.5 for ages 20-24 years to 18.8 for 45-49 years, 7.6 for females to 16.7 for males, 10.7 for Whites to 19.2 for American Indian race, 8.1 for patients with Veterans Affairs/Military insurance to 21.2 for uninsured, 10.8 for married status to 12.7 for non-married status, and 3.4 to 19.2 by county of residence. All prevalence ratios for the above disparities were statistically significant ($p<0.01$) in both univariate and multivariable analyses.

Discussion
The amputation rate in Oklahoma has nearly doubled in 12 years with minor amputations increasing at a more rapid rate. Potential factors associated with the highest rates of limb loss in Oklahoma include ages 45-49 years, male sex, American Indian race, those without insurance, a non-married status and county of residence. These specific factors will help frame our statewide education and outreach efforts as our limb salvage program matures.

Abstract #28 Pediatric Resident Burnout: A Comparison of OU-Tulsa versus National Averages

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Introduction
Many resident physicians experience burnout caused by work-related stress, long work hours, and sleep deprivation. Burnout is characterized by emotional exhaustion, feelings of cynicism, depersonalization, and lower sense of personal accomplishment. The effects of burnout have been shown to negatively affect professional development as well as increase anxiety, depression, suicidal ideation, and substance abuse. This study focuses on pediatric residents, comparing average burnout rates of OU-Tulsa trainees with the national averages of other pediatric programs.

Methods
This multicenter prospective study, which assessed resident burnout and wellbeing, was led by the Association of Pediatric Program Directors Longitudinal Education Assessment Research Network. Surveys were sent to residents at participating programs across the U.S. during the spring of each year. Residents were considered "burned out" if they indicated feeling burned out or callous towards people once or more a week. Additional questions were asked regarding the perception of burnout in others. Annual aggregate data for the OU-Tula Pediatric program was provided by the lead site.

Results
OU-Tulsa's response rates for 2019-2021 were 61.76%, 64.29%, and 75%, which were at or above the national response rates. From 2019-2020 OU-Tulsa resident burnout remained at or below the national average. However, in 2021, OU-Tulsa burnout rose to 61% compared to the national average of 42%. Throughout the three-year time period a greater percentage of OU-Tulsa residents perceived their attending physicians as being burned out (23.5%, 29.4%, 41.2%), compared to their national peers (6.7%, 5.4%, 5.8%). A greater percentage also perceived their co-residents as being burned out (47.1%, 70.6%, 64.7%), compared to the national average (37.4%, 28.9%, 41.1%).

Discussion
It is difficult to pinpoint the exact causes leading to the increase in our program's reported burnout. There are several elements that could be contributing factors. During the survey period for 2021 our region began experiencing a significant increase in RSV cases, resulting in unusual hospital demand for the time of year. Program changes in response to the pandemic could have also played a role. Finally, the department has open, ongoing discussions regarding burnout which may influence perceptions of burnout in others. The possibility that our residents and faculty experience greater burnout than other programs cannot be discounted. Given our findings departmental leadership is currently forming a new research initiative to assess departmental climate and other organizational factors that may be contributing to burnout among both faculty, and staff.

Abstract #41 Gender Nonconforming and Nonbinary Patient Stigmatizing Experiences

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Introduction
In recent years, the medical field has made great strides towards recognizing the healthcare disparities that gender nonconforming and nonbinary people face. Gender minorities experience disproportionate rates of physical pain, substance use disorders, both type 1 and type 2 diabetes, elevated blood pressure, and mental health disorders including suicidality. Despite wider recognition of these disparities, there has been less focus on how patient experiences may be an intermediary contributing factor to health in gender minorities. We conducted a survey among an undergraduate population with a large oversample of gender minorities to better understand how gender minority status affects patient experiences.

Methods
One hundred and eighty-two undergraduate premedical students participated in this study. Participant gender included 39.4% women, 10.0% men, and 50.6% who self-identify outside of the gender binary. The mean age was 24.93 (*SD*=9.29). 70.9% of participants were white. Participants completed a 28 question survey consisting of demographic information along with questions gauging personal healthcare experiences, beliefs, and possible hesitancies when seeking healthcare.

Results
Men, women, and gender minorities were compared on perceptions that their health care was not a priority when they visit the doctor due to their gender. A one-way ANOVA revealed significant differences among the groups, $F(2,174)=14.10$, $p<0.001$. Post-hoc tukey tests showed gender minorities experienced this significantly more than women or men, with no significant differences between women and men. Additionally, regardless of sexual orientation, a one-way ANOVA with post-hoc tukey tests revealed gender minorities felt less comfortable disclosing their sexual orientation at the doctor as compared to men and women ($F(2,175)=6.56$, $p<0.001$), with no differences between men and women. Among the gender minorities, the more comfortable they felt sharing their gender identity at the doctor, the less they felt their healthcare was not a priority due to their gender, $r=0.21$, $p=0.044$.

Discussion
Our results indicate that gender minority status can manifest in experiences where patients feel their healthcare is deprioritized due to gender. Related, gender minorities were less comfortable sharing their sexual orientation at medical visits, possibly because of the gender stigmatization they are already experiencing. Although gender minorities may perceive that their healthcare was not prioritized due to their gender, comfort sharing gender identity was associated with more positive perceptions of feeling prioritized as a patient. Implications of this study include that experiencing stigmatization at the doctor may result in avoiding healthcare appointments, which could be a mediating factor in health disparities that gender minorities experience.

Abstract #42 Recruiting Oklahomans with HIV for Community-Based Research: Lessons from the NOURISH-OK Study

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Introduction
HIV research in the United States has primarily occurred in the Northeast and California, leaving out perspectives of people with HIV (PWH) from rural, socially conservative regions. Although there are an estimated 7,600 PWH in Oklahoma, no large-scale studies have been conducted on how social risk factors contribute to health disparities in this population. Stigmatizing behaviors (e.g., men who have sex with men), social identities (e.g., LGBTQ+) and historical roots of mistrust (e.g., Black, Indigenous, and people of color) may limit this group's ability or desire to participate in health research. It is unknown which research recruitment methods may be effective at generating a representative sample of Oklahoma PWH.

Methods
Conducted in collaboration with Tulsa CARES, a trusted social services agency with a 30-year history of serving PWH in Northeastern Oklahoma, the Nutrition to Optimize, Understand, and Restore Insulin Sensitivity in HIV for Oklahoma (NOURISH-OK) study is exploring how food insecurity contributes to insulin resistance for PWH (target sample n=500). A participant advisory committee recommended and refined recruitment strategies informed by existing literature on engaging PWH in research. Internal recruitment efforts to engage established Tulsa CARES clients included direct client mailings, case manager referrals, scripted phone calls, and client newsletter announcements. External recruitment efforts to reach eligible participants outside of Tulsa CARES included outreach via HIV medical clinics, social media, and community events. Recruitment strategies were compared using the percentage of participants reporting that strategy. Demographic profiles were used to assess the representativeness of the study population compared to Oklahoma's PWH population

Results
Between June 2021-January 2022, 212 PWH completed eligibility screening, 194 were study-eligible, and 136 completed their enrollment appointment. Most enrollees reported internal recruitment methods (95%), with Tulsa CARES staff referrals (53%) and scripted phone calls (33%) being most common. PWH with the lowest food security are the least represented (12% actual vs. 25% goal). Black and Hispanic adults, and those under age 35 are also noticeably underrepresented. Among enrollees with very low food security and who identified as Black or Hispanic, none were reached through external recruitment.

Discussion
Preliminary findings confirm collaboration with a trusted community-based provider is beneficial for engaging Oklahoma PWH in research. However, additional evidence-based targeted recruitment strategies will be needed to enhance representation of persons with very low food security, as well as digital recruitment strategies and Spanish-language options for broader reach to other underrepresented groups.

Abstract #44 An Evaluation of Trauma-Informed Nutrition Curriculum for Families in Transitional Housing

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Introduction
The experience of trauma can deprive a person of a sense of safety and autonomy. The vulnerability that trauma brings can lead to unstable housing and homelessness and affect one's ability to practice self-care. Trauma-related experiences are associated with poor nutrition and chronic health conditions including anxiety, depression, and obesity. This study evaluated whether a trauma-informed nutrition education has a positive impact on the general wellbeing and meal preparation skills of individuals in transitional housing.

Methods
As part of an Albert Schweitzer Fellowship, we delivered trauma-informed nutrition curriculum to residents of Lindsey House, which provides transitional housing and support services to women with children. 90-minutes lessons focused on nutrition, wellness, and culinary skills were delivered from the Leah's Pantry "Around the Table" curriculum weekly for 6 weeks. The trauma-informed lessons, including mindfulness activities, participatory conversation, and hands-on cooking activities, focused on relationship building, self-care, and how toxic stress contributes to poor nutrition and health. Of the 24 residents, 8 participated in class, and 6 consented to participate in a formal evaluation using pre- and post-surveys that were completed before the first session and after the final session. We assessed participants' self-reported cooking confidence, food meaningfulness, and healthy cooking behaviors (including fruits, vegetables, whole grains, and greens) using Likert scale response options. Changes in responses from pre- to post-surveys were reviewed to create new variables of "improved", "not improved", and "no change" for each item. A McNemar test was then conducted to evaluate changes in survey responses from baseline.

Results
Four out of six participants reported an increase in eating meals together as a family (p=.046), improved skills at planning or helping their family plan meals ahead of time (p=.046), and improved skill at keeping basic items in their pantry for putting meals together (p=.046). Additionally, five out of six participants reported feeling better about themselves (p=.025). No statistically significant improvements were observed in healthy cooking behaviors.

Discussion
Pilot results suggest that 6-weeks of trauma-informed cooking curriculum can improve cooking confidence and self-esteem among women with children living in transitional housing. Promoting self-care through this curriculum can mitigate the effects of trauma on longterm health and nutrition. Additional study of whether interpersonal benefits are derived from delivering the curriculum in small groups would provide valuable guidance. Ongoing lessons will increase the sample size and may provide sufficient statistical power to investigate the effects on healthy cooking behaviors with a larger sample size for s.

Abstract #54 Camp HOPE America: A Program for Helping Youth Exposed to Domestic Violence Embrace Hope and Resilience

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Introduction
Camp HOPE America has been providing evidenced-based camping and mentoring for youth exposed to domestic violence for 18 years. Using Synder's (2000) Hope framework, Camp Hope America works to bring positive change to the lives of youth exposed to family violence and trauma (Hellman & Gwinn, 2016). This study analyzed pre and post-test data to evaluate the change in Hope and resilience in the campers. Childhood psychological wellbeing is supported by hopeful thinking, as Hope can act as a buffer for stressors, and positively contributes to the amelioration of one's difficulties in life (Valle, 2006).

Methods
This research represents a program evaluation utilizing research data from 899 de-identified campers analyzing a matched pre-camp, post-camp and 30-day follow-up assessment design. The data provided matched comparisons for 604 campers from fifteen states across all three assessment periods. All camper data was de-identified. The average age of the campers was 11.47 (2.64 SD). Of the campers, 51.8% of the participating individuals indicated being female and 46.1% indicated being male. The reporting from the de-identified campers included child self-reports of Hope and Resilience and counselor observations of Hope. The assessments were based on Snyder's (2000) Children's Hope Scale for Hope. The resilience scale utilized was developed by the Hope Research Center for Resilience and included a six-point Likert- type response format (1=none of the time; 6=all the time).

Results
Hope scores increased from pre-test to post-test and again at the follow-up assessment. A repeated measures ANOVA showed that the increase in children's hope was statistically significant [$F(2, 1206) = 46.368$; $p < .001$]. This demonstrates that the individual's level of hope increased after participating in Camp HOPE.

Camp HOPE Resilience scores increased from pre-test to post-test and again at the follow-up assessment. A repeated measures ANOVA showed that the increase in children's hope was statistically significant [$F(2, 1174) = 31.592$; $p < .001$]. This demonstrates the individual's resiliency increased after participating in Camp HOPE.

Discussion
This study provided evidence that Camp HOPE America improves the hope and resilience of children exposed to domestic violence. The research indicated that the increases in Hope and Resilience among the campers were statistically significant. Camp Hope America provides pathways towards campers reaching their goals and encouragement in agency development. This study assists in evaluating the effectiveness of current Camp HOPE programs. The study strives to enhance research interests in sustaining hope in youth impacted by trauma and adverse childhood experiences.