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'Checkout Checklists' to Focus on Faculty Supervision in Clinic

Robert Badgett, M.D., Lisa Le, M.D., Elisha Brumfield, D.O.

University of Kansas School of Medicine-Wichita

Introduction
QI in residency is complicated by 1) many providers who are intermittently present on site, and 2) faculty preceptors who have variable focuses and interests. We proposed that we can more efficiently improve a system by focusing on the interaction between faculty and resident rather than focusing only on residents.

Methods
We created checklists to guide the routine visits between our patients and their resident primary care physicians. After discussion with clinic attendings, the checklist had four items that reminded: medication reconciliation, addressing at least two preventive items, scheduling of follow-up, and repeating abnormal blood pressures. In addition, charts were reviewed by a team of medical students. Goal blood pressure was less than 140/90. Impact was measured by both simple before-after analyses and segmented regression. Heterogeneity of performance was measured by I².

Results
Our baseline rate of control for the year 2018 was 58%. During 2019, the rate of control before and after introduction of checklists was 59% and 65% (p = 0.002). Segmented regression does not confirm a significant change but suggested an insignificant preintervention trend towards improvement. Chart review found small heterogeneity (I² = 23%) in blood pressure control across faculty preceptors. Informal inspection of data suggests the need for ongoing feedback to data to faculty and resident to sustain improvements.

Discussion
"Checkout checklists" allow efficient focus of QI efforts on the faculty-resident interaction. Initial data suggest improvement in the control of blood pressure, but more time is needed to confirm this.

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Religious Affiliation and Workforce Burnout

Robert Badgett, M.D.\textsuperscript{1}, Madhu Sharma, Ph.D.\textsuperscript{2}, Harold Koenig, M.D.\textsuperscript{3}

\textsuperscript{1}University of Kansas School of Medicine-Wichita, \textsuperscript{2}Duke University, \textsuperscript{3}Duke University School of Medicine

Introduction
Prior research suggests that spirituality and religious beliefs may protect against burnout. We compare burnout across major religions in the workforce in all English Trusts.

Methods
Our data source was the National Health Services (NHS) Staff Surveys, available for all English hospital Trusts from 2012 to 2018. The analysis focused on the year 2018, but trends were confirmed across all years. Prevalences and heterogeneity in burnout across religious groups were measured with a random-effects model. Modulators of burnout were explored with meta-regression.

Results
In 2018, there were 471,886 respondents. The pooled rate of burnout across all religious affiliations was 39\% with substantial heterogeneity ($I^2 = 100\%$). After excluding the 6\% of staff who withheld a response, the rates of burnout among staff reporting any versus no religious affiliation were 37\% versus 40\%. The rate of burnout among Hinduism (29\%), was statistically lower than in all other religions surveyed. This significance remained after using logistic regression to control for the presence of any religion, a western religion, or a Dharmic religion. Regarding harassment or discrimination as modulators, while these rates varied significantly across religions ($I^2 > 99\%$) and the rates for harassment tended to correlate with rates of burnout across religions, the associations did not reach statistical significance.

Discussion
Religious affiliation is associated with lower burnout in the NHS workforce. Among the world's major religions, Hinduism is associated with significantly less burnout compared to other religions. The substantial heterogeneity in rates of workforce burnout suggests an opportunity for mutual learning across religions.

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What is the Relationship between Hospital Staff Engagement and Mortality?

Robert Badgett, M.D.1, Leon Jonker, Ph.D.2, Sudha Xirasagar, Ph.D.3

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Introduction
Healthcare workforce engagement may represent a proactive approach against provider burnout, a common condition that is associated with organizational outcomes. We examine whether engagement is associated with hospital performance, measured as inpatient mortality.

Methods
We executed a panel study using respondents to the annual Staff Surveys in the English National Health Services (NHS) acute Trusts in the years 2012-2018. We measured engagement using three validated questions, and hospital performance using the summary Hospital-level Mortality Indicator (SHMI). In the first analyses, associations of SHMI with workforce engagement in the current, prior, and subsequent years were studied to find the optimum lag period for lagged regression analysis. In the subsequent cross-lagged regression analysis, bi-directional associations between SHMI and engagement were studied. Heterogeneity in engagement across Trusts was studied for the year 2017.

Results
In the first analyses, current SHMI was negatively associated with engagement in the current year ($\beta = -0.044; p = 0.035$) more than with the prior year ($\beta = -0.037; p = 0.049$). In the second analysis: a) engagement predicted same-year SHMI after controlling for prior year SHMI ($\beta = -0.044; p = 0.035$). A 1-unit higher engagement score was associated with 4.4% lower SHMI. SHMI predicted engagement in the same year ($\beta = -0.066; p = 0.001$) after controlling for prior-year engagement. More in-depth analysis showed high inter-trust heterogeneity on all engagement factors ($I^2 > 85\%$).

Discussion
Higher workforce engagement predicts lower mortality which in turn predicts engagement. Heterogeneity in workforce well-being suggests an opportunity to foster mutual learning across Trusts.

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Using Positive Deviance in Medical Education to Empower Learning

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Introduction
Positive deviance (PD) has been used successfully in clinical care but not applied to medical education. We introduced PD to help residents' tactics to speed the handling of outpatient test results, in order to: 1) improve the clinical process, and 2) expose trainees to PD.

Methods
Each resident attended a PD seminar of 7 to 8 residents. At each step of the seminar, residents' opinions were collected with a RedCap survey. Prior to the seminar, forest plots determined our overall proportion of results handled within 2 days (timely rate, TR), the TR of each resident, and the heterogeneity (I^2) of the group. The forest plots were anonymized and emailed before the seminar to each resident with their own result identified.

Results
Our baseline TR was 52% (range 0% to 97%; I^2 = 85%) with a mean of 7.4 days. In each seminar, after collecting and showing each member's tactics without attribution, 72% and 58% of residents voted to encourage the deviants and all participants, respectively, to identify uniquely successful tactics. After the seminar, 83% of residents assessed the session positively (p = 0.96 for comparison with the same assessment of other components in our last year-end curriculum survey).

Discussion
In this initial use of PD to empower learning on a mundane task, the residents' received the experience similarly to established components of our curriculum. The finding that 72% of residents encouraged identifying positive deviants suggests that about a quarter of residents were uncomfortable with this introduction to PD.

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Patient Satisfaction: A Framework for Clinical Practice

Katie Bailey, PA-S¹, Josie Eck, PA-S¹, Gregory Schuknecht, PA-S¹, Katty Regalado, PA-S¹, Sue Nyberg, PA-C¹, Gina M. Berg, Ph.D., MBA²

¹Wichita State University, ²University of Kansas School of Medicine-Wichita

Introduction
Patient satisfaction is influenced by multiple factors, such as patient and provider characteristics, and events surrounding the patient-provider encounter. Patient satisfaction is important because it impacts the patient's willingness to recommend the provider or facility, the likelihood that the patient returns, adherence to treatment plans, and clinical outcomes. The purpose of this study was to explore the factors associated with patient satisfaction.

Methods
This was a literature review of factors associated with patient satisfaction. Articles included were from Google Scholar, PubMed, and Pysch Info published from 2000 to 2019.

Results
This review included 90 articles. Patient satisfaction increased as age and education increased; gender and race both had variable findings. Mental health negatively affected satisfaction, but health status was inconsistent. Room aesthetics, quality of food, and parking availability improved patient satisfaction. Patient illness or injury was associated with satisfaction, but severity of injury was not. Adequate pain management improved satisfaction. Course of care was associated with satisfaction; including events preceding discharge and electronic discharge instructions and continuity of staffing. A larger patient census decreased satisfaction, and shorter wait times improved satisfaction, however, length of stay did not influence satisfaction. Physician interpersonal and competency qualities all improved satisfaction.

Discussion
Patient satisfaction is influenced by factors innate to the patient, events preceding and during the patient-provider encounter, as well as the technical and interpersonal qualities of the physician. These parameters interact with each other and lead to the patient's global evaluation of the care.

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Composition & Health Effects of JUUL: A Literature Review

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Wichita Collegiate School

Introduction
JUUL, a popular e-cigarette brand, was created as a cessation aid for smokers. The company is a focus of the FDA's investigation into the vaping epidemic, due to its popularity among adolescents. JUUL's advertising reveals its youth-oriented marketing approach. The FDA has placed multiple restrictions on the sale of e-cigarettes. The e-liquid within a pod contains a high nicotine concentration and several chemicals, which upon vaporization, can form volatile organic compounds (VOCs), including benzene, acrolein, formaldehyde, and acrylonitrile.

Methods
Information has been compiled about the JUUL company and device from scientific journals, focusing on proven health effects, similar experimental procedures, and JUUL's impact on public health and policy. Additionally, recent FDA restrictions and CDC reports related to e-cigarette vaping have been monitored. General information about the company and device was found on the JUUL website.

Results
Chronic use of JUUL can present adverse health effects, including mild weakness, confusion, and neurological and respiratory symptoms. FDA enforcement policies and CDC reports have been released, notifying the public of various lung illnesses appearing in e-cigarette users. Studies indicate that documented ingredients in the e-cigarette pod can undergo chemical reactions, such as ammoxidation and dehydration, becoming VOCs. Procedures described in these studies have influenced our experimental procedure.

Discussion
The information found in scholarly journals and publications from national health-safety organizations confirms the necessity of continuing article research, as well as experimentally investigating the contents of a JUUL pod.

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Qualitative Analysis: Composition of JUUL pods

Maricar Harris, M.A. Ed, John DeVore, Rebekah Harris, Harun Raffi, Max Salemi, Isabel Schmaltz
Wichita Collegiate School

Introduction
JUUL is a pod-based electronic-cigarette system that vaporizes a nicotine-containing solution, or e-liquid, into an inhalable aerosol. The e-liquid within a JUUL pod is composed of several chemicals. While these compounds do not pose a significant threat on their own, they can form multiple dangerous compounds when held at the energetic and catalytic conditions found inside the active pod.

Methods
JUUL aerosol was collected with an impinger setup and an Arduino connected to a peristaltic pump, simulating the inhalation of a device user. An external circuit was designed to override the JUUL’s original internal circuit. Solid-phase microextraction (SPME) was also used to collect aerosol samples. Both methods utilized a gas chromatograph (GC) for final analysis.

Results
Our prediction is that the GC analysis of the JUUL aerosol will confirm the presence of the harmful chemical compounds benzene, acrolein, acrylonitrile, and formaldehyde. Using retention time data of standards, components of the aerosol will be identified.

Discussion
Studies have proven that harmful chemical compounds are produced in e-cigarette aerosols, despite not being listed on the product’s labeling. If these compounds are present, JUUL presents serious physiological and carcinogenic risks and is far more dangerous than the general public perceives.

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Renal Function Post-Bariatric Surgery: A Chart Review

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1University of Kansas School of Medicine-Wichita, 2Via Christi Regional Medical Center

Introduction
Obesity affects 93.3 million adults in the United States and is a predisposing factor for the development of chronic kidney disease (CKD). Bariatric surgery is a treatment option for obese patients and can lower all-cause mortality at five years post-procedure. The objective of this study was to examine the association between weight loss and kidney function in patients undergoing bariatric surgery following an eight-week multidisciplinary weight-loss program.

Methods
Retrospective chart review of patients who voluntarily participated in an eight-week multidisciplinary weight loss program prior to bariatric surgery. The primary outcome of the study was to assess the association between weight loss and renal function in patients undergoing bariatric surgery. Changes in hemoglobin A1c, lipids, fasting glucose, and blood pressure were collected as secondary outcomes.

Results
Patients included in the study had a baseline glomerular filtration rate (GFR) less than 60 ml/min/m2. Among the 55 patients included, baseline GFR was 49 ml/min/m2, 80% were female, and the average baseline weight was 289 pounds. At one-year post-operation, there was a 68% improvement in CKD stage and significant improvement in GFR (p=0.025). There was a negative correlation between weight and GFR (p=0.013). Of note, patients with hyperlipidemia at baseline had a smaller rise (p=0.007) in GFR compared to patients without the diagnosis at one year.

Discussion
This study highlights a correlation between weight loss and improved renal function, suggesting that renal function improves with weight loss following bariatric surgery among patients who participate in a pre-operative multidisciplinary weight loss program.

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Pediatric Mental Health Network Workforce Development

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Introduction
Ninety-nine of the 105 counties in Kansas are designated as mental health professional shortage areas. This shortage leaves more than 70% of Kansas children with unmet mental health needs. To address this shortage, KSKidsMAP Pediatric Mental Health Access Program aims to support primary care physicians and clinicians in Kansas to screen, diagnose and treat uncomplicated pediatric mental health concerns in their own practice to increase access to care for children and adolescents and build a network for PCPs to support one another.

Methods
Through collaboration and partnerships KSKidsMAP has facilitated two 3-day intensive, in-person courses focused on diagnosing and treating children and adolescents with behavioral health concerns. KSKidsMAP staff have also collaborated with pediatric and family medicine clinic managers and area health educators across Kansas to conduct outreach.

Results
From July 2019 through March 2020 KSKidsMAP program staff have conducted 343 outreach efforts, 61.2% (n=210) via email or traditional mail to training attendees and other identified physicians/clinicians across Kansas; 18.4 % (n=63) consisted of in-person meetings and presentations; 14.9% (n=51) were media efforts (i.e. newsletters, social media post, and other publications); and the remaining 2% consisted of videoconferencing meetings (n=7). KSKidsMAP enrollment goal is 50 physicians/clinicians by April 2020. Outreach efforts have resulted in the enrollment of 48 physicians/clinicians who serve 31 out of 105 of Kansas counties.

Discussion
Multimodality outreach efforts seem to be effective in recruiting physicians and clinicians for this mental health capacity-building program. Future efforts could be targeted at specific modalities that seem to generate the most enrollment.

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Pre-Transplant Cognitive Impairment is Associated with Increased Rates of Early Post-Transplant Rehospitalization

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Introduction
Cognitive impairment is common in patients with kidney disease and can affect patients understanding of transplant care and kidney transplant (KT) outcomes.

Methods
We conducted a single-center longitudinal cohort study to evaluate the association of pre-transplant Montreal cognitive assessment (MoCA) scores with length of hospitalization for KT and post-transplant rehospitalization rates. We used multiple regression for duration of hospitalization for KT and logistic regression for rehospitalization within 30 days.

Results
In total, 207 patients underwent MoCA testing before transplant and were included in the analysis. Patients with cognitive impairment were more likely to be older, black, and smokers. The duration of hospitalization was independent of MoCA score but associated with a history of coronary artery disease ($\beta$ coeff=2.29, $p=0.002$) and duration of dialysis before KT ($\beta$ coeff=0.56, $p<0.001$). The odds of readmission within 30 days was higher with lower MoCA scores.

Discussion
Pre-KT cognitive impairment does not affect length of hospitalization for KT, but is associated with higher odds of 30-day rehospitalization after KT.

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Recent Evolution in the Management of Lymph Node Metastases in Melanoma

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Introduction
Based upon two large randomized international clinical trials (German Dermatologic Cooperative Oncology Group (DeCOG-SLT) and Multicenter Selective Lymphadenectomy Trial II (MSLT-II)) which were published in 2016 and 2017, respectively, active surveillance has been demonstrated to have equivalent survival outcomes to completion lymphadenectomy (CLND) for a subset of patients who have microscopic lymph node disease. In this study, we examined the changes in national practice patterns regarding the utilization of CLND after positive sentinel lymph node biopsy (SLNB).

Methods
Using the National Cancer Database, we examined CLND utilization in SLN-positive patients diagnosed with melanoma between 2012 and 2016. A hierarchical logistical regression model with hospital-level random intercepts was constructed to examine the factors associated with SLNB followed by observation vs. SLNB with CLND.

Results
Of the 148,982 patients identified, 43% (n=63,358) underwent SLNB, and 10.3% (n=6,551) had a SLNB with microscopic disease. CLND was performed for 57% (n=2,817) of these patients. Patients were more likely to undergo CLND if they were <55 years of age (OR, 0.687; p=<0.0001), ages 56-65 (OR, 0.886; p=0.0237), Charlson Deyo Score = 0 (OR, 0.859; p=0.0437), or were diagnosed with melanoma in 2012 (OR, 0.794, p=<0.0001).

Discussion
We found the utilization of CLND among patients with microscopic nodal melanoma to be significantly lower in 2016 compared to 2012. Younger age, lack of comorbidities, and primary tumor location on the trunk or head/neck were associated with higher utilization of CLND.

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Guideline Compliance in Dyspepsia Investigation and Treatment

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Introduction
Provider compliance with the 2005 American College of Gastroenterology Guidelines for the Management of Dyspepsia and the 2017 American College of Gastroenterology and Canadian Association of Gastroenterology joint Dyspepsia Management Guidelines was assessed on a national level using data from the National Ambulatory Medical Care Survey (NAMCS).

Methods
Patient visit data, including reason for visit of dyspepsia, diagnosis of dyspepsia, or diagnosis of H. pylori infection from NAMCS years 2012 through 2015, were used. Provider compliance with dyspepsia management guidelines was determined based upon provision of at least one recommended test or treatment for dyspepsia.

Results
Providers appeared to be compliant with the 2005 ACG guidelines for 49.7% of patient visits. Providers appeared to be compliant with the 2017 ACG/CAG guidelines for 51.0% of patient visits.

Discussion
Low compliance with dyspepsia guidelines may be attributable to low knowledge of clinical guidelines. Compliance may improve with increased dissemination of guidelines, dyspepsia management workshops, and increased monitoring of endoscopy use. Provider compliance with the 2005 ACG and the 2017 ACG/CAG Dyspepsia Management Guidelines was determined to be low in this study, highlighting the need to increase evidence-based medical treatment and efficient resource use for dyspepsia.

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Incidence and Risk Factors Associated with Cuff Dehiscence After Robotic-Assisted Laparoscopic Total Hysterectomy

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Introduction
Cuff dehiscence (CD) is a serious complication of robotic-assisted laparoscopic total hysterectomy (RLTH), which is performed for malignant or benign indications. The primary objective of this study was to evaluate if there is a difference in the incidence and risk factors of CD following RLTH among patients with endometrial cancer compared to patients without endometrial cancer.

Methods
This retrospective study included women 18 or older who underwent RLTH performed by one of two surgeons from a single institution from January 1, 2013 through March 31, 2018. Conversion to open laparotomy, chemotherapy and/or radiation within a year before or after RLTH, and malignancies other than endometrial cancer were excluded. Data were abstracted from patient medical records.

Results
Of 950 patients meeting inclusion criteria, 50.7% (n=482) had endometrial cancer. CD was reported in 2.5% (n=24) of all patients. While holding other variables constant, obese patients were 25.1% less likely than normal weight patients to experience CD, \( \chi^2(1, N=675)=6.49, P=.011 \). Additionally, CD was 2.8 times more likely to occur when surgery was performed by surgeon A compared to surgeon B while other variables in the model were held constant, \( \chi^2(1, N=675)=4.87, P=0.027 \). No other variables (cancer status, age, sexual activity after surgery, distance from home to location of surgery, time interval from surgery to loss to follow-up) predicted CD.

Discussion
Endometrial cancer patients were at no greater risk of experiencing CD compared to non-cancer patients. This study suggests that BMI and surgeon differences are the only variables associated with incidence of CD.

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Bariatric Surgery Reduced Liver Enzymes in Patients with Non-Alcohol Fatty Liver Disease

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Introduction
Currently, 93.3 million Americans are obese with 95% having non-alcoholic fatty liver disease (NAFLD) which can progress to Non-Alcoholic Steatohepatitis (NASH), the leading cause of liver transplant in the United States. Given that weight loss is the main standard of care for NAFLD, bariatric surgery is being studied as a means to decrease adiposity and hepatic steatosis. This study analyzes liver enzyme levels following bariatric surgery in NAFLD patients up to one year post-surgical intervention.

Methods
This study is a retrospective analysis of adults with NAFLD who underwent bariatric surgery from 2009 to 2016. The primary outcome was to evaluate the effect of bariatric surgery on liver enzyme levels. Secondary outcomes included the effect on HbA1c, lipid levels, blood pressure, medication use, and alkaline phosphatase levels.

Results
A total of 130 patients were analyzed with 80% Caucasian females with an average BMI of 47.50 kg/m². Liver transaminases were reduced by 50% at one year following surgery. Patients experienced significant reductions in blood glucose, HbA1c, LDL, total cholesterol, and triglycerides with a noted increase in HDL. Significant correlations between alkaline phosphatase and ALT were noted at six months (p=.0101) and one year (p=.0547) and AST at six months (p=.0009). When patients were separated by obesity class, patients with class two obesity experienced improved outcomes.

Discussion
Data obtained from this study indicates that bariatric surgery reduces liver transaminases in NAFLD patients. Patients additionally experienced significant reductions in associated metabolic parameters. These findings suggest that bariatric surgery is a viable treatment option for NAFLD patients.

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Where are the Certified Nurse-Midwives in Rural Kansas?

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Introduction
This study investigated the number of certified nurse-midwives (CNMs) and their geographic distribution in rural Kansas. We also interviewed hospital leadership to examine anticipated trends in the CNM workforce in rural Kansas hospitals in the coming five years.

Methods
Electronic surveys were distributed to hospital administrators across 99 hospitals in 83 of the 99 non-urban counties in Kansas between June to July 2019. The survey included questions about the number of CNMs with privileges at hospitals, scope of CNM privileges, and a five year forecast of the CNM workforce in rural Kansas hospitals. Data on the number of CNMs living within Kansas were obtained from the Kansas State Board of Nursing Data Mailing List.

Results
Of the 60 hospitals that responded to the survey, only one non-urban hospital reported having CNMs with privileges. Over the next five years, 50 of the 58 respondents did not anticipate the number of CNMs with privileges to increase at their hospitals. There were 71 CNMs with residential addresses in Kansas, of which 19 lived outside of urban counties. These 19 CNMs lived in 14 of the 99 non-urban counties, with only one CNM living in a frontier county.

Discussion
Across rural Kansas, there is a scarcity of CNMs, and many rural hospitals do not anticipate an increase in CNMs over the next five years. Future research must focus on understanding the factors limiting CNM expansion in rural Kansas, since CNMs represent a potential untapped additional obstetric workforce for rural Kansas.

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Intra-operative Radiation Therapy versus Whole Breast External Beam Radiotherapy: A Comparison of Patient-Reported Outcomes

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Introduction
This project sought to compare patient-reported outcomes between patients with low-risk breast cancer who received intra-operative radiation therapy (IORT) and those who qualified for IORT but received whole-breast external beam radiation therapy (EBRT) following breast-conserving surgery (BCS).

Methods
Three scales from the BREAST-Q Breast Cancer BCT Module Version 2.0 questionnaire were used to collect patient-reported outcomes regarding post-operative physical well-being of the chest, post-operative satisfaction with breasts, and post-operative adverse effects of radiation.

Results
Patients who received EBRT travelled farther than patients who received IORT to complete treatment. Respondents who received IORT reported better physical well-being of the chest than those who received EBRT. Regression reveals that the respondent's age was the determining factor in the difference between IORT and EBRT post-operative physical well-being equivalent Rasch-transformed scores, where younger patients report poorer well-being. There was no difference in patient-reported outcomes regarding post-operative satisfaction with breasts or post-operative adverse effects of radiation.

Discussion
Sample size was severely limited by the number of patients who received IORT. Risk-adapted criteria necessarily limits the patient pool, so only 45% of BCS patients were considered to be low-risk and eligible for IORT. The small sample size can also partly be attributed to some private insurers considering IORT to be experimental, including the largest insurance carrier in the state.

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Analysis of Long-term VEGF Suppression on the Retina and Influences of Comorbidities

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Introduction
Retinal vein occlusion (RVO) can lead to severe vision loss and is treated with retinal anti-vascular endothelial growth factor (anti-VEGF) injections. The purpose of this study was to investigate the long-term anti-VEGF-induced changes to the retina and the influences of comorbidities on patient outcomes.

Methods
Thirty-four eyes underwent "treat and extend" (TREX) treatment for RVO and were retrospectively analyzed. Changes in best corrected visual acuity (BCVA) and central macular thickness (CMT) were the primary outcomes measured. Frequency of injections and duration of treatment were the independent variables considered. Mean change in BCVA in eyes treated was -0.03 LogMAR (p=0.053) and change in CMT clinically decreased -83 (p=0.67). Any maintenance or reduction was beneficial for long-term patients, with a mean treatment duration of nine years. Comorbidities of hypertension and diabetes were associated with less BCVA improvement than among those without hypertension or diabetes.

Results
Bivariate analyses suggested that TREX RVO anti-VEGF-treated patients had improvements or maintenance of visual acuity from pre-treatment to last measured value. The results of BCVA in this study's mean nine-year treatment time is consistent with previous studies duration of treatment extending to five years.

Discussion
Multivariate analysis in a model, including frequency of injection, suggests a patient with hypertension will have less improvement in BCVA than a patient without hypertension. Analysis of a model, including treatment duration, suggests a patient with diabetes will have decreased eyesight compared to a patient without diabetes.

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National Trends for Stage and Grade Group at Diagnosis of Incident Prostate Cancer in the US from 2010 through 2016

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Introduction
In the years immediately following the 2011 U.S. Preventative Services Task Force update to prostate specific antigen (PSA) screening guidelines, studies indicated a decline in PSA testing, prostate biopsy, and subsequent prostate cancer diagnosis and definitive local treatment. This project sought to perform a contemporary analysis of stage and grade at diagnosis for prostate cancer in the U.S. The primary study objective was to quantify the yearly prostate cancer incidence per 100,000 men comparing consecutive years from 2010 through 2016.

Methods
This was a retrospective study performed using the Surveillance, Epidemiology, and End Results Program. Inclusion criteria were men ≥ 40 years with prostate cancer diagnosed between the years 2010 and 2016.

Results
In total, 370,865 cases of prostate cancer were analyzed. Overall, the incidence of prostate cancer decreased from 522 to 327 cases per 100,000 persons from 2010 to 2016. Conversely, the rate of metastatic disease increased over this duration from 29 to 37 cases per 100,000 persons. This was mostly associated with patients ≥70 years, whose increase was from 21 to 27 cases per 100,000 persons over the seven years. The incidence of high-grade disease did not change significantly over the study period, though grade groups one and two decreased from 204 and 155 to 116 and 115 cases per 100,000 persons, respectively.

Discussion
In the years following the 2011 recommendation against PSA screening, there were fewer localized prostate cancers and more distantly metastatic prostate cancer diagnosed. Most metastatic disease was diagnosed among men ≥70 years.

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Introduction
Human papillomavirus (HPV) is estimated to be the most common sexually transmitted infection, with about 14 million people acquiring the infection each year. The purpose of this study was to explore what parents in Wichita, Kansas know about HPV, the HPV vaccine, and to identify potential determinants of HPV vaccination for male youth.

Methods
Data were collected for this project using a 46-item survey in English and Spanish. Eligible participants were limited to parents/guardians of male patients aged 11 to 17 years old who presented at the University of Kansas School of Medicine-Wichita Pediatric Clinic from January 1 through November 31, 2019. Participation was voluntary and did not alter the care the patient received at the clinic. Descriptive statistics and chi-square analyses were conducted.

Results
Of the 59 surveys completed, 14 participants reported having a male child 11 to 17 years. Most participants were mothers and identified as Hispanic. Participants who were open to their son receiving the HPV vaccine were more likely to correctly report that HPV causes cancer and can be transmitted by an asymptomatic person. However, 71% of participants reported that the HPV vaccine was optional. Thirty-six percent reported that their decision to vaccinate or not was influenced by their physician’s recommendation.

Discussion
This study and similar studies are needed to understand the general population's knowledge of HPV and the prevailing reasons underlying parents’ decision to vaccinate male youth for HPV or not, as this could help healthcare providers to modify their approach and resources to achieve greater vaccination rates.

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Factors in the Effectiveness of Radium-223 (Xofigo) Treatment: A Retrospective Study

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Introduction
The purpose of this study was to investigate possible factors in the effectiveness of Xofigo treatments administered to metastatic prostate cancer patients in a non-academic, clinical setting.

Methods
This retrospective study was conducted at a Midwest advanced prostate cancer clinic. Patients had hormone refractory prostate cancer, symptomatic skeletal metastases, and initiated Xofigo treatments between 2015 and 2019. Variables abstracted from the clinic EHR included: patient history, previous and concurrent treatments, pathology, lab values, number of completed treatments, and adverse events. Treatment was considered effective if there was: a decrease of at least 30% in pretreatment alkaline phosphatase (ALP), normalization of pretreatment ALP, or a 25% decrease in pretreatment prostate specific antigen (PSA).

Results
Sixty-seven participants met inclusion criteria. Most patients (80%) were white, non-Hispanic, and patients’ mean age was 74 years. Xofigo was considered effective for 47% of patients. Bivariate analysis suggested that those "effectively treated" experienced a seven-month shorter delay in Xofigo treatment from detection of osseous metastasis initiation than those not effectively treated (p=0.02). Multivariate analysis did not demonstrate this difference between the groups.

Discussion
Previous studies have suggested that patients with mild symptoms from osseous metastasis that are treated with Xofigo have higher survival than those with moderate severe symptoms. This could be why our bivariate analysis suggested that our effectively treated patients had a shorter Xofigo delay. Further study with a larger sample size is needed to elucidate if a difference exists in Xofigo delay or other variables between effective and ineffective treatment groups.

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Removal or Non-Removal of the Rib during a Direct Lateral Interbody Fusion Relative to Postoperative Pain and Clinical Outcomes: A Retrospective Cohort Study

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Introduction
No studies have evaluated pain or clinical outcomes associated with rib removal during a DLIF compared to non-removal. The objective of this study was to evaluate whether rib removal during an L1/L2 DLIF produces a difference in postoperative pain or clinical outcomes relative to a DLIF without rib removal.

Methods
Patients 18 years or older who underwent a direct lateral interbody fusion (DLIF) by one surgeon from January 1, 2014 through December 31, 2018 were considered for the study. Outcome measures included postoperative visual analogue scale (VAS) pain rating, estimated blood loss (EBL), length of stay (LOS), and postoperative recovery time (PRT).

Results
A total of 137 patients' data were included in analysis. Of those, 55% (n=76) of patients had undergone rib removal during a DLIF, and 45% (n=61) of patients had undergone a DLIF without rib removal. There was no difference in patient demographics between the two groups. The mean VAS pain rating at discharge was 1.9 (SD 1.0) for patients with rib removal and was 1.6 (SD 0.9) for patients without rib removal. There was no difference in postoperative pain or clinical outcomes (EBL, LOS, PRT) between the two groups.

Discussion
This study suggests there is no difference in pain or clinical outcomes between patients who had undergone a DLIF with or without a rib removal. These results signify that rib removal during a DLIF is feasible when presented with anatomical obstruction by the rib and appears to produce no difference in postoperative pain or other clinical outcomes.

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Oral Allergy Medication Use and its Impact on Positive Depression Screens in Teens

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Introduction
Between 2005 and 2014, the 12-month prevalence of major depressive episodes among adolescents 12 to 17 years increased from 8.5% to 11.3%. Adolescent-onset depression is related to increased risk for depression and suicidal attempts in adulthood. It is known that depression is an adverse effect among adults taking Oral Allergy Medication (OAM); however, the effect of OAM on adolescents is unknown. The aim of this study was to describe the relationship between Patient Health Questionnaire 9-Modified (PHQ9-M) scores and OAM use among adolescents.

Methods
This study included data abstracted from charts of adolescents aged 12 to 21 years who completed a Kan Be Healthy wellness appointment at the KUSM-W Peds Clinic in 2017. Odds ratios were used to calculate the relationship between OAM use among adolescents and PHQ9-M scores.

Results
Of the 425 adolescent charts analyzed, 22% (n=96) had positive PHQ9-M screens (a score of 10 or greater), and 13% (n=56) reported current use of allergy medication. Adolescents taking oral allergy medication were 1.77 times more likely to have a positive PHQ9-M screen than those not taking oral allergy medication. Among adolescents on allergy medication, there was no difference in PHQ9-M scores based on the drug class (1st or 2nd generation antihistamine or Monteluakast).

Discussion
Healthcare providers must diligently explore OAM use with adolescents during clinical encounters and discuss possible adverse effects of OAM on mood.

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Clinic-Based Screening to Address Food Insecurity: A Pilot Study

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Introduction
Approximately 14.3 million U.S. households (11.1%) are food insecure. Food insecurity has concerning effects on patients' health, increases healthcare costs, and makes healthcare interventions less successful. The purpose of this study was to evaluate the potential association between one's demographics and whether one is food insecure or not.

Methods
This study used a previously validated survey, The Hunger Vital Sign™, and an eight-month educational intervention to address food insecurity. Patients aged 18 and older at three family medicine residency clinics in Wichita, Kansas were eligible to participate. Chi-square and t-test analyses were conducted to explore differences between demographic groups and food security status.

Results
Eighty-three patients completed the survey. Participants ranged from 20 to 92 years in age (M = 45, SD = 15.5). Fifty-eight percent of participants were food insecure. Sixty-four percent of participants who lived in a food desert were food insecure. Participants in the age range of 35 to 44 years reported having food insecurity 71% of the time. Food insecurity was experienced in 67% of households with two or more children. However, no demographic variable was associated with being food secure or not. Fifty-nine percent of participants asked to receive educational materials and local resources.

Discussion
The current study suggests that one's demographics are not associated with whether or not one is food insecure. This study did demonstrate that food insecurity screening at family medicine residency clinics is a realistic option to identify patients who are food insecure and provide patients an opportunity to request and find resources.

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Resident Training on Methylene tetrahydrofolate Reductase: A National Survey

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Introduction
Methylenetetrahydrofolate reductase (MTHFR) is an enzyme important in folate metabolism. Genetic polymorphisms of MTHFR have broad clinical implications including in the treatment of Major Depressive Disorder. Because of the broad clinical implications of MTHFR genetic polymorphisms, residents in a variety of specialties must understand how to identify MTHFR gene variants, interpret their clinical implications and be aware of treatment options.

Methods
Using a snowball sampling method, a national online survey was sent to residency program directors in family medicine, internal medicine, and psychiatry to be forwarded to their corresponding residents. Data was collected between April 5, 2019 and May 14, 2019. Statistical tests included a Pearson chi square test. Qualitative content analysis for open item responses was conducted in which recurring keywords and phrases were summarized. The primary outcome of interest was a dichotomous question: Does your curriculum teach about MTHFR?

Results
There were 422 participants who consented to the survey and affirmed that they were a resident. The survey results showed most participants were unaware of the MTHFR gene (family medicine: 153/166, 92%, internal medicine: 135/151, 89%, psychiatry: 70/90, 78%) and the clinical associations of MTHFR genetic polymorphisms with cardiovascular diseases and psychiatric disorders.

Discussion
While many residents may be aware of the MTHFR gene, most of the knowledge was minimal, especially when it came to the many effects of genetic mutations. Therefore, we recommend curricula in residency training programs to be updated to include content about MTHFR gene mutations.

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The Use of Immunomodulatory Therapy in the Treatment of Keratoacanthomas

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Introduction
Keratoacanthoma’s (KA) are common neoplasms of the squamous epithelium generally accepted to be a form of low grade well-differentiated squamous cell carcinoma (SCC). The standard-of-care is operative treatment, with shave excision the most common form of therapy. However, many cases of KA may be more suited for a non-operative approach. Known alternative, non-operative management options for keratoacanthomas include the use of topical and/or intralesional medications.

Methods
A comprehensive literature review was performed and identified 1,693 instances in which a non-operative approach was used to treat keratoacanthomas. Study eligibility required 1) full-text reports; 2) studies reporting non-operative treatments for KAs; and 3) studies reporting outcome measures. Following eligibility criteria, 41 studies were identified and read from which our data was extracted. The primary outcome measure was percentage of patients achieving KA resolution. Statistically analysis was performed using a 2-tailed parametric t-test using a p<0.05 as statistically significant.

Results
In our study, overall resolution of KAs did not statistically differ between route of administration (92-100%). Intralesional 5-FU led to faster resolution than intralesional methotrexate (3.7 weeks vs 4.6 weeks, p=0.017). Topical 5-FU application resulted in faster reported lesion resolution when compared to patients applying topical imiquimod (3.8 weeks vs 7.6 weeks with imiquimod, p<0.0001).

Discussion
Our study demonstrates that an alternative, non-operative approach for KAs is a feasible option for large and/or recurrent KAs. Lastly, many authors have also noted excellent cosmetic results; therefore, this approach to therapy may also extend to the treatment of KAs in easily visible areas.

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Annual Wellness Visits: Usefulness and Practicality

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Introduction
Since 2011 Medicare has fully covered annual preventative care visits. One purpose of such coverage was to provide clinicians an opportunity to review preventative health recommendations with patients. Although nationally it has been shown Medicare patients are utilizing annual wellness visits (AWVs), there has been question as to whether AWVs are being utilized within Kansas and what impact they are having on preventative services.

Methods
This study analyzed office visits at the KU Wichita Internal Medical Resident Clinic from January 1, 2019 to December 31, 2019. Data gathered included patient's age and gender, office visit coded, insurance type, and days since last visit. The number of patients eligible for screening mammograms and colonoscopies was defined as men and women ages 50-75 years old. A statistical analysis was performed to determine the relationship between annual wellness visits and screening mammograms and colonoscopies.

Results
During the time frame stated 870 office visits were conducted at KU Wichita Internal Medicine Resident Clinic. A total of 38 of those patients seen had had AWVs within the past year. Of the 870 patients, 338 were insured by Medicare and only 20 of those patients were recorded to have an AWV. The overall rate of screening colonoscopies and mammograms was 13% and 9% respectively compared to 15% and 30% of screenings that occurred amongst patients who received an AWV.

Discussion
AWVs are not being utilized and when they are, they do not appear to make a significant impact in the rate of screening mammograms or colonoscopies.

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Hypothetical Surgical Preference among Women Without Breast Cancer

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Introduction

The two primary surgical approaches for breast cancer are mastectomy and breast conservation surgery (BCS). Long-term survival between the two approaches are equivalent, but BCS has decreased psychosocial morbidity. Yet, mastectomy continues to grow in popularity. To understand this phenomenon, this study surveyed women without breast cancer to assess if breast cancer knowledge was associated with hypothetical breast cancer surgical preference.

Methods

Participants were women 18 years or older who presented to one of two internal medicine clinics affiliated with the University of Kansas School of Medicine-Wichita between June 9 and July 6, 2018. They completed a survey that included demographic questions, breast cancer knowledge questions, and then selected their surgical preference for a hypothetical breast cancer scenario. Women who were previously diagnosed with breast cancer were excluded from the study. Women who answered five or more questions correctly were considered “high-knowledge,” and women who answered four or fewer questions correctly were considered “low-knowledge.”

Results

Forty-nine percent (n=17) of women with “high knowledge” (n=35) selected breast conservation surgery, and 76% (n=10) of women with “low knowledge” (n=13) selected breast conservation surgery (p=0.1032). Breast cancer knowledge was not associated with respondents’ hypothetical breast cancer surgical preference.

Discussion

The present study suggests that knowledge may not contribute to surgical preference among women without breast cancer. Additionally, the study was unable to identify other factors that might be associated with breast cancer surgical selection such as race, highest level of completed education, and close relationship with someone who has had breast cancer.

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Knowledge, Attitude and Practices of Junior Doctors to Disaster Management Across 7 Tertiary Care Hospitals in Pakistan - A Retrospective Analysis from 2015

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Introduction
In this study, we have explored the knowledge, attitude and practices of young Pakistani doctors toward disaster management.

Methods
This is a cross sectional study based on a pre-designed questionnaire containing both open and close ended questions. Junior doctors (having a maximum of two year post MBBS experience) were included in the study from seven leading tertiary care hospitals of Karachi, Pakistan. The data were analyzed to compute descriptive statistics using SPSS version 16.

Results
A total of 371 junior doctors responded to the questionnaires. 90% of the respondents had at least an idea about the term disaster management. However, and interestingly, only 59.5% were aware of any details regarding disaster management plans. 6.8% of the respondents were not aware of where to find disaster plans in their hospital and therefore they did not know any source of information which they could contact to get disaster management plans and/or training. Furthermore, 70.4% of respondents documented that there are no disaster management drills in place in their hospitals. In line with this observation, 94.1% respondents believed that the hospital management should be well prepared in advance for combating against disasters. These findings suggest that a wide majority of young doctors believe in preparedness as an important tool to combat the serious effects of natural disasters.

Discussion
These findings suggest that a wide majority of young doctors believe in preparedness as an important tool to combat the serious effects of natural disasters.

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Nivolumab Versus the Standard of Care for Cancer Therapy: A Meta-Analysis of 6 CHECKMATE Trials Comparing Overall Survival

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Introduction
Nivolumab (N) is an antineoplastic agent approved for multiple different tumor origins, as well as tumor agnostic based on MSI status. Thus, understanding the tumor characteristics most predictive of response is essential. Living meta-analysis provides a method to continuously assimilate emerging trials. In this study, we created a living meta-analysis to compare the effect of N on overall survival (OS).

Methods
Meta-analysis was conducted according to the PRISMA guidelines. PubMed and Cochrane databases, and conference abstracts (e.g., ASCO, ESMO) were searched for phase III CHECKMATE RCT's that reported OS among cancer patients receiving N.

Results
Six phase III trials involving 3,342 patients (1,826 in N arms) treated for four different types of cancer were retrieved. Median follow up was 12.1 months [range: 5.1-25.2]. Improved efficacy and safety were observed in all N arms compared to control groups (22.8% ORR; 17.4% grade 3-5 AE vs 15.1% ORR; 51% grade 4-5 AE). Treatment was N alone, SOC chemo, and N + chemo in four (33%), six (50%), and two (16%) arms, respectively. Primary endpoints were OS in the first-line setting in 50% of all arms. Excluding one RCT due to insufficient survival data, the mean median OS was 11.1 [95% CI: 7.5-14.4] vs 8.7 [95% CI: 5.1-13.2] months in the total populations for all N and control arms, respectively. N improved OS when used in any cancer type, setting, or therapy for advanced refractory or chemo-naive cancer patients. Also, efficacy of N was improved with PD-L1%.

Discussion
Among all trials, N was associated with improved OS. Additional meta-analysis is ongoing with R software (version 3.3.3; R Fdn.). Random-effects models will be used to compare OS. Heterogeneity will be assessed with Cochrane Q-statistic and quantified with I² test via subgroup analyses for cancer type, setting, therapy, and PD-L1%.

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Characterization of Optimal Reduction Maneuver During Simulated Periacetabular Osteotomy

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Introduction
Acetabular reorientation during periacetabular osteotomy (PAO) is generally directed by surgeon experience and guided by intraoperative fluoroscopic imaging. Accurate acetabular reorientation is important to normalize acetabular coverage and avoid iatrogenic femoroacetabular impingement. The purpose of this study was to utilize a novel three-dimensional CT-based modeling methodology to characterize the reduction maneuver of the acetabular fragment required to normalize acetabular coverage in patients with symptomatic acetabular dysplasia.

Methods
Preoperative low-dose CT scans were obtained in 50 patients with symptomatic acetabular dysplasia and were utilized to perform a simulated PAO using 3D software. Acetabular coverage was characterized by measurement of the lateral center edge angle (LCEA) on simulated radiographs that were obtained from reconstruction of CT scans. Simulated PAO was performed by restoring a LCEA of 30° by lateral tilt of the fragment along with rotation in order to normalize anterior and posterior coverage.

Results
Normalization of acetabular coverage required a mean of 13.2° ± 4.4° of lateral tilt of the acetabular fragment, while version changes were highly variable (mean 1.9° ± 6.1° of fragment anteversion). Twenty hips (40%) required anteversion of the fragment of > 5°, while 14 (24%) required retroversion of > 5°.

Discussion
3D reorientation of acetabular fragment during PAO requires variable reduction maneuvers in order to normalize acetabular coverage relative to patient-specific acetabular morphology. Detailed characterization of acetabular morphology and CT modeling may assist in preoperative planning of acetabular reorientation to improve the accuracy and reliability of achieving a desired correction and avoid secondary femoroacetabular impingement.

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How Much Education and Training Do Residents Across Specialties Receive in Neuropsychology Throughout the United States?

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Introduction
The objective is to survey medical residents across multiple specialties throughout the United States to assess resident education, training, and comfort level with neuropsychological services.

Methods
Surveys were sent to program directors in psychiatry, neurology, FM, and IM to be forwarded to their residents. REDCap was used to administer the survey. Questions assessed resident exposure to neuropsychological services and perceived adequacy of education, training, attitudes, referral practices, and barriers surrounding neuropsychological services. Chi-square group level analyses with post-hoc pairwise comparisons were used to analyze the data.

Results
434 residents consented to the survey. The proportion of residents exposed to neuropsychology during residency varied significantly according to specialty $\chi^2 (3, N=419) = 51.4$, $p < .001$. More psychiatry and neurology residents reported exposure to neuropsychology during residency than residents in FM or IM ($p < .01$). The proportion of residents who 'agree' or 'strongly agree' they understand the nature of neuropsychological services differed significantly $\chi^2 (3, N=415) = 40.4$, $p < .001$. Psychiatry and neurology residents were more likely to report they understand the nature of neuropsychological services than FM and IM residents ($p < .01$). The majority of residents across specialties (85.7%) reported they are likely to consult/order neuropsychological services in future practice.

Discussion
The majority of residents in all specialties reported exposure to neuropsychological services in some manner, but forms of exposure varied. Results indicate a need for education and training in neuropsychological services, especially within FM and IM programs. The majority of residents agreed they would utilize neuropsychology services in future practice.

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Meta-Analysis of Safety of Mavrilimumab and Namilumab Granulocyte Macrophage Colony-Stimulating Factors in the Treatment of Rheumatoid Arthritis

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Introduction
Granulocyte macrophage colony-stimulating factor (GM-CSF) is a pro-inflammatory cytokine whose antagonism through GM-CSF monoclonal antibodies (GM-CSF mAbs) has been studied in refractory rheumatoid arthritis (RA). The purpose of this meta-analysis was to evaluate the safety of mavrilimumab (Mv) and namilumab (Nm), two novel GM-CSF mAbs.

Methods
PubMed was searched for various iterations of keyword and MeSH term searches including GM-CSF and RA. Selected studies investigated Mv and Nm in RA patients receiving ≥ 2 doses of the study drug and reported on any treatment-emergent adverse effects (TEAEs) in ≥ 1 patient over ≥ 6 weeks.

Results
Eight RCTs evaluating Mv and Nm in 908 subjects were included. Primary endpoints included any TEAE at any dose of Mv or Nm evaluated together or independently. Secondary endpoints included individual adverse events (IAEs) reported for each agent. Treatment with Mv or Nm combined showed a greater overall likelihood of TEAE (RR=1.24, P=0.02, I²=0%) and treatment with Mv or Nm alone showed a greater (RR=1.28, P=0.01, I²=0%) and lower (RR=0.96, P=0.88, I²=0) overall likelihood of TEAE respectively. As for IAEs, only Mv treated patients showed a statistically significant association with IAEs, namely hypertension (RR=3.18, P=0.08, I²=71%).

Discussion
Treatment of RA with Mv and Nm showed higher risk for TEAE without increased risk for serious IAEs. Excluding an increased association with hypertension seen in Mv treated patients (moderate heterogeneity), IAEs were comparable across Mv or Nm treatment and placebo groups. Mv and Nm GM-CSF mAbs appear to be a safe emerging treatment option for patients with refractory RA.

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Management of Rectal Squamous Cell Cancer: A Systematic Review

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Introduction
Adenocarcinoma comprises the vast majority of rectal cancers. Primary rectal squamous cell carcinoma is exceedingly rare, occurring in approximately 0.10-0.25 per 1,000 colorectal cancers. The etiology, pathogenesis and risk factors are poorly defined, and no general consensus exists regarding the optimal treatment regimen. Nevertheless, evidence-based management is essential for those who are diagnosed. The aim of this study is to compare the various therapeutic strategies and the survival benefit in patients with rectal squamous cell carcinoma.

Methods
A systematic review following the preferred reporting items for systematic reviews and meta-analysis guidelines was conducted. A comprehensive search of Ovid MEDLINE was performed. All relevant articles in the literature published prior to September 2019 were reviewed. The search results identified a total of 178 articles, with 30 articles included in the quantitative review dating from 2007 until present. Only articles that provided outcome results were included.

Results
A total of 1,123 patients were included from the 30 studies selected for analysis. The most common presentation was rectal discomfort and bleeding. 76% of the patients were female with an average age of 63.4 years. 88% of patients were treated with chemotherapy, 78.5% received radiation and 28.5% underwent surgery. Higher overall survival was noted in patients who were given chemotherapy and radiation compared to those who had surgery.

Discussion
Survival benefit was noted in patients who received chemotherapy and radiation compared to those who did not, however, patients who underwent surgery had poorer survival compared to those who did not have surgery.

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Financial Literacy and Knowledge Among Medical Students, Ob/Gyn Resident Physicians, and Ob/Gyn Attending Physicians

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Introduction
Physicians in the United States earn high salaries after training; however, they enter the workforce years later and with more debt than their peers with other professional degrees. Our aim is to assess knowledge of finance principles that may affect personal financial health among medical students, resident and attending physicians in Obstetrics and Gynecology.

Methods
This study is cross-sectional survey administered to a convenience sample of medical students at a single medical school, and resident and attending physicians affiliated with an Obstetrics & Gynecology residency program. Respondent demographic information, along with a 48-item questionnaire on personal finance and investment knowledge was distributed between December 2019 and February 2020. Responses were included for analysis if respondents answered at least half of the knowledge questions.

Results
Out of 74 responses, 62 were analyzed. Attending physicians comprised 45.2% (n=28) of respondents. The majority of respondents answered at least half of the knowledge questions correctly (n=38, 61.3%). Medical students attended more financial planning seminars (42.9%) than residents (40%) and attendings (17.9%). About 17% (10 of 58) of respondents reported credit card debt that will not be paid off at the end of the month. Almost a third of respondents do not feel adequately financially prepared for the future (19 of 59, 32.2%). Few respondents reported that due to their financial situation, they delay or avoid seeking healthcare or treatment (8 of 59, 13.6%).

Discussion
Financial literacy is a knowledge set that continues to be limited, and a lack of financial preparedness is still common among medical professionals.

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Relationship Between Rubella and Rubeola Immunity: Can Rubella Immunity Predict Rubeola Immunity?

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Introduction
Recent outbreaks of measles (rubeola) have increased awareness of immunity and vaccination. Although assessing rubeola immunity is not regularly performed, determination of rubella immunity is a routine antenatal test in the United States. The objective of this study is to evaluate rubella and rubeola immunization status, and if there is concordance between rubella immunity and rubeola immunity.

Methods
This is a retrospective study of patients treated at a single reproductive endocrinology clinic between January 1, 2015 through March 31, 2019. Patients were excluded if rubella or rubeola results were missing. Results were classified as immune (tested positive) or non-immune (tested negative or indeterminate). Logistic regression analysis was used to predict immunity to rubeola based on immunity status, age, body mass index, and race.

Results
Of 524 cases meeting inclusion criteria, 387 (73.9%) patients were immune to both rubella and rubeola. There were 86 (16.4%) patients that were immune to rubella, but non-immune to rubeola. There was a statistically significant difference in rubella immunity concordance with rubeola immunity (p=0.0014). More patients were immune to rubella than rubeola, 90.3% (n=473) and 72.2% (n=415) respectively. More than half of patients self-reported receiving the Measles, Mumps and Rubella (MMR) vaccine (n=361, 68.9%). The majority of patients were white/Caucasian (n=442, 84.45%), obese or morbidly obese (n=247, 47.1%), and older than 30 years old (n=276, 52.7%).

Discussion
Rubella immunization status does not definitively predict immunity to rubeola. Due to the increased risk of measles outbreaks in the United States, testing for rubeola immunity prior to pregnancy may be beneficial.

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Cost Containment in Constrained TKA

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Introduction
A significant component of the total cost of a constrained total knee arthroplasty (TKA) is the cost of the implants. There is considerable pricing variability between different companies and implant systems. We examined the pricing of four different constrained TKA implants to determine the possible savings of using different implants.

Methods
From our database, all primary and revision TKAs completed from January 1, 2016 to December 31, 2016 were identified. We then identified the cases that used Company D implants. The cost of Company D implants was compared to the national average costs of three other major companies (Company A, B, and C). Based on the data from a single surgeon, the potential costs savings by using Company D implants was calculated over the course of one year.

Results
The average price of Company D implant system was $5,700 while the national average price of Company A, B, and C was $12,438, $14,845, and $10,373 respectively. The average savings per primary constrained TKA case was $7,152 and the average savings per revision constrained TKA case was $8,252. Based on a single arthroplasty surgeon's case load over the course of a typical year, this resulted in roughly $128,000 in savings on primary constrained TKAs and $91,000 in savings on revision constrained TKAs.

Discussion
The implant costs of a TKA account for 20-40% of episode-of-care hospital costs. Using a less expensive, more streamlined implant system can result in significant health care dollars saved. Further research should look at differences in outcomes between the different implant systems.

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Patient Perception of Medical Learners and Medical Education During Clinical Consultation at a Family Medicine Residency

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Introduction
Experience in treating patients under supervision of faculty is an important factor in medical education at all levels. However, unpleasant patient experiences with a medical learner during clinical consultation can damage the relationship between the medical learner, physician supervisor, and patient. A goal of this study was to examine patient experiences and preferences regarding medical learners during clinical consultation at a family medicine residency clinic. Another goal was to determine factors relating to patients' experiences and preferences regarding medical learners.

Methods
This cross-sectional study relied on patients completing a survey designed from extant questionnaires to measure patients' experiences and preferences relating to interactions with medical learners at a family medicine clinic. Data were collected from 216 patients between December 2016 and August 2017. We correlated patients' feelings, overall experiences with medical learners and the importance of medical education.

Results
There was a 93% participation rate. The patients rated their overall experiences with medical learners as 3.8 on a 5-point scale, suggesting positive experiences. Eighty-eight percent prefer not more than three medical learners to be involved in their care during clinical consultation. Patients' overall experiences with medical learners participating in medical care correlated with their preferences regarding medical learners' involvement in their treatment ($r[209]=0.524; p=0.01$). Patients' perception of medical learners participating in medical care correlated with the importance of medical education ($r[209]=0.878; p=0.01$).

Discussion
The results showed that most patients have positive experiences with medical learners and are generally in favor of medical education.

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The Effect of Different Combinations of Three Stacked Half-Hitches and Suture Materials on an Arthroscopic Knot in a Dry or Wet Environment: A Pilot Study

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Introduction
With arthroscopic techniques being used, importance of knot tying has been examined. Previous literature has examined the use of reversing half-hitches on alternating posts (RHAPs) on knot security. Separately there has been research regarding different suture materials commonly used in the operating room. The specific aim of this study was to validate the effect of different stacked half-hitch configuration and different braided suture materials on arthroscopic knot integrity.

Methods
Three different suture materials tied with five different RHAPs in arthroscopic knots were compared. A single load-to-failure test was performed and the mean ultimate clinical failure load was obtained.

Results
Results demonstrated significant knot holding strength improvement when one half hitch was reversed as compared to baseline knot. When two of the half hitches were reversed, there was even a greater improvement with all knots having a mean ultimate clinical failure load greater than 150N. Comparison of the suture materials demonstrated a higher mean ultimate clinical failure load when ForceFiber was used and at least one half-hitch was reversed. Knots tied with either ForceFiber or Orthocord showed 0% percentage chance of knot slippage while knots tied with Fiberwire or braided fishing line had about 10% and 30% knot slippage chances respectively.

Discussion
We observed a significant effect in regard to both stacked half-hitch configuration and suture materials used on knot loop and knot security. Caution should be used with tying with three RHAPs in arthroscopic surgery particularly with a standard knot pusher and arthroscopic cannulas.

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Radiographic Analysis of Cemented vs Uncemented Humeral Stem for Reverse Total Shoulder Arthroplasty for Proximal Humerus Fractures

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Introduction
The aim of this study is to compare radiographic outcomes of cemented and uncemented stem fixation for reverse total shoulder arthroplasties (RTSA) performed in the setting of fracture.

Methods
A retrospective chart review of 64 shoulders in 63 consecutive patients (mean age 75 years, range 61 to 88) who underwent RTSA for proximal humerus fracture between 2014 and 2017. This series consisted of 28 cemented and 36 uncemented stems with an average radiographic follow up of 12 months (range 3-37 months). Postoperative radiographs were evaluated for lucency, subsidence, scapular notching, and endosteal erosion or sclerosis.

Results
There was no significance in radiographic lucency (19% vs 11%) or scapular notching (44% vs 25%) between the uncemented and cemented prostheses, respectively. There was no radiographic evidence of subsidence, endosteal erosion, or endosteal sclerosis in any of our subjects. When comparing patients who exhibited lucencies to those without lucencies, a lower body weight (65kg vs 86kg), increased follow up time (13.9 months vs 7.8 months), and scapular notching (90% vs 25%) were significantly associated with developing zones of lucency (p<0.05).

Discussion
There was no difference in radiographic outcomes in patients who underwent uncemented RTSA compared to cemented RTSA for treatment of proximal humerus fractures. Patients with a lower body weight, increased follow up time, and scapular notching are more likely to develop zones of lucency.

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Psychiatric Rating Scales and Assessment Tools... Who Cares? We all Should!

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Introduction
Physicians of all specialties should be able to assess patients with mental disorders. Screening tools and rating scales can be used to assess mental disorders and their severity. Objective: Conduct a nation-wide survey of residents across specialties to assess familiarity with standardized mental health screening tools and rating scales.

Methods
REDCap survey with automatic reminders was conducted December 4, 2019 to February 11, 2020. The target population was residents within the following specialties: Family Medicine, Internal Medicine, Neurology, Obstetrics & Gynecology and Psychiatry. An 18% response rate was planned with 1,090 residents. A snowball sampling technique was used; directors were asked to send a survey link to residents. The outcome was resident understanding of rating scales. Descriptive statistics were conducted on responses.

Results
Resident response rate 11.1% (334 of 3,020). Excluding psychiatry, 68% (154 of 228) of residents say rating scales are helpful in deciding when to refer patients for mental health services. Overall, only 46% agreed they understand how to use screening tools and rating scales.

Discussion
More discussion on rating scales may be indicated during medical school or residency. Results are limited by a low response rate, which may be due to security risks of clicking on links from unknown senders, although the survey is ongoing. Results may not be generalizable: select directors may not have been willing to send the survey link. Future research must find ways to incentive more individuals to take surveys. Regardless, better understanding of assessment tools may lead to earlier identification and treatment of mental disorders.

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Trends in the Rate of Surgery and Resource Utilization for Pediatric Intussusception Hospitalizations in the United States from 2005-2014

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Introduction
Air/barium edema reduction is becoming increasingly common and safer for pediatric intussusception. However, little is known about trends of pediatric intussusception requiring surgical intervention (SI) in the United States.

Methods
Data from National Inpatient Sample database were analyzed from 2005-2014 to identify pediatric (<18 years) intussusceptions along with procedures such as enema and/or SI. Trends in the rates of SI were examined according to encounter-level (age, gender, race, comorbidities) and hospital-level (hospital census region, teaching status) characteristics. Outcomes of pediatric intussusception requiring SI were analyzed in terms of length of stay and cost of hospitalization. Factors associated with SI were also analyzed. P value of <0.05 was considered significant.

Results
Out of 21,835 intussusception hospitalizations requiring enema or SI, 14,415 (66%) had SI; 90% of which (12,978) had no preceding enema. SI rates among intussusception hospitalizations varied by age (highest <1 year), gender (males>females) and race (Hispanics>Whites and Blacks). During the study period, overall SI rate stayed stable (2.2 to 1.7, P=0.07) although it declined in infants <1 year of age. Children with severe disease, gastrointestinal comorbidities, age >4 years had increased odds of SI, whereas hospitalization in large and urban teaching hospitals had decreased odds of SI. Length of stay and hospital cost remained stable from 2005-2014.

Discussion
The rates of SI and resource utilization for pediatric intussusception remained stable from 2005-2014, however, they declined significantly in infants. The proportion of intussusception hospitalization requiring surgery remains high and further studies are needed to explore the possible factors.

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Hidden in Plain Sight: Unprofessional Behavior amongst General Surgery Residents on Social Media

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Introduction

Social media platforms are widespread and are increasingly used by medical professionals in the United States. Previous studies that evaluated social media profiles of general surgery attendings and residents in one geographical area revealed an alarming percentage of potentially unprofessional behavior for both groups. The purpose of this study was to evaluate Facebook profiles for unprofessionalism of all general surgery residents in the United States.

Methods

Program rosters were accessed through the Association of Program Directors in Surgery (APDS) website. If the roster provided a name and picture of a resident, that person was searched for on Facebook. These profiles were then thoroughly reviewed, evaluating for potentially unprofessional content. After viewing the profile, a designation of professional or unprofessional was assigned to the profile.

Results

A total of 4,683 residents were present with pictures on their program rosters. 2,862 (61.3%) had visible Facebook profiles. Of those with visible profiles, 44.4% (1,270) had their medical institution listed as their employer. Unprofessional content was publicly visible in 8.7% (248/2,862) of profiles. There were 155 instances of unprofessional content discovered on Facebook profiles that had their employer listed, which totaled 12.2% of the of those with employers listed.

Discussion

These data suggest that more residents have publicly visible Facebook profiles but are controlling visible content more than in the past. There remains a sizable group of individuals that can improve content control, especially in those with unprofessional content present and their medical institution listed on their profile.

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Hospitalization Trends and Resource Utilization for Acute Myocarditis in Children in the United States from 2007 to 2016: A Serial Cross-Sectional Study

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Introduction
There have been improvements in the management of acute myocarditis over the past decade with little exploration of epidemiological trends given its rare occurrence.

Methods
A retrospective, serial cross-sectional study using data from 2007-2016 editions of the National Inpatient Sample. Acute myocarditis was identified using the appropriate ICD-9/10-CM codes. Hospitalization trends with respect to age, gender, race, and region were examined. Outcomes including mortality, LOS, cost of hospitalization and arrhythmias were analyzed. For trend analysis, chi-square test of trend for proportions with Cochran Armitage test was used on SAS®. Two-tailed tests were used and a p-value <0.05 was considered significant.

Results
The overall incidence of acute myocarditis was found to be 0.8 ± 0.02 per 100,000 children with a significant increase over the years, from 0.7 in 2007/8 to 0.9 in 2015/16 (p-trend <0.0001). The incidence was noted to peak in age groups 0-4 years (1.0) and 15-18 years (1.5). The overall mortality rate was 6.8% ± 0.8 with a significant decline in trend (p-trend 0.02) over the years. A significant inflation-adjusted increase by $4,574 in the median cost of hospitalization was noted (p-trend 0.02) from 2007 to 2016, while the trend for LOS remained stable with a median LOS of 6.1 days. The incidence of arrhythmias ranged between 17% and 25% over years 2007-2016.

Discussion
The incidence of acute myocarditis-related hospitalizations has increased between 2007-2016 with a parallel decline in mortality. Despite the stable LOS over the years, costs related to these hospitalizations were noted to continually rise.

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Healthcare-Onset Clostridioides Difficile: A Retrospective Study

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Problem
Stool assays used to diagnose Clostridioides difficile infection (CDI) do not differentiate acute CDI from asymptomatic carriers, which contributes to a falsely elevated rate of HO-CDI when CD stool assays are inappropriately ordered.

Baseline
We performed a retrospective single-center observational study between January 1st, 2018 and December 31st, 2018. All patients who developed diarrhea 48 hours after being admitted and whose primary physician requested a CD stool assay were included in the study.

Design
The intervention consisted of a mandatory sequence of questions that allowed providers to order a CD stool assay only if clinically indicated.

Results
Differences in HO-CDI rates pre and post intervention were analyzed. The HO-CDI rate during the pre-intervention and post-intervention period were 24.1 and 0.0 respectively. This was statistically significant (P-value 0.023).

Conclusion
Implementing a mandatory clinical pathway prior to ordering a stool assay for detecting Clostridioides difficile in hospitalized patients with new-onset diarrhea could decrease the misidentification and misclassification of asymptomatic carriers as HO-CDI.

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Descriptive Analysis of Substance Exposed Newborns within KU Wichita Pediatric Clinic

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Problem
Maternal substance use during pregnancy is a major public health issue that is associated with adverse birth outcomes. In Kansas, nearly 4% of pregnant women reported use of marijuana during pregnancy.

Baseline
The purpose of this study was to determine whether provider continuity has an impact on substance exposed newborn weight progression from their newborn visit to their sixth month visit.

Design
A retrospective chart analysis was conducted by manually extracting assigned patient charts born between October 1, 2017 and December 31, 2017 and then seen for a well-child visit at the KU Pediatrics clinic. One-Way ANOVA with case control matching was used to compare data sets.

Results
A total of 252 charts were analyzed. Our study identified 15% of population exposed to substances. A significant mean difference between groups in weight progression was observed when provider continuity was not present (P < 0.05).

Conclusion
Our study identified higher than reported rate of infants exposed to controlled/illicit substances with significantly less birthweight gain when there was no continuity of care.

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Improving Postpartum Visit Rates at a Resident Obstetrical Clinic Utilizing a Phone Call Intervention

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Problem
The American College of Obstetricians and Gynecologists recommends postpartum care be optimized to ensure the wellbeing of new mothers and infants. This typically includes at least one maternal follow-up visit to assess physical, social, and psychologic health. However, up to 40% of women do not attend a traditional postpartum visit. Techniques for improving follow-up include scheduling postpartum visits prior to delivery, discussing the importance of postpartum care, and utilizing technology for appointment reminders. This project implemented a phone call intervention to improve the postpartum follow-up rate at a residency-affiliated obstetrical clinic.

Baseline
There is currently no accurate baseline data for postpartum visits at this clinic.

Design
The intervention consisted of clinic staff calling patients two weeks after delivery, regardless of whether the postpartum visit was scheduled. The objective was to 1) make contact with the patient, 2) schedule a postpartum visit or remind the patient of the visit, and 3) emphasize the importance of postpartum care. The primary evaluation outcome was patient attendance at the postpartum visit. Data were collected retrospectively from electronic medical records.

Results
There were 20 patients included in the baseline period, and 23 patients in the post-intervention period. Contact with the patient improved from 65% to 100% after the intervention. Postpartum visits scheduled improved from 75% to 100%, and actual attendance at these visits improved from 60% to 73.9%.

Conclusion
Implementing a phone call protocol at the resident clinic improved postpartum visit follow-up rates and contact with patients. However, follow-up may be further improved if institutional barriers can be addressed.

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Assessing Compliance and Knowledge with Best Practices for Measuring Blood Pressures among Obstetric Patients

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Problem
Hypertensive disorders complicate up to 10% of pregnancies. Accurate and timely blood pressure assessments are essential to diagnose these conditions. However, factors such as patient position, clothing, and timing, can alter the accuracy of these measurements. Multiple societies recommend a standard set of “best practices” concerning blood pressure measurements, which all align. The aim of this project is to assess whether knowledge and blood pressure measurement practices align with best practices, among nursing staff on the Labor and Delivery (LDR) unit.

Baseline
Electronic surveys were used to assess LDR staff knowledge and blood pressure measurement practices pre- and post-intervention.

Design
The intervention was dissemination of an educational flyer, developed by the California Maternal Quality Care Collaborative, with recommended blood pressure assessment technique and a summary of key practices. The flyer was emailed to LDR staff every week for three weeks.

Results
There were 38 responses pre-intervention, 14 responses post-intervention, and 9 matched responses. Of the matched responses, the majority were nurses with at least three years of LDR experience. After the intervention, respondents scoring 70% correct on questions regarding best practices/knowledge improved from 33.3% (n=3) to 66.7% (n=6), and more nurses (44.4% vs. 22.2%) believed there was a standard for measuring blood pressures on LDR. There were 4 (44.4%) of nurses that had no improvement or fewer correct answers after the intervention.

Conclusion
Despite a low number of responses during the post-intervention survey period, there was improvement in knowledge, and nursing staff reported using blood pressure measurement techniques that closer align with best practices.

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Teaching Quality Improvement Methods to Obstetrics and Gynecology Residents using Team-based Learning

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Problem
Previously, residents learned quality improvement (QI) methods using self-directed learning methods (old curriculum). The new curriculum uses team-based learning to work within our institution's dyad structure of physician/nursing governance to effect sustained improvement. Using the California Maternal Quality Care Collaborative model, all QI efforts utilized teams to assess our institution’s capacity to review and prevent maternal deaths resulting from obstetrical hemorrhage. This project investigates the effectiveness of team-based learning to teach Obstetrics and Gynecology residents QI methods.

Baseline
There is currently no baseline data regarding the effectiveness of our QI curriculum.

Design
Current residents, and two classes of graduates were invited to complete a survey regarding the old and new curricula. Likert scales were utilized to assess involvement and agreement with statements regarding understanding of QI methods.

Results
Of 14 respondents (56% response rate), seven (50%) respondents were taught using the old curriculum; six (42.9%) were taught using the new curriculum, and one (7.1%) was exposed to both curricula. Respondents felt more involved in QI processes with the old curriculum (62.5% vs. 42.9%). More respondents agreed QI projects in the new curriculum would improve patient care (100% vs. 50%). More residents reported understanding how to interact with hospital committees with the new curriculum (35.7% vs. 28.6%). Half (n=7) of respondents were somewhat confident in their ability to carry out a QI project after residency.

Conclusion
Team-based learning can improve residents' ability to understand and interact with systems to improve patient care. We must determine what methods make residents feel engaged in the QI process.

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Neoadjuvant Immunotherapy in Renal Cell Carcinoma in the Setting of Solitary Kidney

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Introduction
Immunotherapy has revolutionized the treatment of metastatic renal cell carcinoma (mRCC). However, surgery remains the gold standard of treatment for localized renal cell carcinoma (RCC). In patients with compromised renal function, radical nephrectomy may necessitate lifelong dialysis, highlighting the need for kidney-sparing treatment. This case evaluates the efficacy of neoadjuvant immunotherapy for RCC in a patient with a solitary functioning kidney.

Case Description
A patient with total loss of function in the left kidney was diagnosed with renal cell carcinoma in the right kidney. The tumor was 7cm x 8cm x 8.5cm in size, located in the upper pole of the renal collecting system, with invasion into the renal pelvis. Over the course of 12 months, the patient trialed Nivolumab plus Ipilimumab for four months and Cabozantinib for five months. The tumor shrunk to 6.3cm x 5.5cm and was removed via partial nephrectomy. Kidney function returned to baseline following surgery.

Discussion
This case demonstrates the efficacy of immunotherapy agents in the neoadjuvant treatment of RCC and highlights the versatility of Nivolumab plus Ipilimumab and Cabozantinib. Expansion of clinical guidelines for labeled use of immunotherapy agents could allow for patients with decreased kidney function to undergo partial nephrectomy and prevent the need for dialysis.

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When in Doubt, [DON'T] Cut it Out: The Use of Intralesional Fluorouracil to Treat Keratoacanthomas

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Introduction
Keratoacanthomas (KAs) are rapidly growing neoplasms of the squamous epithelium. Most solitary KAs are diagnosed and treated using an excisional biopsy; however, widespread KA eruptions offer a unique challenge to clinicians. Intralesional 5-fluorouracil (5-FU) has been previously described in two patients who developed multiple KAs, in both instances, weekly 5-FU intralesional injections led to resolution.

Case Description
We report a case of a recurrent, eruptive KA in a 68-year-old male with no significant past medical history. The patient was treated using a total of 5 cc's of 5-FU over a course of 12 weeks. Injections were spaced at three to four-week intervals to best grossly visualize therapy response in order to minimize the total number of injections. There were no appreciable associated adverse side effects and the patient tolerated the injections well. Due to clinical resolution, a confirmatory biopsy was not performed; instead, the patient was followed for a 10-month period. At 10 months, the site remained asymptomatic, clear of KA recurrence.

Discussion
For the practicing clinician, this report serves to showcase that a diagnosis of KA should be considered for eruptive papules surrounding an excisional site and that intralesional 5-FU may be used to achieve complete resolution.

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Metronidazole-Induced Leukoencephalopathy Presenting as Catatonia

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Introduction
Hypoactive delirium vs catatonia vs encephalopathy may be difficult to differentiate and diagnose due to complicated or incomplete histories and multiple medication interactions. This case is a patient who presented with catatonia and was found to have toxic leukoencephalopathy that was not identified in his initial presentation.

Case Description
The psychiatry consult team evaluated a 59-year-old male without known psychiatric history who was found to be hypoactive and minimally interactive. Patient had been previously started on metronidazole for osteomyelitis. Patient was thought to have catatonia, though did not respond to trials of low dosage lorazepam or haloperidol. Brain imaging and neurological workup showed diffuse white matter changes on CT and MRI. He was eventually diagnosed with toxic leukoencephalopathy with catatonia, which was thought to be metronidazole-induced. Patient's metronidazole was discontinued and he was noted to improve and no longer exhibit catatonic symptoms.

Discussion
Though metronidazole-induced toxic leukoencephalopathy is well-known, this is a previously undescribed presentation of catatonia as a sentinel symptom of leukoencephalopathy. Catatonia may be a psychiatric syndrome, but its presence warrants a thorough evaluation for potential medical causes.

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Unusual Presentation of Metastatic Signet Ring Cell Carcinoma

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Introduction
Gastric cancer is the fifth most common cancer and the third cause of cancer-related death in the world. Signet ring cell carcinoma (SRCC) most commonly arises from the gastrointestinal tract and it tends to present in advanced stages.

Case Description
A 51-year-old male with past medical history of gastric adenocarcinoma who is in remission for a decade presented with an umbilical soft tissue nodule. Eleven years prior, he performed complete workup for a gastric mass that did not show any evidence of metastatic disease. He then underwent subtotal gastrectomy and omentectomy. The pathology obtained after resection confirmed invasive gastric adenocarcinoma reaching only the muscularis propria. A total of 41 paragastric lymph nodes were all negative. The omentum and the resection margins were both free of disease. He subsequently received adjuvant radiation and chemotherapy. After nearly one decade from initial diagnosis, the patient presented for an umbilical mass associated with vague periumbilical pain. Physical examination revealed a 3-4 centimeters soft tissue mass around the umbilicus. There were no significant laboratory findings. A CT abdomen and pelvis showed an indeterminate 2 centimeters soft tissue nodule that appeared separate from the bowel. A needle biopsy of the umbilical mass revealed metastatic signet ring cell carcinoma (SRCC) of unknown origin.

Discussion
Sister Mary Joseph Nodule (SMJN) is a rare presentation of umbilical or paraumbilical metastasis most commonly associated with gastrointestinal tract. It is crucial for general practitioners to consider SMJN in the differential diagnosis of an umbilical mass.

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High Elevation of Procalcitonin in the Setting of Acute Myocardial Infarction without Evidence of Infection

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Introduction
Procalcitonin (PCT) is a peptide precursor for the protein calcitonin which has some clinical usefulness in distinguishing bacterial pneumonia and inflammatory states. While the relationship between elevated PCT and infections has been studied extensively, the correlation between elevated PCT and myocardial infarction (MI) remains unclear. This case highlights severe procalcitonin elevation in the absence of infection during acute MI.

Case Description
A 67-year-old male veteran with a past medical history advanced of coronary artery disease presented to the emergency department with complaints of chest pain and shortness of breath. He had new EKG changes showing T-wave inversions in lateral leads without any ST-elevation. He met SIRS criteria with fever and elevated white count, suspected to be a pulmonary source of infection. Chest imaging was suggestive of pulmonary edema. Lactic acid resolved rapidly, however, his troponin increased and was started on heparin drip. His procalcitonin was extremely elevated at 94.59 ng/mL, with no evidence of infection on sepsis work-up. Coronary angiography was performed after significant improvement in procalcitonin levels, revealing no new stenosis and did not require stent placement. He was discharged home with no need for continued antibiotic therapy.

Discussion
This case illustrated a non-infectious source of severe elevation in PCT that can be attributed to acute myocardial infarction. The exact mechanism by which PCT gets elevated remains unclear. This is a novel finding and further research on a larger scale should be conducted to endorse the usefulness of PCT during AMI.

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A Case of Neurosyphilis Chalked off too Soon?

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Introduction
Syphilis is known as "the great imitator" because of its variable presentation. When neurosyphilis is suspected, laboratory studies are helpful to confirm the diagnosis. Negative CSF VDRL results can rule out the disease in the majority of the cases, but not in all. Careful consideration ought to be given to certain cases, if there is a high index of clinical suspicion, and treatment be considered.

Case Description
A 62-year-old female patient with no psychiatric history was admitted to our inpatient unit for psychosis, specifically, the insidious onset of a feeling that "some kind of evil" was controlling her body. Patient examination yielded signs and symptoms of gait instability, urinary incontinence, peripheral neuropathy, and Argyll-Roberton pupils, consistent with tabes dorsalis. Laboratory studies were unremarkable aside from a positive reverse algorithm syphilis screening and a 1:1 RPR titer. However, CSF VDRL was negative. Based on our clinical suspicion, the patient was treated for late latent syphilis with IM penicillin G benzathine. That along with olanzapine 20 mg daily, helped achieve a significant improvement of her psychotic symptoms over the course of her 22 day hospital stay in inpatient psychiatric unit.

Discussion
Cases of late form of neurosyphilis such as tabes dorsalis are rare in the era of penicillin antibiotics. Infrequent presentation and insensitive CSF laboratory studies make this disease particularly challenging to diagnose. Reviewing this case of suspected neurosyphilis will provide clinicians a refresher of screening tests’ guidelines and treatment recommendations.

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Sulfonylureas in Cirrhosis

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Introduction
Type-2 diabetes mellitus (DM) is highly prevalent in patients with cirrhosis. Treating diabetes with sulfonylureas (SU) in patients with cirrhosis is challenging since these drugs are metabolized by the liver. We present a case of severe refractory hypoglycemia secondary to glipizide in a patient with alcoholic cirrhosis.

Case Description
A 69-year-old male with a history of alcoholic liver cirrhosis and DM (on glipizide) presented to the emergency department with severe weakness secondary to hypoglycemia (40mg/dL). Serum glucose failed to improve following multiple boluses of 50% dextrose in water (D50W), glucose gel every 15 minutes and a continuous infusion of 10% dextrose in water. Further work-up revealed laboratory abnormalities leukocytosis, acute kidney injury, mild transaminitis and urine glipizide level of 480 ng/mL. He was given 50 mcg of octreotide subcutaneously every eight hours serum glucose increased and stabilized after three days of treatment.

Discussion
The hepatic clearance of SU in patients with cirrhosis is markedly reduced. Alcohol abuse, however, induces enzymatic degradation of SU, reducing its clinical potency. Hypoalbuminemia also increases the concentration of SU in the plasma, since less is bound to proteins. Treating DM in the setting of cirrhosis and alcoholism with SU increases the risk of refractory hypoglycemia especially when the patient abstains from alcohol. Studies evaluating the pharmacokinetics and safety of oral anti-diabetic drugs in patients with cirrhosis are lacking. Given the fatality and elevated risk of long-term neurological dysfunction associated with hypoglycemia, SU should be contraindicated in patients with cirrhosis.

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Pasteurella Multicoda - A Rare Cause of Neonatal Meningitis

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Introduction
Bacterial meningitis is a severe and life threatening infection in infancy that leads to significant morbidity and mortality even with appropriate and timely treatment. Acute bacterial meningitis has a rapid onset of symptoms and high clinical suspicion and early identification is paramount for treatment. Human Pasteurella skin and soft tissue infections are most commonly secondary to either animal bites or animal scratches. This presentation will briefly outline a case of neonatal meningitis secondary to P. Multocida infection after non-traumatic exposure to a domestic pet.

Case Description
A 10 day old male presented to the ED with acute febrile illness of unknown source. Infant was fussy at home and had temperatures unto 102.2°F at home. Parents confirmed the presence of cats in the house but no direct contact of cats with the infant was reported. Upon admission a full sepsis workup was initiated. CSF and blood culture were positive for Pasteurella Multicoda. Infant was placed on IV Ampicillin 50mg/kg Q6h following identification and susceptibilities on CSF and blood culture. Infant completed a uncomplicated 10 day course. Repeat blood culture and CSF culture were negative.

Discussion
P. Multicoda is a rare cause of neonatal meningitis. Transmission via non-traumatic contact from exposure to the animal's oropharyngeal secretions is the most likely route of transmission. Most common clinical presentation was meningitis. As Pasteurella is a rare cause of meningitis, morphologically it can be confused with other gram negative bacilli including E coli or Hemophilus Influenza. P. Multicoda is generally susceptible to penicillins and other cephalosporins including Ceftriaxone. No duration of therapy has been recommended for P. multocida meningitis.

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Management of Rectal Squamous Cell Carcinoma: A Treatment Dilemma

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Introduction
Squamous cell rectal cancer (SCRC) is rare and aggressive. Although it has a similar presentation to rectal adenocarcinoma, it does not respond to the same treatment. Guidelines recommending an effective treatment regimen are not established in the literature due to its low incidence and resistant nature. We present a case of SCRC successfully treated with chemotherapy and surgical resection.

Case Description
A 46-year-old lady presented with generalized abdominal pain for 2 months. Initial lab work-up was unremarkable. Computed tomography (CT) scan of the abdomen showed a mass in the sigmoid colon, which prompted a colonoscopy with biopsies. The pathology of the mass consisted of poorly differentiated squamous cell carcinoma. She underwent an evaluation with gynecologic oncology, cone biopsy of the uterine cervix was negative for any malignancy. A PET scan showed multiple peri-rectal lymph nodes and no distant metastasis. Subsequently, she was diagnosed with stage III SCRC. Her case was discussed with medical and radiation oncology. She was treated with 5-fluorouracil until follow-up imaging showed near resolution of the tumor and then proceeded with a sigmoidectomy. Finally, she received adjuvant chemotherapy with 5-fluorouracil, leucovorin and oxaliplatin (FOLFOX).

Discussion
Review of the literature encompasses mostly of case reports and lacks information regarding outcome and survival after a significant amount of years following treatment. To the best of our knowledge, our patient is among the very few cases of SCRC that were noted to be alive without evidence of recurrence at 42 months. Remission was successfully achieved with chemotherapy and surgery.

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A Case of Anti-PM/Scl 75 and Anti-PM/Scl 100 Positive Myositis-SSc-RA Overlap Syndrome

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Introduction
Autoimmune myopathies are a large family of diseases affecting skeletal muscle potentially presenting as overlap syndromes in the setting of connective tissue disease, commonly systemic sclerosis (myositis-SSc). Positivity for autoantibodies targeting the 75-kDa and/or 100-kDa subunits of the human exosome complex (PM/Scl) is prevalent in myositis-SSc, however, a further comorbid association with rheumatoid arthritis (RA) is far less common.

Case Description
A 68-year-old female with asthma and hypothyroidism presented with 5 months of new onset arthralgias, malaise, shortness of breath, and morning stiffness lasting 2 hours. She noted hand and wrist swelling accompanied by bilateral foot and shoulder girdle pain making it difficult for her to perform overhead tasks. Exam findings revealed arm abductor weakness and widespread synovitis involving 16 joints with a Clinical Disease Activity Index (CDAI) score of 36. Bilateral hand radiography uncovered minor osteoarthritic changes in the PIP and DIP joints and rheumatoid factor returned positive. She was started on methotrexate and a short prednisone taper for multisite RA with interval improvement in arthralgia. The following visit, she reported persistent dyspnea. Exam revealed lung crackles and hyperkeratotic digits suggestive of interstitial lung disease with mechanic's hands respectively. Anti-PM/Scl 75 and anti-PM/Scl 100 testing returned positive suggesting a myositis-SSc-RA overlap syndrome and she was started on rituximab.

Discussion
Myositis-connective tissue overlap syndromes can masquerade as autoimmune myopathies without connective tissue disease. When in doubt, patients should be screened for anti-PM/Scl antibodies which if positive supports a myositis-connective tissue overlap syndrome and remains exceedingly rare in conjunction with RA.

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Neuromyelitis Optica with Longitudinally Extensive Transverse Myelitis as a First Manifestation of Systemic Lupus Erythematosus

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Introduction
Neuromyelitis optica spectrum disorder (NMOSD) is an autoimmune syndrome characterized by inflammatory lesions of the optic nerve and spinal cord potentially presenting as transverse myelitis (TM) or more specifically, longitudinally extensive transverse myelitis (LETM). Such patients have seropositivity for NMO-IgG/AQP4-Ab which has been reported in association with a variety of autoimmune diseases, most notably systemic lupus erythematosus (SLE) and Sjogren's disease.

Case Description
A 31-year-old female presented to the ED with two months of back pain, paresthesia, and lower extremity weakness precipitating a fall. On arrival, CT of the thoracic and lumbar spine revealed mild right L4-L5 and L5-S1 disc bulges without central or foraminal canal stenosis, yet she was found to have new urinary retention draining 1300 cc of urine. A cervical, thoracic, and lumbar spine MRI with contrast showed an extensive longitudinal segment with T2 brightness extending from C2 to T10 suspicious for LETM. Lumbar puncture revealed elevated WBC 148 (H), protein 144 (H), and IgG 13.6 (H), with normal oligoclonal bands. She was started on high-dose methylprednisolone followed by 5 days of IVIG. Her anti-DS DNA Ab returned 80 (H) in association with malar erythema suggestive of SLE with CNS involvement and cyclophosphamide/mesna was started. Finally, an NMO IgG Ab returned 3123.1 (H) suggesting NMOSD, prompting addition of Rituximab.

Discussion
NMOSD can present as a first manifestation of autoimmune disease. Findings of LETM on MRI should prompt serologic testing for NMO. Findings of positive NMO-IgG/AQP4-Ab should trigger evaluation for NMOSD’s most common comorbid autoimmune disorders, namely SLE and Sjogren's disease.

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Ischemia Reperfusion Injury: A Case Report

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Introduction
Ischemia-reperfusion injury is a rare but serious complication encountered after spinal decompressive surgeries. Described as "white cord syndrome" due to its appearance on T2-weighted MRI, it is likely mediated by reactive oxygen species and proinflammatory mediators. It can cause paralysis, and there are no definitive treatment recommendations.

Case Description
A 46-year-old male with history of achondroplasia, cervical stenosis, and scoliosis presented for C2-T2 posterior laminectomy. He had baseline weakness requiring crutches and >6 month history of numbness and weakness in both arms. Preoperative MRI indicated moderate-severe C2-T2 stenosis and myelomalacia. No surgical or anesthetic complications were noted, but he was quadriplegic postoperatively. Postoperative MRI indicated substantial C2-C5 central cord edema with progressive signal abnormality without mass effect or pathological diffusion restriction. He was started on dexamethasone, hypertonic saline, and gabapentin. He regained left arm flexion and biceps movement but remained a functional quadriplegic, requiring tracheostomy and PEG tube.

Discussion
Oxidative damage has been implicated in ischemia-reperfusion injury leading to protein degradation, lipid peroxidation, necrosis, and apoptosis. This patient was treated with steroids and hypertonic saline. However, no Class I or Class II treatment recommendations exist. Studies have demonstrated that delaying decompressive surgery for compressive myelopathy leads to an increased risk of worse neurological outcomes, increased levels of cytokines and inflammation, and increased astrogliosis. While there is no mainstay of treatment, several new modalities have shown promising results in animal models. Evaluating these treatments in humans and the potential synergistic relationships between them as well as their neuroprotective effects are areas for further research.

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Volunteering Saved My Life! A Case of Anomalous Right Coronary Artery Take off

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Introduction
Around 80% of coronary artery abnormalities are benign. However ectopic coronary origin from the pulmonary artery or opposite aortic sinus, single coronary artery, and large coronary fistulae are serious anomalies resulting in various cardiac complications and even sudden death. We hereby present a case of an asymptomatic middle-aged male with an abnormal EKG and found to have an anomalous RCA.

Case Description
A 54-year-old white male with no PMH, presented to his PCP with an abnormal EKG strip. He works as an EMS and during a first aid course, he volunteered for an EKG monitor placement and noticed repolarization abnormalities. A 12 lead EKG at the PCP office, was normal. Upon further investigation, he stated a positive family history of CAD in his father, but at an older age. He reported exertional dyspnea. Physical examination was unremarkable. An Exercise Nuclear Stress test demonstrated a large area of reversible ischemia within the RCA distribution. A coronary angiogram showed an anomalous RCA originating from the left coronary sinus with no evidence of any obstructive atherosclerosis. A CT scan confirmed this diagnosis. The patient was sent for surgery.

Discussion
The incidence of anomalous origin of the RCA arising from the left coronary cusp varies between 0.026% and 0.250%. The initial presentation may be Sudden Cardiac Death, because of the high inter-arterial course of the anomalous RCA between the pulmonary artery and aorta. Hence, this is the first case report of a surgically repaired anomalous RCA in a patient presenting with an abnormal EKG monitor strip.

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Acute Myeloid Leukemia Masquerading as Pseudotumor Cerebri: A Rare Initial Presentation

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Introduction
Idiopathic intracranial hypertension (IIH) presents with non-specific symptoms including headache, visual loss and papilledema. When not diagnosed timely, permanent vision loss, cerebral hernia and even death may occur. Intracranial hypertension has been reported in young oncology patients, however usually in association with the management of acute leukemia or a manifestation of relapse of the disease.

Case Description
A 12-year-old boy admitted to the hospital with a 6-month history of intermittent headaches and progressive visual impairment. Past history revealed that the patient had severely decreased visual acuity (3/20) in the left eye since birth. Papilledema was first detected when the patient went to get his vision checked. Dilated blood vessels at the back of eyes and fundoscopic findings were confirmatory of papilledema. MRI ruled out space-occupying lesion but showed distention of optic nerve sheaths and a slit-like ventricular system. These findings were highly suggestive of IIH. Lumbar puncture showed an opening pressure of 38 cm H2O. CBC revealed unexpectedly elevated WBC count of 49 x 10^3/µL with 59% blast cells. Cytology of CSF was normal with <5% of blast cells. Flow cytometry confirmed the diagnosis of AML and bone marrow aspirate confirmed AML-M0.

Discussion
IIH presenting as the initial sign of previously undiagnosed AML is an extremely rare entity and diagnosis is often delayed due to nonspecific symptoms. In conclusion, we felt it is imperative to report this case with the intention to broaden the differential of clinicians when a child presents with isolated intracranial hypertension and vision loss.

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