

Harry Kim	Orthopaedic Surgery	Morphological and Histologic Assessment of Legg-Calve-Perthes Disease in a Porcine Model: A Comprehensive Evaluation of Osteonecrosis and Healing Parameters	Hypothesis: This study aims to explore the natural course and potential markers of healing in Legg-Calve-Perthes Disease (LCPD) at the 3-week timepoint following surgical induction of avascular necrosis in a porcine model. This investigation provides valuable insights into the disease's natural progression in real-life scenarios, offering potential for more effective management strategies and targeted interventions for LCPD patients presenting at later stages.
Caroline Park	Surgery	Predictive Capabilities of PTIM vs Mortality Risk Scores	Background: The Parkland Trauma Index of Mortality (PTIM) is a machine learning algorithm developed to use electronic medical record data to predict mortality within 48 hours during the first 3 days of hospitalization. Objective: In this study, we aim to compare the Parkland Trauma Index of Mortality to other mortality prediction models to evaluate its comparative predictive capabilities. We hypothesize that PTIM will have a comparable predictive capability to other commonly used mortality scoring systems.
James Brugarolas	Hematology/Oncology	Retrospective evaluation of PBRM1, BAP1, and H3K36me3 status in patients with pancreatic oligometastatic and metastatic Renal Cell Carcinoma	Renal cell carcinoma (RCC) is the most frequent kidney solid tumor, and clear cell renal cell carcinoma (ccRCC) is the major histological subtype. Historically, RCC metastasis to the pancreas has been associated with prolonged survival. The goal of this project was to assess clinical outcomes of patients in cohorts with oligometastatic RCC to the pancreas as well as metastatic RCC with pancreas involvement based on the presence or absence of PBRM1, BAP1, and H3K36me3.

Nicholas Haddock	Plastic and Reconstructive Surgery	Early and Late-Stage Breast Reconstruction - Differences in Timing to Completion	Background: Historically, breast reconstruction following mastectomy has not been recommended to patients with late-stage breast cancer. The quality-of-life benefit provided by breast reconstruction surgery has recently become an important factor to consider in late-stage breast cancer patients due to the advancement of cancer treatments prolonging life expectancy in this patient population. Objective: Here, we look at how the length of the reconstructive process differs between late-stage and early-stage breast cancer patients pursuing reconstruction, with the expectation that the reconstructive timing to completion will be longer for late-stage (stage III and IV) cancer patients than for early-stage (stage I and II) due to delays caused by added complications and differences in treatment for their disease.
James Brugarolas	Hematology/Oncology	Metastatic Renal Cell Carcinoma with Metachronous Non-Small Cell Lung Cancer	Renal cell carcinoma (RCC) is the most common form of kidney cancer and accounts for approximately 82,000 new cases in the US each year. Approximately one-third of patients with RCC develop metastatic disease, and the lungs are the most common site of metastasis. However, the emergence of new pulmonary lesions in patients with RCC may not always represent metastasis. We hypothesize that this study will reveal new insights into the clinical course of patients with both primary RCC and primary lung cancer and shed more light on the characteristics of the primary cancers.
Tiffany Moon	Anesthesiology & Pain Management	Randomized Control Trial Reversal of Nueromuscular blockade in Laparoscopic	Background: Post-operative urinary retention (POUR) is a common complication after surgery and depending on patient and procedure specific factors.

		Cholecystectomy Sugammadex vs. Neostigmine/Glycopyrrolate Comparison of POUR Rate	POUR can be uncomfortable for patients and can contribute to unplanned hospitalizations. Sugammadex allows for rapid reversal of paralysis at the end of surgery due to its mechanism. Hypothesis: The incidence of POUR using sugammadex as a reversal agent to reverse rocuronium will be lower when compared to reversal with neostigmine with glycopyrrolate following laparoscopic cholecystectomy.
Mark Drazner	Internal Medicine	Prognostic Utility of EMAT in the Identification of Individuals at risk for Heart Failure	Approximately 6 million Americans are currently living with heart failure (HF) and an additional 870,000 are receiving this diagnosis every year. While the etiology of HF is multifactorial and complex, a majority of cases remain preventable with lifestyle modifications and pharmaceutical interventions. Therefore, it is critical for providers to identify early risk factors in patients in order to prevent the adverse clinical outcomes that are associated with a HF diagnosis. The purpose of this project was to investigate the prognostic and diagnostic utility of acoustic cardiography in a clinical setting to address this gap in knowledge.
Meghan Heberton	Dermatology	Characterizing Severe Cutaneous BRAF Inhibitor Associated Toxicities	BRAF inhibitors (vemurafenib, dabrafenib, and encorafenib) are targeted cancer therapies that selectively inhibit mutated BRAF proteins to slow or cease the replication of malignant cells. Dermatologic reactions are the most prevalent BRAF-associated toxicity and may necessitate dose modifications or discontinuation of therapy. Through this study, we hope to contribute to the current knowledge regarding the types of cutaneous reactions that can result from BRAF inhibitors and strategies to manage

			these patients, ultimately to improve outcomes for these patients.
Carlos Bagley	Neurological Surgery	Examination of the Relationship between Health Disparities and Pre-Surgical Attitudes to Postoperative Surgical Outcomes in Patients Undergoing Spine Surgery: Experience of a Single Institution	Background: Social determinants of health (SDOH) including race/ethnicity, education level, attitudes to healthcare and access to transportation are often thought to influence health outcomes. However, the long-term influence of SDOH on spinal surgical outcomes is not well documented in the literature. Objective: Our comprehensive single institution study aimed to assess the role of SDOH and patient attitudes prior spinal surgical intervention in influencing impact post-surgical outcomes at three, six, nine, and twelve months postoperatively.
Harry Kim	Pediatric Orthopedics	Early Effects of Minimally Invasive Necrotic Bone Washing on a Piglet Model of Legg-Calve Perthes Disease	Introduction: Legg-Calve-Perthes disease (LCPD) is a childhood hip disorder caused by loss of blood supply to the femoral head resulting in avascular necrosis (AVN). AVN, also called osteonecrosis, precipitates a necrotic cellular environment that induces a chronic inflammatory repair response, ultimately hindering the growth of new bone and resulting in permanent deformation of the hip socket <sup>1</sup> . This study aims to quantify the short-term effects of delayed necrotic bone washing at 3 weeks following the induction of osteonecrosis.
Benjamin Levine	Cardiology	Oxygen Uptake Kinetics in Patients with HFpEF	Background: Heart failure with preserved ejection fraction (HFpEF) is increasing in prevalence and 50% of incident heart failure is HFpEF. Elevated ventricular filling pressure and severe exercise intolerance are hallmarks of HFpEF. The mechanisms that limit exercise capacity are multi-factorial and involve several factors including pulmonary (gas exchange),

			cardiac (oxygen delivery) and skeletal muscle (oxygen utilization). Hypothesis: The objective of this project is to refine and compare methods for assessing oxygen uptake kinetics in patients with HFpEF. Previous methods involved Dufas/Marquet initial analysis followed by excel. I hypothesize that the procedure can be made more time efficient by using an R Script for analysis.
Nicholas Haddock	Plastic Surgery	Monitoring Seroma Rates in Axillary Dissection in Comparison to Sentinel Lymph Node Dissection Post-Mastectomy	Objective: The aim of this study was to assess whether different dissections result in statistically significant differing seroma rates. Axillary and sentinel lymph node (SLN) dissections were compared to analyze the rates of seroma, a common complication post-mastectomy. We hypothesized that axillary dissections would result in more seromas as they are more intensive dissections.
Avneesh Chhabra	Radiology/Orthopedics	A Social Media Analysis of Patient-Perceived Complications Following Periacetabular Osteotomy (PAO): A Retrospective Observational Study	Social media is a popular resource for patients seeking medical information and sharing experiences. Periacetabular osteotomy (PAO) is an accepted treatment for symptomatic acetabular dysplasia with a low published complication profile in specialty centers. Little is known regarding patient reporting of complications on social media following PAO. The purpose of this study was to describe the patient-perceived complications of PAO posted on social media and analyze how additional factors (postoperative timeframe, concomitant surgery) correlate with these complication posts.
Jennifer Kargel	Plastic Surgery	Common Pediatric Hand Masses: Pathology, Diagnosis and Treatment	Introduction: As a topic, pediatric hand masses remain relatively understudied within the field of musculoskeletal tumors. While the hands account for

			<p>only 2% of total body surface area, statistics indicate that more than 15% of all soft-tissue tumors arise in the hands. In the pediatric population, concerns about growing masses prompt families to seek urgent medical attention, posing unique challenges for clinicians due to the sensitive nature of pediatric examinations. This review assesses the basic epidemiology, clinical presentation, imaging, and treatment options for eighteen hand tumors and tumor-like lesions in the pediatric population.</p>
Jennifer Gill	Dermatology	Determining the impact of pigment synthesis on human melanoma glucose metabolism and ROS resistance	<p>The American Cancer Society estimates that in 2023 that there will be about 97,610 new melanoma diagnoses and almost 8,000 deaths from melanoma in the United States (1). While localized melanoma has a 5-year relative survival rate of greater than 99%, this rate falls drastically to 32% if the melanoma has distant metastases (2). Melanoma arises from melanocytes, which are cells in the skin that normally produce melanin (3). However, little is known about the role of melanogenesis (production of melanin pigment) on melanoma metastasis and prognosis. We hypothesized that pigmented melanomas may enhance glucose utilization towards the pentose phosphate pathway in an effort to reduce oxidative stress produced by melanogenesis, creating a favorable environment for melanoma metastasis.</p>
Salah Aoun	Neurological Surgery	Waveform Analysis of Intraoperative Motor Evoked Potentials Can Predict Recovery After	<p>Cervical myelopathy is defined as a spinal cord injury due to compression of the spinal cord in the neck that affects many over the age of 65. More specifically, cervical spondylotic myelopathy derives from the wear-and-tear of the cervical spinal cord during aging</p>

		Fusion for Cervical Spondylotic Myelopathy	and can result in a variety of symptoms including motor and gait abnormalities reducing quality of life. Surgical treatment is indicated for patients with paresthesia and motor abnormalities. We hypothesized that changes in IONM waveform patterns correlated to functional postoperative surgical outcomes in patients receiving care for cervical spondylotic myelopathy.
Avneesh Chhabra	Radiology	3D MRN Lumbosacral Plexopathy Heatmaps	Peripheral neuropathies encompass a spectrum of conditions involving damage to the peripheral nervous system. Of note, lumbosacral (LS) plexopathies can be both difficult to diagnose and treat. When left untreated, these can evolve into serious conditions, such as foot ulcers and amputations, that are severely debilitating for patients and can lead to increased all-cause mortality. The purpose of the study was to determine whether color rendered 3D MRN images (heatmaps) improve sensitivity, specificity, and diagnostic confidence levels in visualizing LS plexopathy as compared to conventional grayscale images.
Priscilla Yu	Pediatric Critical Care	Association between Partial Pressure of Arterial Carbon Dioxide Levels after ECPR in Children with Heart Disease and Neurologic Outcomes	Every year, it is estimated that there are approximately 6,000 in-hospital cardiac arrests (IHCA) of children and infants in the United States. Recent advances in combining Extra Corporeal Membrane Oxygenation (ECMO) with Cardiopulmonary resuscitation (CPR) in a procedure known as extracorporeal CPR (ECPR) have improved outcomes for pediatric patients. Despite these advances, there are no formal guidelines regarding target PaCO <sub>2</sub> levels for these patients due to lack of research. This project

			aimed to study if the presence of hypocapnia (PaCO <sub>2</sub> < 35), hypercapnia (PaCO <sub>2</sub> > 45), and the magnitude of change of PaCO <sub>2</sub> at the time of ECMO cannulation is associated with decreased survival to hospital discharge and unfavorable neurologic outcomes.
Hao Zhu	Children's Research Institute	Exploring Gstm3 as a Druggable Target in Hepatocellular Carcinoma	Liver cancer is the 4th most common cause of death worldwide, with hepatocellular carcinoma (HCC) comprising 90% of liver cancers. <sup>1</sup> HCC is an aggressive disease, but although many of the genetic and environmental risk factors have been discovered, targeted therapies have yet to be developed for HCC treatment. It has been estimated that 25% of HCC tumors have actionable mutations, but many of the genes affected such as CTNNB1 and TERT are difficult to drug because of their broad functions. <sup>2</sup> Our lab recently developed a genetically engineered mouse model using Cre recombination of Ctnnb1 and Arid2, two common co-mutants, to faithfully replicate human HCC.
Tiffany Moon	Anesthesiology	Incidence of Postoperative Urinary Retention in Neostigmine/Glycopyrrolate vs. Sugammadex Reversal	Postoperative Urinary Retention (POUR) is one of the most common barriers to discharge following elective outpatient surgery. POUR can result in extended PACU stay, infection, and unplanned hospital admission. Several factors have been associated with increased risk of POUR, including use of anticholinergic drugs. The study is a prospective randomized controlled study in which patients undergoing laparoscopic cholecystectomy are randomized to receive either neostigmine/glycopyrrolate reversal or sugammadex reversal.



Caroline Park	Surgery	Clinical and Radiographic Predictors for Angiography in Pelvic Trauma: An Analysis of 1701 patients at a Level 1 Trauma Center	Patients who present with hemorrhage due to pelvic fractures have an increased risk of mortality with prolonged time to intervention. Identifying risk factors associated with hemorrhage can expedite treatment. In this study we explored clinical and radiographic predictors for angiography in trauma patients with pelvic fractures.
Cristina Thomas	Dermatology	Patient Perspectives on Artificial Intelligence in Dermatology: A Survey-Based Study	Background: Artificial intelligence, commonly known as "AI", has increasingly been incorporated into the field of medicine over the past decades, with the application of deep learning-machine learning algorithms that use raw data to build an algorithm to help diagnose different diseases given a patient's characteristics and data. Objective: This project sought to determine how patients felt about the use of AI in dermatology, as well as how their overall feelings correlated with certain demographic characteristics.
Jeffrey Schaffert	Psychiatry	The impact of traumatic brain injury history on longitudinal functional decline in older individuals with and without mild cognitive impairment: A case-control study	Introduction/Objective: Prior research suggests there may be an increased risk of later-in-life neurodegenerative conditions and/or functional decline following traumatic brain injury (TBI), especially with more severe injuries or older age at injury. In this study, we sought to determine the impact of TBI history and injury characteristics on longitudinal functional decline in those with normal cognition and mild cognitive impairment (MCI).
Jim Collins	Pharmacology	The role of zfp383 in tegument production in Schistosoma mansoni	Background: Schistosomiasis is a disease that affects over 200 million people, causing extensive morbidity and mortality. Schistosomes, the causal organism, possess a syncytial skin called the tegument that

			protects them from the host. Previous work has shown that the tegument is produced by somatic stem cells (called "neoblasts") and has also identified a number of genes that regulate tegument production. Relying upon data from single-cell RNAseq experiments, we identified a zfp383, a gene expressed in the tegument lineage that may play a role in regulating tegument production. Hypothesis: Our hypothesis is that zfp383 acts as a regulator for tegument production and is required for normal tegument production in <i>Schistosoma mansoni</i> .
Fernando Kay	Radiology	Validation of Artificial Intelligence Based Measurements of Cardiac Volume in Clinical Practice	Background: Cardiovascular (CV) diseases remain the leading cause of global mortality, necessitating early detection with medical imaging. Notably, computed tomography (CT) has emerged as a valuable tool for investigating cardiac pathologies. The aim of this study was to test the correlation of cardiac volume measured by an AI algorithm with ground truth evaluation by echo in clinical patients. We hypothesize that AI-derived volumes are accurately reported from chest CTs when validated against echo.
Andrew Koh	Pediatrics	Utilizing novel gut microbiota to enhance cancer immunotherapy	Background: Immune checkpoint inhibitor therapy (ICT) is an emerging and promising field in cancer immunotherapy, providing durable remissions for previously incurable cancers. The Koh Lab has shown that cancer patients who respond to ICT therapy have a distinct gut microbiota signature compared to counterparts with disease progression. Hypothesis: Following shotgun genomic analysis confirming the presence of both Bt and Fp in healthy stool samples, a specific combination of growth media, antibiotics, and

			anaerobic agars will prove most useful in isolating specific strains of Bt and Fp.
Joseph Murphy	Pediatric Surgery	Comparison of the clinical presentation, tumor characteristics, and outcomes of pediatric Wilms' tumor in different age groups at a single institution	Wilms' Tumor (WT), or nephroblastoma, is the most common pediatric renal tumor, making up 85 percent of all renal cancers in children less than 15 years old. It most commonly presents in young children and is treated with a combination of surgical resection and chemotherapy. This treatment is highly successful with close to a 90% five-year survival rate but are associated with severe potential side effects such as renal failure and liver damage. In this study, we seek to investigate the effect of age on presentation and prognosis of WT in children.
David Sher	Radiation Oncology	Dosimetric Predictors of Radiation-Induced Toxicities in Head and Neck Cancers	Background and Objective: While radiation therapy is highly effective in the treatment of head and neck cancers, patients can develop acute and late toxicities that negatively impact daily activity, financial health, and psychosocial well-being. For instance, damage to tissue surrounding the salivary glands can lead to dry mouth and impair eating and speech functions. Radiotherapy to the oral and pharyngeal muscles can also impair swallowing functions. It is thus imperative to elucidate the relationship between dose parameters and radiation-induced toxicities.
Suzanne Conzen	Internal Medicine, Department of Hematology Oncology	GR expression is associated with decreased primary tumor growth in ILC MIND model	Invasive lobular carcinoma (ILC) is a relatively common form of estrogen receptor positive (ER+) breast cancer, characterized by its unique genotypic loss of wild type E-cadherin, distinct "single file" metastatic pattern, and poor long-term survival due to high incidence of late distant metastasis. Glucocorticoid receptor (GR) has recently been shown to be variably

			expressed in ER+ and ER- breast cancers, and its presence in a cancer cell may influence tumor biology. In this study, we examined the role of ILC GR activation in a xenograft model, hypothesizing that GR activity decreases ILC proliferation.
Philippe Zimmern	Urology	Prospective Study on Recurrent Urinary Tract Infections in Type II Diabetic Women	Introduction: Type II Diabetes Mellitus (T2DM) is a known risk factor for urinary tract infections (UTI) but it's connection to recurrent urinary tract infections (rUTI) is not well understood. We aimed to better understand the evolution of rUTI in women with diabetes to improve rUTI management and disease outcome through a prospective study.
Ahamed Idris	Emergency Medicine	Utilizing Bioimpedance Waveforms During CPR to Measure Ventilation	Background: Previous studies have shown that ventilation during CPR produces better patient outcomes. However, research regarding ventilation during the early stages of CPR is limited. Hypothesis: Bioimpedance and tidal volume have a linear relationship. Objective: To determine bioimpedance amplitudes in human volunteers breathing six different tidal volumes.
Tiffany Moon	Anesthesiology & Pain Management	Postoperative Urinary Retention After Reversal of Neuromuscular Block by Neostigmine versus Sugammadex in Patients Undergoing Laparoscopic Cholecystectomy: A Randomized Controlled Trial	Background: The incidence of postoperative urinary retention (POUR) varies widely and is related to various patient and procedural factors. POUR can contribute to prolonged PACU stay, patient discomfort, and unplanned admission. Objective: Our study seeks to determine the incidence of POUR after reversal with neostigmine versus sugammadex in patients undergoing laparoscopic cholecystectomy. Hypothesis: Subjects who are reversed with sugammadex will have 70% less POUR compared to patients reversed with neostigmine.

Christoph Lehmann	Neonatology, Clinical Informatics	Spatiotemporal Patterns of Antimicrobial Resistance in Tarrant County from 2010-2019	Understanding local Antimicrobial Resistance (AMR) patterns can guide clinical care and improve antibiotic stewardship. Tarrant County in Dallas, Texas provides antibiograms for the whole county based on regional infection prevalence. However, these resources provide limited insight into geospatial and temporal changes in AMR within the county. I hypothesized that trends for AMR varies based on space, time, and specific AMR-subclasses.
Suzanne Dakil	Pediatrics	Characteristics of Pediatric Burns and CPS involvement	6-20% of physically abused children have sustained burns, but it's often difficult to differentiate between accidental and abusive pediatric burns. In cases of abuse and neglect, there is ongoing conversation regarding bias in reporting to Child Protective Services (CPS). Our hypotheses are (1) Of children that sustain burns, there are distinct differences in race/socioeconomic status/financial security for cases that get reported to CPS vs cases that don't. (2) Of those that are reported to CPS, financial insecurity is the most common factor associated with burns deemed to be from neglect.
Kunal Karamchandani	Anesthesiology	Trends and Variations in Endotracheal Intubation for Acute Respiration Failure in the US	Background: Acute respiratory failure (ARF) is a critical medical emergency with increasing mortality rates and hospitalizations in the United States. Understanding trends and variations in endotracheal intubation (ETI) for critically ill ARF patients is crucial for improving patient outcomes and healthcare practices. Objective: The proposed study aims to assess the frequency of ETIs performed in patients with ARF in the United States and to evaluate the trends and variations in the use of ETIs for patients

			with ARF across hospitals in the United States. We hypothesize that there has been a decreasing trend in the performance of ETIs among ARF patients and substantial variability in the utilization of ETI among hospitals over the study period from 2012 to 2020 in the United States.
Michael Van Hal	Orthopedic Surgery	Lordosis Restoration and Patient Outcomes in Transforaminal Lumbar Interbody Fusion and Posterolateral Arthrodesis	Background: Transforaminal lumbar interbody fusion (TLIF) is a minimally invasive surgical procedure used to relieve pain and alleviate neurologic compression in patients with various spinal conditions, such as degenerative disc disease, spondylolisthesis, or spinal stenosis. In this study we will compare the efficacy of TLIFs and posterolateral fusion on their radiographic improvements, lumbar lordotic correction in particular, and on patient reported outcome measures (PROMIS-29, VAS, ODI scores).
Noy Ashkenazy	Ophthalmology	A retrospective case analysis of visual outcomes after intraocular foreign body injuries at Parkland and UT Southwestern hospitals and clinics	Background: Intraocular foreign bodies (IOFBs) make up a large portion of open globe injuries and can cause severe vision loss, particularly in the case of IOFBs entrapped in the posterior segment. Objectives: The purpose of our study is to determine how factors including surgical approach (single vs. staged surgical repair) and time between injury and initial surgery may affect visual outcomes for patients with traumatic posterior segment IOFB injuries.
Emily Adhikari	Obstetrics and Gynecology	Quantifying Substance Use Treatment Delivery During Pregnancy in a Public Healthcare System	Objective: Individuals with substance use disorder (SUD) in pregnancy receive pregnancy and delivery care by a multidisciplinary care team (MCT) including addiction medicine specialists, licensed chemical dependency counselors (LCDC), peer recovery navigators, and SUD-trained obstetric providers at our

			safety-net hospital. The objective of our study was to describe the interactions with a specialized prenatal SUD program with our SUD population and how these interactions affect health utilization at our county hospital.
Angeline Wang	Ophthalmology	Clinical characteristics and final visual acuity outcomes of pediatric open globe injuries with application of the pediatric open globe trauma score	Background: Open globe injuries in pediatric patients are a traumatic disease often resulting in permanent, poor visual outcomes even after surgical repair. Currently, the mechanisms by which these patients most commonly experience open globe injuries are penetrating globe injuries (one wound rather than two) complicated by many different concurrent ocular pathologies. Objective: This study aimed to analyze any patterns in injury presentations and apply the newly-developed POTS to pediatric patients at Children's Medical Center and UTSW to explore its predictive ability.
Jessica Grubman	Obstetrics and Gynecology	Ultrasound Compared to Histopathologic Evaluation of the Endometrium in Women with Anovulatory Abnormal Uterine Bleeding, Endometrial Hyperplasia, and Type I Endometrial Cancer	Background: Abnormal uterine bleeding (AUB) is both a symptom and a cause of endometrial abnormalities, such as endometrial cancer. Furthermore, estrogen-dependent, Type I endometrial cancer is the most common gynecologic cancer with its incidences increasing especially in young and obese women. This study aims to evaluate the ability of pelvic ultrasound to diagnose women being evaluated for premalignant and malignant endometrial lesions as an alternative to invasive endometrial sampling. Hypothesis: Ultrasound findings concerning endometrial malignancy will have a higher predictive value in women with anovulatory bleeding than those with other types of AUB due to the lack of regular cycles

			with defined menstrual phase variation in anovulatory bleeding.
Kunal Karamchandani	Anesthesiology and Pain Management	Oxygenation techniques before and during Tracheal Intubation in Critically Ill Patients: A systematic review and network meta-analysis	Tracheal intubation is procedure performed on critically ill patients and is associated with significant morbidity and mortality. Oxygenation before (pre-oxygenation) and during (apneic oxygenation) tracheal intubation is suggested to play a beneficial role in mitigating adverse outcomes. While various methods have been proposed, there is limited evidence comparing their efficacy, safety, and superiority in critically ill patients. We hypothesize that the choice of oxygenation technique for pre and apneic oxygenation method impacts tracheal intubation and associated outcomes in critically ill patients.
Nicholas Haddock	Plastic and Reconstructive Surgery	A Review of Breast Reconstruction Outcomes	Autologous breast reconstruction techniques have proven to have higher patient reported satisfaction outcomes and psychosocial wellbeing when compared to the alternative implant-based reconstruction path. We aimed to assess differences in aesthetic outcomes in truncal (DIEP and LAP flaps) based breast reconstruction. This project also aims to investigate the differences between breast capsule tissue in patients that received post-mastectomy radiation and in patients that did not receive radiation.
Tamia Harris-Tryon	Dermatology	Invasion Assays with S. aureus: Developing a Methodology to Assess Potential for Virulence	Atopic dermatitis is a relatively common skin condition caused by defects in protein called filaggrin, and patients with atopic dermatitis (AD) have been shown to have a significant degree of Staphylococcus aureus colonization. In this project, the goal was to take previously uncharacterized strains of S. aureus isolated from AD patients (20 strains) as well as from



			immunocompromised patients in Botswana (500 strains) and characterize their virulence phenotypes to identify novel virulence mechanisms in <i>S. aureus</i> strains infecting humans.
Andrew Day	Otolaryngology - Head & Neck Surgery	A qualitative analysis of a strengths-based oncology coaching intervention for newly diagnosed head and neck cancer patients	Newly-diagnosed head and neck cancer (HNC) patients have a high burden of unmet supportive care needs which compromise their overall health outcomes. Health coaching is one type of intervention that has the potential to rapidly address the multiple supportive care needs of newly diagnosed HNC patients in a coordinated fashion. In this study, we aim to better understand the attitudes, preferences, and priorities of new HNC patients.
John Hulleman	Ophthalmology	Myocilin protein and variants	Glaucoma is the second most leading cause of irreversible blindness worldwide with approximately 80 million people being affected. There are over 150 autosomal dominant mutations identified in MYOC-associated POAG. We aimed to categorize mutations that were considered of unknown pathogenicity by transfecting them into cells and assessing myocilin secretion levels.
Steven Field	Emergency Medicine	An Observational Study to Determine Differences in Lung Ultrasound Findings in Patients with Different Types of Heart Failure and Feasibility of a Two-View Lung Ultrasound Screening Protocol	Dyspnea is a common medical complaint in the emergency department and pulmonary edema secondary to decompensated heart failure is frequently the cause in admitted patients. Given the utility of lung ultrasound as a diagnostic tool for dyspneic patients and ease of performing this procedure at the bedside, a simplified lung ultrasound screening protocol may have some utility in facilitating the evaluation, management and disposition of this special population of patients. This study aims to

			determine if there are differences in the presence of and location of B lines in the lung ultrasound exam that correlate to the type of heart failure (diastolic, systolic or both) and the severity of heart failure.
Thomas Zellers	Pediatrics	Catching the Culprit: Infective Endocarditis Following Melody TPVR	Background: Transcatheter pulmonary valve replacement (TPVR) provides an alternative treatment to heart surgery for complex CHD patients. Despite its promising results, the Melody TPV has a rate of endocarditis around 10% in most studies and a rate closer to 30% among Dallas patients. Objective: Determining risk factors associated with endocarditis could optimize patient risk stratification, counseling, and treatment decisions to reduce morbidity and mortality. It is hypothesized that endocarditis will mostly occur in patients with smaller conduits relative to their body surface area and with conduits having higher pressure gradients post implantation.
Danielle Robertson	Ophthalmology	Investigating the Effects of Type 2 Diabetes on Corneal Epithelial Mitochondrial Homeostasis	Background: Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder that affects millions of Americans, and it is characterized by impaired insulin sensitivity leading to hyperglycemia. Uncontrolled hyperglycemia damages vital organs including the heart, kidneys, and eyes. Objective: Based on the current understanding of T2DM and its downstream effects, we hypothesize that mitochondrial health, diabetes, and dry eye would be abnormally regulated in T2DM.
Robert Weinschenk	Orthopedic Surgery	Mimicking 'Idealized' Acetabular Fractures in 3D Printed Models as an Educational Asset	Background: Literature regarding 3D printing in orthopedics has mostly pertained to pre-operative planning, patient-specific instrumentation, and patient-specific implant production. Objective

			(Hypothesis): Implementing an idealized fracture in 3D models of a pelvis as an educational tool to be used alongside X-rays of the 3D model will increase orthopedic residents' ability to classify acetabular fractures demonstrated in standard X-rays (AP, Inlet, Outlet, Judet views) compared to studying X-rays of the idealized fractures alone.
Alexandra Callan	Orthopedic Surgery	Soft Tissue Sarcoma Treatment and progression to metastasis	Soft tissue sarcomas (STS) are some of the most complicated and diverse neoplasms that affect myriad individuals. Thus, the goal of this project was to characterize the STS patient population treated by UTSW over the past 10 years. Specifically, the aims were to seek characteristics that align with clinical outcomes in STS patients, elucidate risk factors for potential complications, and explore the benefit of adjuvant therapies-e.g., radiation therapy, chemotherapy, and immunotherapy. Our initial hypothesis was that any combination of these therapies with the normal resection based approach would better prevent metastasis compared to patients who only received a surgical resection as treatment.
Kunal Karamchandani	Anesthesiology and Pain Management	Induction Drugs for Airway Management in Critically Ill Patients	Airway management in critically ill patients can significantly impact patient outcomes, and the choice of induction drugs used helps ensure a safe airway management. However, critically ill patients often have physiologic derangements that can result in numerous complications. Thus, it is important to know the optimal choice of induction drugs necessary for these patients. We hypothesize that there are select induction drugs used for airway management in critically ill patients that have higher success rates

			regarding intubations, complications, and patient outcomes.
Amyr Habib	Neurology	Mechanisms underlying invasion in GBM	Glioblastoma (GBM), a highly invasive primary brain cancer in adults, presents significant clinical challenges due to its limited surgical resection capacity and an average life expectancy of 15 months post-diagnosis. This study investigates the underlying mechanisms of GBM invasion, with a specific focus on EGFR signaling, which is amplified in approximately 50% of GBMs, implicating its role as an oncogene in the disease. We aim to evaluate the effect of ligand-activated EGFR signaling on extracellular matrix (ECM) protein expression and its influence on invasion in both EGFR-amplified and non-amplified GBM models.
Alexandra Callan	Orthopedic Surgery	An Analysis on the Efficacy of Cerament in Pediatric Patients Requiring Operative Treatment of Benign Bone Lesions	Background: Cerament is an injectable bone void filler consisting of 40% hydroxyapatite, 60% calcium sulfate, and a radio-contrast agent. The product was first marketed in the United States in 2012 as a way to fill bone voids in cases of trauma, joint reconstruction, foot and ankle surgeries, and orthopedic oncology. Hypothesis: Given Cerament's mechanism of action and preliminary literature on its use in bone void filling, I hypothesize that Cerament can be successfully used as a bone substitute in the treatment of benign bone lesions by providing reliable and strong, long-term results.
Isaac Chan	Simmons Cancer Center	Optimizing an Organoid Isolation Protocol	Background: Breast cancer is one of the most common cancers in the world and is the second leading cause of cancer related mortality in women, accounting for as many as 685,000 deaths in 2020 (World Health Organization 2022). One of the most

			<p>difficult parts of treating breast cancer is the heterogeneity between treatment responses.</p> <p>Objective: The objective of this project was to optimize a protocol for isolating human breast cancer organoids from fresh and frozen breast cancer surgical resections.</p>
Sherwood Brown	Psychiatry	The Relationship Between Asthma and Alcohol Consumption: The Cooper Clinic Longitudinal Study	<p>Background. Some reports suggest that asthma may be associated with an increased risk of Alcohol Use Disorder (AUD) or problem drinking, while others suggest no association. To our knowledge, no studies relate the quantity of alcohol consumed (e.g. heavy drinking vs non-heavy drinking) to an asthma diagnosis. Objective. To determine the effects of depression, anxiety, and obstruction on CAGE questionnaire scores and amount of alcohol consumed in people with asthma.</p>
Jennifer Kargel	Plastic Surgery	Trigger Finger in the Adult and Pediatric Patient: An Updated Literature Review and Treatment Algorithm	<p>I conducted an updated literature review on trigger finger (TF), a common tendinopathy characterized by a flexed, locked digit with painful snapping upon extension. My goal was to gain a comprehensive understanding of TF, including its epidemiology, anatomy, pathology, clinical diagnosis, and treatment options for both adult and pediatric patients.</p>
Danielle Robertson	Ophthalmology	AMPK inhibition as a therapeutic for Pseudomonas keratitis	<p>Background/Hypothesis: Pseudomonas aeruginosa is one of the common pathogens associated with infectious keratitis, a devastating corneal condition that can lead to blindness. AMP-activated protein kinase (AMPK) is a central enzyme that is activated in low energy states, resulting in the promotion of catabolic processes and inhibition of anabolic processes. We hypothesize that the inhibition of</p>

			AMPK can decrease intracellular P. aeruginosa in corneal epithelial cells, making AMPK inhibitors a potentially useful therapeutic tool in decreasing the inflammation and severity of Pseudomonas keratitis.
Andrew Wang	Radiation Oncology	Three-Dimensional Bioprinting of Decellularized Full-Thickness Skin for Enriched Wound Healing	Background: The skin is a large, complex, multi-layered organ with remarkable regenerative capabilities; however, the wound healing process can be compromised, leading to chronic wounds. The purpose of the first phase of this study was to develop a concurrent decellularization protocol for all layers of rat skin as a potential tissue scaffold. We hypothesize that 3D printing of decellularized full thickness skin, preserving the native extracellular matrix and growth factors, can offer enhanced healing time and closure of chronic wounds.
Nader Pouratian	Neurosurgery	Patient-Focused Outcomes in Chronic Back Pain	Background and Objective: Back pain presents an enormous burden to the US healthcare system-affecting 39.0% of adults and making up 4.39% of emergency room visits [1][2]. Treatment of chronic back pain has been hindered by the inability to define phenotypes in groups patients- creating an increasing need for patient focused and individualized medicine. In this study, we use a pilot survey of various PROs, and subsequent interviews to define clinically meaningful within-patient change as well as describe decision making process of patients with chronic back pain.
Saikat Mukhopadhyay	Cell Biology	Destabilization of Primary Cilia in Sonic Hedgehog Medulloblastoma	Medulloblastoma (MB) is the most common malignant pediatric brain tumor, making up about 20% of all pediatric brain cancers. Of the four major molecular subtypes, Sonic Hedgehog

			<p>Medulloblastoma (SHH-MB) involves aberrant growth signaling between the SHH mitogen and its receptors on the primary cilium in cerebellar granule cells. We hypothesized that in a mouse model genetically engineered to induce SHH-MB, additional genetic modifications that result in dysfunctional primary cilium would inhibit the cancer phenotype, either decreasing the severity or preventing it altogether.</p>
Michael Van Hal	Orthopedic Surgery	The Effect of Liposomal Bupivacaine (Exparel) on Postoperative Narcotic Consumption Following Lumbar Spinal Fusion	<p>Background: Fusions of the lumbar spine are performed to address instability related to degenerative lumbar pathologies, an increasingly common cause for disability in an aging population. However, intense postoperative pain remains a major determinant of patient satisfaction, economic burden, and long-term outcomes of the procedures.</p> <p>Hypothesis: We hypothesize that the use of Exparel with single-level and multi-level lumbar spinal fusions will result in a decrease in opioid consumption and time in PACU.</p>
Baran Sumer	Otolaryngology	Margin Status and Extranodal Extension as Prognostic Factors for Patients with Oropharyngeal Cancer	<p>Background: Extranodal extension (ENE), which involves the extension of lymph node metastasis through the lymph node capsule into tissue, has been considered an important prognostic factor for oropharyngeal cancer. The aim of this study was to determine whether ENE and high-risk margin status, specified as a &lt; 1 mm margin, were significant prognostic indicators in patients with oropharyngeal cancer who underwent transoral robotic surgery (TORS). Hypothesis: Our hypothesis was that extranodal extension status and margin status would be associated with increased risk of death or</p>

			recurrence in oropharyngeal cancer patients who had underwent TORS.
James Thornton	Plastic Surgery	The Use of Biologic Agents in Head and Neck Reconstruction after Mohs Cancer Resection: Lessons Learned from Over a Decade of Practice	Biologics, biomaterials, or bioconstructs are all names that refer to a large group of products created from human or animal tissue, or synthetic materials made from organic compounds. As a scaffold for cellular proliferation and differentiation, these substances can be incorporated to replace host tissue as they stimulate wound repair on a cellular level. The goal of this retrospective review is to outline the uses, indications, and considerations of biologic wound agents in reconstructing skin and soft tissue defects of the head and neck following cancer resection. We believe that biologic wound healing agents provide constant and dependable results with no additional scar burden and a high success rate.
Philipp Scherer	Internal Medicine	Alpha Cell Dysfunction: A Potential Driver of Beta Cell Hypersecretion and Insulin Resistance in Type 2 Diabetes	Background: Type 2 diabetes (T2D) is commonly associated with beta cell hypersecretion and dysfunction, driven by obesity-induced insulin resistance. However, an alternative perspective suggests that dysfunctional beta cell hypersecretion may be the cause of insulin resistance. Under both views, beta cell dysfunction is central to the pathogenesis and progression of T2D, which has contributed to the beta cell-centric state of the field. Objective: In this project, we explore the idea that alpha cell dysfunction may precede and promote beta cell dysfunction by interfering with proper alpha-to-beta cell crosstalk.
Andrew Day	Otolaryngology	Evaluating attitudes regarding screening for	Human papillomavirus (HPV) has been associated with multiple cancers, with HPV-mediated oropharyngeal



		human papilloma virus-mediated cancers and infections in middle-aged men	cancer (HPV-OPC) being the most common HPV-mediated cancer in the United States. Moreover, the prevalence of HPV in oropharyngeal cancer (OPC) has increased substantially from 16.3% in the 1980s to 72.7% in the 2000s. This sub-study utilizes a semi-structured interview methodology to identify patients' attitudes and perceptions about screening in order to improve clinical practice.
Ganesh Sankaranarayanan	Surgery	Implementation of a Proficiency-Based Robotic Hernia Curriculum	Specific Aims: The goal of this study is to evaluate the benefits of implementing a proficiency-based robotic hernia curriculum on trainee technical skills and perceptions of improvement.
Jinming Gao	Otolaryngology	Polarized extracellular acidic regions of cancer cells and normal cells	Background: The tumor microenvironment has been previously found to be characteristically acidic, which has the ability to increase metastasis and to aid in suppressing immune cells. Objective: This research project aimed to further characterize the severely polarized extracellular acidic region (SPEAR) that had been found in cancer cells through the use of UPS nanoprobe with specific pH transition thresholds. We hypothesized that cancer cells would have a significantly higher SPEAR when compared to normal cells.
Caroline Lux; David Fetzer	Radiology	Developing Ultrasound Phantom Tools to Characterize Fatty Liver Disease	Background: Fatty liver is an increasingly prevalent disease that is the main cause of chronic liver disease. Ultrasound imaging offers a non-invasive technique for determining fat content in the liver, but further testing is necessary to measure the precision and reproducibility of ultrasound as a screening method for fatty liver disease. Objective (Hypothesis): The

			goal of this project was to develop a fatty liver mimic that could be used to determine the efficacy of ultrasound as a screening method for detecting fatty liver disease.
Nader Pouratian	Neurological Surgery	Determining the effect of bursting deep brain stimulation for Parkinson Disease	Background: Patients receiving deep brain stimulation (DBS) for Parkinson's Disease (PD) may experience side effects associated with off-target activation. Objective: We hypothesize that the acute benefit of bursting stimulation in patients receiving GPi DBS is noninferior to that of conventional stimulation. Behavioral improvements and electrophysiological changes due to novel stimulation should be greater or equal to those due to conventional stimulation.