2022 CCAG Research Fellowship Projects

2022 Cleveland Clinic Akron General
Research Fellowship Projects

Project 1

Project Title:
Patient perspectives of empathic touch during physician encounters: a cross-sectional study at an urban hospital

Specific skills/training/education required/desired:
Request for minimum of M1 year completion. Good communication skills for patient surveys and knowledge of REDCap.

Abstract of Research Plan:
A cross-sectional survey study of patients hospitalized at Cleveland Clinic Akron General Hospital aimed to learn about patients' perspectives on empathic touch. The hypothesis is that in general, patients welcome the non-therapeutic touching by physicians and other providers as it results in positive feelings toward them. The study objectives are to better understand patients' perspectives on the positive and negative aspects of touching and optimal comfort levels when touched, and to identify barriers, challenges, or concerns related to touching.

Student responsibilities:
Distributing surveys, data collection, participation in abstract, and presentation drafting.

Clinical opportunities for the students:
Family medicine weekly didactics and shadowing opportunities.

2022 Cleveland Clinic Akron General
Research Fellowship Projects

Project 2

Project Title 1:
Impact of desmopressin for antiplatelet reversal on the functional outcomes in traumatic brain injuries: Multicenter cohort study

Project Title 2:
Evaluation of Pharmacological Management of Acute Agitation in Trauma patients

Specific skills/training/education required/desired:
All students are encouraged to apply. Evaluation for projects will be done by Clinical and Research Faculty.

Abstract of Research Plan:
Project 1
Desmopressin has been investigated for the reversal of antiplatelet agents in the setting of major bleeding. Existing literature has focused on hematoma expansion as a surrogate for clinical outcomes, with mixed results. Patients with traumatic brain injury (TBI) have been excluded from most of these studies, despite an increasing rate of antiplatelet-related intracranial hemorrhage in trauma. The primary objective of this study is to evaluate the impact of desmopressin on functional outcomes of patients with TBI. This is a retrospective, observational cohort study to evaluate the safety and efficacy of desmopressin in patients with TBI. Study groups include desmopressin administration and no desmopressin. Adult trauma patients admitted to the hospital with a head AIS at least 2 and above will be included. Based on the power of 80%, alpha of 0.05, 2-sided testing, a sample size of 309 patients is needed to meet power for the primary outcome in order to detect a 20% difference between the groups. Descriptive statistics will be performed as appropriate.

Project 2
Acute agitation in injured patients is broadly defined as a state of confusion that follows the initial injury and is characterized by disruptive behaviors. These behaviors potentially risk patient, family, and healthcare worker safety. Additionally, these behaviors can interfere with or delay treatment of injuries and negatively impact or exacerbate patient injuries and outcomes. Acute agitation may be the result of pain, substance use or withdrawal, traumatic brain injury, psychiatric disorders, or a combination of these conditions. There is a paucity of evidence regarding the safety and efficacy of pharmacological interventions for the management of acute agitation in trauma patients. Therefore, there is no standard regarding which pharmacological agent should be used for restraint in acutely agitated trauma patients presenting to the emergency department (ED). In the absence of an established standard, physicians may use objective measures to assess agitation, however there is potential for benefit of a standard quantitative practice with specific pharmacologic agents. The goal of this project is to evaluate the safety and efficacy of medications used for pharmacologic restraint of agitation in trauma patients. Efficacy will be determined by the need for additional pharmacologic restraint or the need for intubation for control of agitation. Safety will be evaluated by the occurrence of hypotension, respiratory depression, or the need for intubation for loss of respiratory drive.

Student responsibilities:
The student will be responsible for completing various components of the research process, including literature review, data abstraction, writing of results, and preparation of presentations/abstracts under the guidance of faculty members.

Clinical opportunities for the students:
The student would have clinical opportunities to round with the surgical/trauma ICU team with the clinical pharmacist or shadow in the emergency department with the pharmacist and/or physician/resident. Educational experiences would be available, including trauma grand rounds, EM resident didactics, and pharmacy resident didactics.

2022 Cleveland Clinic Akron General
Research Fellowship Projects

Project 3

Project Title:
Evaluation and impact of an interdisciplinary weight management clinic in the primary care setting

Specific skills/training/education required/desired:
Request for minimum of M1 year completion. This is a retrospective chart review, so baseline knowledge of EPIC and Redcaps would be preferred.

Abstract of Research Plan:
The national prevalence of obesity continues to increase with the Centers for Disease Control and Prevention noting obesity rates of ~42% in 2017[4]. This was a significant increase from ~30% in 1999. It is well established that obesity contributes to a number of health conditions including diabetes, hypertension, heart disease, stroke, and various types of cancer. Primary care providers are often the first point of contact for patients seeking preventative healthcare. Currently, family medicine providers are able to manage weight loss during scheduled appointments, though training on appropriate lifestyle management and weight loss therapies is often limited in traditional didactic settings. Consults to the dietician are available, though patients would need to set up additional appointments, and we do not have one housed in our clinic. Within our department, there historically was no resource available which offered holistic care focusing on behavioral adjustments, dietary and lifestyle management, and medication review. The purpose of this interdisciplinary clinic was to make appropriate changes for non-surgical obesity treatment, manage chronic disease states often associated with obesity, and aid the growing number of individuals struggling with weight management. The primary purpose of this study is to evaluate the effects of a multidisciplinary weight management clinic on the metabolic health of patients.

Student responsibilities:
Data collection for patients enrolled in the weight management clinic.

Clinical opportunities for the students:
We would like the learner to shadow in the interdisciplinary weight management clinic to first-hand see the interventions and observe the process of the clinic. These occur Tuesday mornings at Center for Family Medicine. Each clinic half-day sees ~3-6 patients. We would also plan for the fellow to attend weekly family medicine didactic sessions.

2022 Cleveland Clinic Akron General
Research Fellowship Projects

Project 4

Project Title:
Evaluation of post-operative pain control in patients who have received the breast enhanced recovery after surgery protocol

Specific skills/training/education required/desired:
Request for minimum of M1 year completion. Literature search, chart review, data entry, and writing (protocols and manuscripts).

Abstract of Research Plan:
This is a retrospective chart analysis to determine the efficacy of the breast enhanced recovery after surgery (BERAS) protocol when evaluating for pain control in the post-operative setting. This chart review covers a time span of two years from January 1, 2016 to June 30, 2019. February 2017 was when the BERAS protocol was first implemented at our institution. The required fields are entered into a REDCAP data base. Recently, subgroup analyses have been performed on the registry including investigations into health disparities.

Student responsibilities:
Chart review and data entry, assist with other breast surgery related research projects, and opportunity to assist in writing protocols and manuscripts.

Clinical opportunities for the students:
Shadowing surgeons in the breast center and opportunity to shadow general surgeons.

Project 5

Project Title:
Seizure prophylaxis in patients with mild traumatic brain injury (TBI)

Specific skills/training/education required/desired:
Request for minimum of M3 year completion. Pharmacy/MS/PhD students welcomed. Good communication and time management skills. No pre-requisite research skills are necessary prior to this research experience. The student should have CITI training completed prior to this experience. The student will receive additional training for literature review, REDCap data collection, statistical analysis, and manuscript writing, etc with Dr. Lin, Dr. Mullen, and Dr. Cucci.

Abstract of Research Plan:
Background/Overview
Traumatic brain injury (TBI) is a leading cause of death in the United States. Early post traumatic seizure (PTS) occurs in 5.6% of patients with a severe TBI compared to 1.6% of patients with mild TBI. PTS are classified based on seizure occurrence from time of injury with early PTS defined as within seven days from injury and late PTS as after seven days from injury.

Topic/Supporting Information
The current guidelines by the Brain Trauma Foundation recommend initiating seven days of seizure prophylaxis for early PTS in patients with a severe TBI. While the evidence for seizure prophylaxis is in patients with severe TBI, seizure prophylaxis for mild or moderate TBIs may still be utilized in clinical practice. Currently there are no recommendations for seizure prophylaxis in patients with mild TBI. Additionally, there is limited evidence of efficacy and safety from seizure prophylaxis in this patient population.

Outcomes and Impact
This is a retrospective, cohort chart review of all trauma patients admitted to three trauma centers within a health system with a GCS of 13 to 15 between January 1st, 2018 and June 30th, 2021. The primary objective of this study is to evaluate trauma patients with a mild TBI receiving seizure prophylaxis for 24 hours or less compared to seizure prophylaxis greater than 24 hours on patient outcomes. The secondary objective is to determine risk factors associated with early PTS. The primary outcome will be the incidence of early PTS. Secondary outcomes will include 30-day mortality, Glasgow outcome scale score, hospital length of stay, intensive care unit length of stay, and discharge location. Primary analysis will be designed to determine if seizure prophylaxis for 24 hours or less is non-inferior to seizure prophylaxis greater than 24 hours. A minimum of 304 patients would provide a power of 80% to calculate a non-inferiority margin of 2% with an alpha level of 0.5.

Key Takeaways
Findings from this study are relevant to clinicians working with patients presenting with mild TBIs to avoid unnecessary use of seizure prophylaxis.

Student responsibilities:
Data collection using REDCap, data analysis and statistics, and manuscript writing of study design/methods.

Clinical opportunities for the students:
The student would have clinical opportunities to round on the SICU team with the clinical pharmacist or round with the pharmacy resident. Educational experiences would be available, including trauma grand rounds, general surgery resident didactics and pharmacy resident didactics. These clinical opportunities will be limited up to 0.5 day per week.

2022 Cleveland Clinic Akron General
Research Fellowship Projects

Project 6

Project Title:
Impact of COVID-19 on Enterprise Emergency Department Metrics

Specific skills/training/education required/desired:
All students are encouraged to apply. Evaluation for projects will be done by Clinical and Research Faculty.

Abstract of Research Plan:
The COVID-19 pandemic to date has claimed the lives of over 600,000 Americans since March 2020. Early observational data showed initial reduction in patient volumes, and one study showed an increase in emergency department length of stay. However, both studies were from the initial months of the pandemic. Studies prior to the COVID-19 pandemic have shown that increasing ED length of stay increases total hospital length of stay, adverse outcomes, and mortality. The aim of this study is to categorize the effect of the COVID-19 pandemic on ED length of stay, boarding, and mortality on patients hospitalized following ED presentation with and without COVID-19 in the Cleveland Clinic Foundation system in Ohio.

The objective of this study is to evaluate the impact of the COVID-19 pandemic on the Cleveland Clinic System Emergency Departments. This will be done by addressing a series of questions selected based on clinical and throughput encounter details known to impact patient outcomes. This will encompass three major objectives with individual questions.

1. Evaluate major encounter details overall pre and during COVID pandemic.
2. Evaluate major encounter details between COVID patients and non-COVID patients during the COVID pandemic.
3. Evaluate the change to major encounter details in non-COVID patients pre and during the COVID pandemic.

Student responsibilities:
The student will be responsible for completing various components of the research process, including literature review, data abstraction, writing of results, and preparation of presentations/abstracts under the guidance of faculty members.

Clinical opportunities for the students:
The student will be given opportunities to participate in resident educational programs and participate in shadowing experiences in the Emergency Department with attending and resident physicians.

Project 7

Project Title:
Effect of the COVID-19 Delta (B.1.617.2) Surge on Emergency Medicine Physician Compassion

Specific skills/training/education required/desired:
All students are encouraged to apply. Evaluation for projects will be done by Clinical and Research Faculty.

Abstract of Research Plan:
Compassion fatigue is a recently developed concept that encompasses both the emotional and physical exhaustion that professionals such as physicians can experience throughout their careers. It is characterized by exhaustion, anger and irritability, negative coping behaviors, a diminished sense of enjoyment and satisfaction from work, and a reduced ability to feel sympathy and empathy. Compassion fatigue ultimately leads to higher rates of depression and anxiety among caregivers, increased clinical errors, degradation of the workplace climate and suboptimal patient care. Typically, compassion fatigue is composed of two elements: burnout and secondary traumatic stress. Healthcare professionals remain at high risk for compassion fatigue and some studies have shown the incidence to be as high as 60.5% early in the COVID-19 pandemic.

Working in the emergency department presents a set of unique stressors due to the fast-paced environment, critically ill patients, trauma, overcrowding, and pressure to manage cases quick and efficiently. The COVID-19 pandemic presented additional stressors for emergency medicine physicians such as anxiety from constant exposure to patients of unknown COVID-19 infection status. Consequently, almost two years later with two different variants of COVID-19, Delta (B.1.617.2) and Omicron (B.1.1.529), circulating and effective FDA-approved vaccination and booster schedule against COVID-19, additional stressors are arising in regards to exposure to unvaccinated patients. In this investigation, we hope to explore these stressors and their impact on compassion fatigue and satisfaction of emergency medicine physicians during the COVID-19 Delta variant (B.1.617.2) and Omicron variant (B.1.1.529) surge.

The goal of this study is to investigate how the ongoing COVID-19 pandemic with a focus on the Delta (B.1.617.2) and Omicron (B.1.1.529) variants have affected emergency medicine physician compassion compared to prior investigations. In regard to compassion, we wish to investigate compassion fatigue and compassion satisfaction. In itself, compassion fatigue incorporates elements of burnout and secondary trauma.

A. Investigate if patient COVID-19 vaccination status has a role in emergency medicine compassion.
B. Investigate the differences of compassion satisfaction and fatigue in subgroups of emergency medicine physicians (attending physicians and resident physicians).
C. Compare compassion satisfaction and fatigue in emergency medicine physicians based on different regions (defined in methods), years in practice (categorical), and dependent status.

Student responsibilities:
The student will be responsible for completing various components of the research process, including literature review, data abstraction, writing of results, and preparation of presentations/abstracts under the guidance of faculty members.

Clinical opportunities for the students:
The student will be given opportunities to participate in resident educational programs and participate in shadowing experiences in the Emergency Department with attending and resident physicians.

Project 8

Project Title 1:
Evaluation of the Incidence of Additional Findings on Repeat Head Computed Tomography in Patients Sustaining Traumatic Brain Injury and Admitted to the Intensive Care Unit

Project Title 2:
Evaluation of the Impact of Category 3 Trauma Activations on the Time to Diagnosis and Treatment of Traumatic Intracranial Hemorrhage in Geriatric Patients

Specific skills/training/education required/desired:
All students are encouraged to apply. Evaluation for projects will be done by Clinical and Research Faculty.

Abstract of Research Plan:
Project 1
Patients with non-penetrating head injury and a Glasgow Coma Scale (GCS) of greater than or equal to 13 are considered to have mild traumatic brain injury (TBI). Management of patients with mild TBI with initial computed tomography (CT) revealing evidence of intracranial hemorrhage (ICH) varies across institutions. While common practice is to observe patients for progression until repeat head CT is obtained, there is a lack of consensus to the disposition of this patient population. As such, the necessity of both intensive care unit (ICU) observation and of repeat head CT imaging are questioned. At our institution, patients with mild ICH and evidence of ICH based upon initial head CT are admitted to the neurosurgical intensive care unit for hourly neurological assessments and are transferred once a repeat head CT is completed at 6-24 hours. Clarification of this practice, and evaluating whether such measures alter the course of care of this patient population is paramount. Not only to help resource distribution, patient comfort, and reduce LOS; it may also reduce unnecessary imaging radiation and sleep deprivation from prolonged assessment. The primary objective of this study is to identify the necessity of ICU observation in patients with mild TBI and evidence of intracranial hemorrhage until repeat CT is completed. Secondary objectives include identifying risk criteria based upon clinical progression and CT imaging as well as evaluating neurosurgical intervention based on initial etiology.

Project 2
Traumatic Brain Injury is often associated with secondary injury. Intracranial hemorrhage (ICH) is a common complication of TBI and can be defined as any bleeding within the brain parenchyma, or meninges. ICH is present in a reported 40% of all closed head injuries. The 30-day mortality rate for ICH is between 35-52%, and half occurs within 24 hours of the incident. For these reasons, early diagnosis and effective treatment is important. A key element of care of these patients is the enactment of trauma team activations. Historically our institution followed a two-tiered model with category 1 and 2 trauma team activations. It was also possible to consult trauma surgery following evaluation in the emergency department. This has been shown to delay diagnosis and treatment of ICH at our institution. Trauma Team Activation protocols were amended to a three-tiered model to include a Category 3 activation. Patients who meet criteria for Category 3 activation are immediately evaluated by the emergency medicine nurse, resident and attending. A full trauma evaluation is done, and immediate interventions identified. The primary objective of this study is to determine if there is a delay in the time to diagnosis of traumatic ICH in ED patients that present as Category 3 trauma activations to patients that present with the traditional activations and to determine the extent of the delay. Secondary objectives include determining the timing of other components to identify areas of potential delay.

Student responsibilities:
The student will be responsible for completing various components of the research process, including literature review, data abstraction, writing of results, and preparation of presentations/abstracts under the guidance of faculty members.

Clinical opportunities for the students:
The student will be given opportunities to participate in resident educational programs and participate in shadowing experiences in the Emergency Department and General Surgery with attending and resident physicians.

Project 9

Project Title 1:
Prospective comparison of a short versus long chest tube water seal trial for traumatic pneumothorax

Project Title 2:
Increased central line associated bloodstream infections in COVID-19 patients

Specific skills/training/education required/desired:
All students are encouraged to apply. Evaluation for projects will be done by Clinical and Research Faculty.

Abstract of Research Plan:
Project 1
Chest tube placement is a common intervention in trauma patients, yet there is little scientific evidence to guide management after placement. As a result, practices vary considerably. The optimal duration of a water seal trial prior to tube removal is unknown. Use of water seal trials is thought to be beneficial, and retrospective data suggests that shorter trials are safe and as effective as longer trials. Preference for water seal duration in patients with pneumothorax varies, with some using 4 hours (20%), 6 hours (21.3%), 12 hours (12.8%), and 24 hours (43%). The primary aim of this study is to compare a shorter versus a longer water seal trial regimen prior to chest tube removal in patients with a chest tube placed for traumatic pneumothorax. The secondary aim is to inform the practices of trauma providers for water seal duration. Secondary outcomes include incidence of additional intervention for ipsilateral pneumothorax after chest tube removal (i.e. another chest tube, drain, or surgical intervention), duration of chest tube presence, number of CXRs performed after chest tube removal during the hospital stay, and hospital length of stay.

Project 2
COVID-19 has had considerable impact on ICU level care worldwide. A tremendous amount resources have been consumed in an effort to prevent the spread of the virus and fight infection. Hospitals have been forced to adjust to new protocols in hopes of improving outcomes and decreasing morbidity and mortality related to the virus. Even prior to COVID-19, hospital acquired infections posed a significant risk to the inpatient population, specifically those receiving care supported by invasive devices, such as central lines. However, studies have shown a recent increase in central line associated blood stream infections (CLABSI), particularly among those hospitalized with COVID-19. While a handful of studies published within the last year note the increased incidence of CLABSI in COVID-19 patients, the reason for infection remains unanswered. Further analysis is required to determine the potential cause of increased CLABSI amongst COVID-19 patients in order to develop strategies to limit infection in the future. At our institution, increased incidence of CLABSI has been observed amongst COVID + patients. Risk factors causing the increased rate of infection have not been published in the literature. Our study aims to identify the risk factors that may contribute to increased incidence of CLABSI in COVID+ patients. By identifying risk factors that may predispose a patient to CLABSI our goal is to decrease the incidence of infection and better understand when empiric treatment may be necessary. Uncovering this data is a top priority in decreasing morbidity and mortality associated with CLABSI in COVID + patients. The goal of this study is to evaluate the patient encounters to identify risk factors for CLABSI in COVID (+) and COVID (-) patients. The primary objective is to identify if the time the central line is left in place is greater in COVID (+) patients who develop CLABSI in patients matched by Charleson Comorbidity Score. Secondary objectives include evaluating demographics, complications, central line details, medication, microorganisms present, medications used, and general encounter details.

Student responsibilities:
The student will be responsible for completing various components of the research process, including literature review, data abstraction, writing of results, and preparation of presentations/abstracts under the guidance of faculty members.

Clinical opportunities for the students:
The student will be given opportunities to participate in resident educational programs and participate in shadowing experiences in the Emergency Medicine and General Surgery with attending and resident physicians.

Project 10

Project Title:
Effectiveness of Fascia Iliaca Block for Pain Control in Distal Femur and Femoral Shaft Fractures

Specific skills/training/education required/desired:
Request for minimum of M1 year completion. Literature search, chart review, data entry, and writing (protocols, abstracts, and manuscripts).

Abstract of Research Plan:
Fascia iliaca compartment block (FICB) has been shown to provide effective pain relief for proximal femur fractures including femoral neck and intertrochanteric femur fractures. It is a cheap and easy to perform procedure that can be provided early after a patient's presentation to the hospital. Providing a preoperative FIB can reduce opioid usage by patients with proximal femur fractures. Sensation to the femoral shaft and distal femur are supplied by the femoral nerve, which is blocked in FICB. The use of femoral nerve block to control pain for diaphyseal and distal femoral fractures in the emergency departments has been demonstrated successfully. However, femoral nerve block is more difficult to perform than fascia iliaca block. Additionally, fascia iliaca block has been shown to be equivalent or superior to femoral nerve block in analgesia for proximal femoral fractures. To our knowledge there are no studies examining the pain control provided by fascia iliaca compartment blocks in femoral shaft and distal femoral fractures. This study will examine the utility of FICB in pain control of femoral shaft and distal femur fractures. If effective its use may provide a non-habit-forming alternative to opioid pain medications for patients with these fractures.

The primary objective is to examine difference in pre-operative pain scores as measured by visual analog scale and in pre-operative opioid consumption measured in morphine milli-equivalents (MME) between patients undergoing FIB for femoral shaft or distal femoral fractures and those who received no FIB. Our secondary objectives include comparison of length of stay, physical therapy participation, discharge disposition, and discharge pain prescriptions between patients receiving FICB and not receiving FICB. This is a prospective and retrospective chart review using a historical control group study examining the utility of fascia iliaca compartment block in patients who were diagnosed with distal femur fracture or femoral shaft fracture.

Student responsibilities:
Chart review and data entry, assist with other orthopaedic research projects, and opportunity to assist in writing protocols, abstracts, and manuscripts.

Clinical opportunities for the students:
There will be opportunities to shadow orthopaedic surgeon residents as well as faculty.