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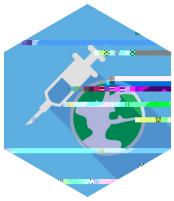

## BIOETHICS

Cynthiane Morgenweck, MD, MA
Arthur Derse, MD, JD

Enables students to integrate knowledge and tools of bioethics as an essential part o the physician career.

## CLINICAL & TRANSLATIONAL RESEARCH

David Brousseau, MD, MS
Joseph Carroll, PhD

Offers instruction of essential research skills in the area of clinical and bench-to-bedside research.

## CLINICIAN EDUCATOR

Joseph Budoveo, MD

Provides students with the core principles and knowledge to be academic and educational leaders.

## GLOBAL HEALTH

Bruce Campbell, MD
Stephen Hargarten, MD, MPH

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[redacted]

## Implementing Inter-Professional Input into ICU Handoffs (I4H)

Authors: Bauer E, Fletcher K, Nanchal R
Project Mentor: Kathlyn Fletcher, MD, MA

Patient handoffs represent a significant opportunity for medical error and adverse events. The process is largely dependent on the quality of communication putting it at substantial risk for errors of omission and misunderstandings caused by inadequate inter-professional communication.

Important patient care information pertinent to the handoff process often remains siloed due to poor inter-professional communication during rounds. We can increase this through conversation cards designed with the MICU's needs in mind.

We began with presentations to the staff to outline 1) the need for this project, 2) the interventions we intend to do and 3) the ways in which we would collect data. Our meas dome-

| Boateng Samuel | Poster |
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Camara, Alhaji Global Health

Persistent Type II Endoleaks Following Endovascular Aneurysm Repair: Graft Type Matters.

Authors: Rossi P, Wohlauer M, Brown K, Lewis B, Hieb R, Patel P
Project Mentor: Cheong Jun Lee, MD

Objectives: Persistent type II endoleak is associated with increased risk of aneurysm growth and reintervention following endovascular aortic repair (EVAR). We sought to determine whether significant perioperative graft-specific risk factors exist for development of type II endoleak following EVAR with current generation endografts.
Methods: A retrospective review of a prospectively collected database of patients undergoing EVAR between 2008 and 2015 was performed. Persistent type II endoleak was defined as the presence of a type II endoleak at 12 month follow up. Patient demographics, procedural variables, and endograft types were collected.
Results: Two hundred and twenty-three patients undergoing EVAR during this time period met inclusion criteria. The overall incidence of type II endoleaks at the time of EVAR was 21.5 % (48/223). At 12 months follow up the incidence remained similar at 21.3% (46/216, 7 patients had indeterminate endoleak). Smoking status was protective against persistent type II endoleaks (p = 0.007). The presence of a patent IMA was associated with the development of persistent type II endoleaks (p =0.016). The rates of persistent type II endoleaks were dependent on endograft type (p = 0.004): Cook Zenith 12.3% (8/65), Endologix AFX 0% (0/17), Gore Excluder 30.6% (26/91), Medtronic Endurant 24.5% (12/50)

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| Casillas Plazola, David | Poster 18 | | |

Collins, Jamie | Poster 20 | Quality Improvement & Patient Safety

Post-Traumatic Stress Disorder in the Hospital: Patient and Nurse Experiences

Authors: Collins JA

Project Mentor: Kathlyn Fletcher, MD, MA

Post-Traumatic Stress Disorder is a significant comorbidity facing patients in the VA hospital. Inpatients with PTSD ofte
experience

## Cysewski, Nicholas — Clinical & Translational Research

Outcomes of rotator cuff repair in patients with metabolic syndrome

Authors: Cysewski N, Redlich N, Mickschl D, Grindel S
Project Mentor: Steven Grindel, MD

Background: Metabolic syndrome, characterized by high blood pressure, hypertriglyceridemia, low HDL, high fasting glucose, and/or central obesity, affects ~35% of the US population. Previous studies show increased complications and worse outcomes in patients with metabolic syndrome, but no study to date has investigated complications or outcomes in patients with metabolic syndrome undergoing rotator cuff repair. This study aims to investigate this.
Methods: This was a retrospective cohort study of 117 patients with more than 12 months of recovery. Records were reviewed to gather information for ASES shoulder scores and SST shoulder scores. Scores from the group with metabolic syndrome were compared to the control group. 182 patients charts were reviewed for operative and postoperative complications. These patients' charts were also reviewed in order to calculate Charlson Comorbidity Index (CCI).
Results: CCI of the metabolic syndrome group was not significantly different from the control group (p 0.052). Metabolic syndrome was not associated with a difference in outcomes compared to the control group in ASES scores (Dif 1.10, 95% CI -6.76-8.96, p 0.784) or SST scores (Dif 0.15, 95% CI -1.19-0.88, p 0.772). The two groups did not differ statistically in complication rates (p 0.851).
Conclusion: In this study we have shown that metabolic syndrome does not significantly affect ASES or SST shoulder scores or operative/postoperative complication rates in rotator cuff repair. Future studies should continue to study metabolic syndrome in other procedures, as poor outcomes have been seen in some procedures.

## Davani, Ariea — Molecular & Cellular Research

The Mitochondrial Adenine Nucleotide Pool Contributes to the Matrix Ca2+ Buffering System

Authors: Davani AJ, Heisner J, Mishra J, Stowe DF, Camara AKS

Dayton, PhD, Alex Poster 22 Molecular & Cellular Researc

Dynamic Bayesian graphical modeling to predict regulatory networks in hypertensive rats

Authors: Dayton A, Bukowy JD, Evans LC, Yang C, Liu P, Kurth T, Ahn KW, Komas S, Stingo FC, Laud PW, Vannucci M, Liang M, Cowley AW Jr.

Project Mentor: Allen W. Cowley, PhD

## Douglas, Elena — Clinical & Translational Researc

Studies of foxe3 and pitx3 Transcription Factors in Zebrafish

Authors: Douglas E, Semina EV, Sorokina E.
Project Mentor: Elena Semina, PhD

Purpose: Ocular development occurs with the coordination between various transcription factors. We predict that pitx3 is upstream of foxe3, and will observe if FOXE3 p.C240X variant is a recessive mutation, and whether FOXE3 c.943insG dominant negative using zebrafish. Methods: Wild type (WT) and knockout pitx3 zebrafish embryos were injected before 4-cell stage with variants of FOXE3 mRNA prepared with PCR. Phenotypes were observed 96 hours post fertilization. Results: WT embryos injected with FOXE3 c.943insG mRNA on two occasions produced 2.4% and 2.8% unilateral anophthalmia. WT embryos with FOXE3 p.C240X produced no dysgenesis. Statistical analysis was performed with Chi-square, and western blot confirmed presence of desired proteins. Conclusions: Data suggests that FOXE3 p.C240X may be recessive. Dominant negative nature was not seen with FOXE3 c.943insG. Continuing injection studi with the predictable knockout pitx3 phenotype in the future will provide a better understanding of the interactions that produce anterior segment dysgenesis.

## Durbin, Samantha — Poster 24 — Quality Improvement and Patient Safet



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| Engelsgjerd, Samuel | PODIUM | |

| Farvour, Jeffrey | |
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## Ferrigni, Erin

Global Health

First Start Cesarean Project

Authors: Ferrigni E, Ludwig L, Zhang J, Simpson P, Klatt T

Project Mentor: Timothy Klatt, MD

Introduction: The increasing v-3( T,hua)] TJ E /F1 1 7.17 711.48 0.48001 17.((sin)5(g)4( v)-6(-3( T,hua)] Ta0 0 1 Fr)1

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# Hepatitis B co-infection in patients with HIV: Review of quality of care at a safety-net HIV clinic

Authors: Foss H, Acharya K
Project Mentor: Kartikey Acharya, MD, MPH

Introduction: Approximately 5-10% of patients with HIV have co-infection with Hepatitis B virus (HBV). The progression of chronic HBV to cirrhosis and related complications is more rapid in HBV/HIV co-infected persons than in persons with chronic HBV or HIV monoinfection. For management of co-infection, periodic monitoring of HBV and staging of liver disease is recommended. Staging of liver disease and screening for hepatocellular carcinoma (HCC) is especially important for certain high-risk groups defined by age, sex and ethnicity.
Methods: A retrospective chart review was completed for all patients with HBV/HIV co-infection seen at the AIDS Resource Center of Wisconsin from July 2015 to June 2016. Patients with at least one clinic evaluation during the study period and those with HIV virological suppression were included. HIV virological suppression was defined as having a mean HIV viral load of <200 copies/ml. HBV virological suppression was defined as the most recent HBV quantitative DNA being <20 IU/ml.
Results: Out of 34 patients who met inclusion criteria, monitoring for HBV using quantitative DNA was done at least once

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| Gannon, Nicholas | | | |

Ghassemi, Omeed Clinician Educator

## Non-Thermal Infrared (NIR) Light Inhibits Osteoblast Apoptosis

Authors: Ghassemi O, Struve J, Kolz J, Weninger M, Man J, Wang M, Weihrauch D, Ninomiya J
Project Mentor: James T. Ninomiya, MD, MS

The net bone loss associated with osteoporosis is due to an imbalance between bone formation and bone resorption. Worldwide, one in every three women and one in every five men over the age of 50 will experience an osteoporosis related fracture. The osteoblast mitochondrial apoptosis pathway is suppressed by Bcl2, an anti-apoptotic protein, which inhibits Bax, a pro-apoptotic protein. This interaction ultimately prevents the release of caspase activators; therefore, reducing the formation of damaged DNA and preventing apoptosis. We hypothesize that exposure to NIR light might increase osteoblast longevity and function through inhibition of apoptosis via alterations in the ratio of Bcl2 to Bax and effects on downstream pathways. Murine MC3T3-E1 pre-osteoblasts were grown in cell culture and exposed to NIR light at 670nm and 4J. Controls consisted of osteoblasts grown in absence of exposure to NIR light. Western blot data showed a statistically significant increase in the ratio of Bcl2 to Bax after exposure to NIR light at all examined time points when compared to control. The caspase 3 assay produced a statistically significant decrease in the amount of

Improving Discharge Accuracy by Patient
Authors:



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# Alcohol Use and Peer Support in Veterans

Authors: Hall S, Orfali S, Flower Z, Franco Z
Project Mentor: Zeno Franco, PhD
Community Partner: Dryhootch

Veterans are at an increased risk for developing Alcohol Use Disorder (AUD) and other co-occurring psychiatric disorders, yet they often under-utilize professional mental health services. Peer support programs offer an alternative therapeutic option for both those seeking help for psychiatric conditions and those with subclinical mental health problems. The purpose of this study was to examine alcohol use in veterans enrolled in a peer support program, determine the effect of peer support on alcohol use and PTSD symptoms, and assess the interaction between AUD risk and PTSD symptoms over time. Veterans were enrolled in a twelve-week peer support program at Dryhootch in Milwaukee, WI. Participants were paired with a mentor to address issues including employment, housing, social and family support, addiction, and mental health. Measures of AUD risk (AUDIT) and PTSD symptoms (PCL-5) were both collected before and after twelve weeks in the program. Additionally, participants reported their total drinks consumed each week throughout the program. Results showed that veterans in this study were at an increased risk for AUD and consumed more alcohol compared to averages in civilian populations. The risk for developing AUD was associated with more PSTD symptoms. While PTSD symptoms were significantly lower after twelve weeks in the peer support program, AUDIT scores and the average number of weekly drinks were not significantly different. However, there was an interaction between AUD risk and PTSD symptoms such that veterans with higher AUD risk showed less improvement in PTSD symptoms. This study showed that although alcohol use was not significantly reduced as a result of the peer support program, heavy alcohol use influenced success in the program as demonstrated by less reduction in PTSD symptoms in those with higher AUD risk. Further community work should address improving AUD risk in order to achieve better mental health outcomes for those with heavy alcohol use.

Predictors of postoperative urinary tract infection after bariatric surgery

Authors: Helmen Z, Helm M,.64 re f* q 310.8er. ET

Inhibiting bacterial H2S production as a potential combination antibiotic therapy

Authors:

# Widened Frontal QRS-T angle and Fragmented QRS for Patients with Chronic Kidney disease and Heart Failure

Authors: Hurtte E, Marong B ,Karagodin I, and Strande J
Project Mentor: Jennifer Strande, MD, PhD

Introduction: Fragmented QRS (fQRS) and a widened frontal QRS-T angle from surface electrocardiograms (ECG) are associated with myocardial fibrosis and sudden cardiac death. Concurrent chronic kidney disease (CKD) is common in patients with heart failure with preserved ejection fraction (HFpEF) and is associated with increased mortality. Therefore, we hypothesize that patients with CKD and HFpEF will have a higher incidence of fQRS and widened QRS-T angles compared to those without CKD.

Methods: A retrospective cohort from Froedtert Hospital was divided intoi T 1 0 1(te)-1h2rospRS 6 587.14 T 560.38 T

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toiTindicate significance.

Results: GrouroiThad the widest QRS



n= 24), preHFpEF without CKDT 1(grouro, n=16), and no pre-HFpEF or CKD (grouro, n=30). ECG's were then

# Quality of Diabetes Care: Comparisons between Rzeszow, Podkarpacie, Poland and Waukesha, Wisconsin, US

Authors: Idso J, Telega G, Dabrowski M, Meurer J, Kidambi S
Project Mentor: John Meurer, MD, MBA

Introduction: Poland spent 6.4% of its GDP on healthcare in 2013, while the United States (US) spent 16.9%, despite similar life expectancies. Type 2 Diabetes Mellitus (DM) was estimated to have cost the US $176 billion in 2012. This study compares the quality of DM care between Waukesha in Wisconsin, US and Rzeszow in Podkarpacie region of Poland.

Methods: DM quality data for the Polish cohort was abstracted from the charts of 79 patients attending a regional diabetes clinic in Rzeszow, Podkarpacie from 2013-2014. Podkarpacie DM cost data was attained from the Polish National Health Fund. Seventy-nine DM patients, matched for age, BMI, and sex, from a diabetes clinic in Waukesha, W

## Jelacic, Nicholas — Global Health

The Soldier's Heart

Authors: Mooney J, Weber M, Jelacic N, McBride M
Project Mentor: Michael McBride, MD

Post Traumatic Stress Disorder (PTSD) in military veterans is a health epidemic in the United States. It is estimated tha up to 20% of Operation Iraqi Freedom (OIF) veterans and 15% of Vietnam Veterans have PTSD in a given year. Furthermore, it is estimated that the actual prevalence of PTSD is significantly higher, with up to 30% of Vietnam Veterans suffering from PTSD in their lifetime1. Lack of understanding about PTSD symptoms, difficulty in finding connections to available community resources, and avoidance of discussing these sensitive topics in healthcare settings all contribute to veterans not accessing the care that they need.

To address this issue, The Soldier's Heart website was created. The mission of The Soldier's Heart project is to prov comprehensive website that allows veterans, families, providers, and communities to understand Post Traumatic Stress through each other's perspectives, learn of treatments (both evidence based and alternative), and develop more effective communication between those affected and those who treat them. The Soldier's Heart will utilize short videos presented by fellow veterans, doctors, caregivers, and families, to communicate personal stories and struggles as well provide understanding into the complex topic that is PTSD.

In this way, the Soldier's Heart will work to bridge healthcare gaps for veterans with the goal of providing a more comprehensive understanding of PTSD while simultaneously connecting patients to resources in their community.

## Jeong, Sun Young — Clinical & Translational Researc

Nomogram to predict survival for patients with resectable and borderline pancreatic ductal adenocarcinoma

Authors: Jeong S, Ahn KW, Aldakkak M, Christians K, George B, Ritch PS, Ericsson BA, Kazanjian K, Evans DB, Tsai S
Project Mentor: Susan Tsai, MD

Background: We developed and internally validated a prognostic nomogram that predicts survival among patients who received neoadjuvant therapy prior to surgery.

Method: Clinical data and survival outcomes for patients with resectable or borderline resectable pancreatic ductal adenocarcinoma (PDAC) who completed neoadjuvant therapy and surgery at a single institution were collected. Concordance index (c-index) and calibration plots were used to assess predictive accuracy. Survival at 1-, 2-, and 3-years from the date of restaging after neoadjuvant therapy and prior to surgery were used to develop the nomogram. External validation analysis was performed from a separate cohort of 278 patients from the MD Anderson Cancer Center.

Results: The nomogram was developed from a cohort of 168 patients with localized PDAC. A parsimonious nomogram including clinical stage, preoperative CA19-9, and age predicted 1-, 2-, and 3-year survival with c-indices of 0.64, 0.64, and 0.65, respectively. The c-indices for 1-, 2-, and 3-years using the AJCC staging system were 0.58, 0.55, and 0.55, respectively. Clinical stage (HR:2.32; 95%CI: 1.42-3.82) and preoperative CA19-9 levels (HR:1.66; 95%CI: 1.08-2.58) were the strongest prognostic factors. External validation produced c-index of 0.48.

Conclusion: Prognostic nomogram utilizing clinical stage, preoperative CA19-9, and age provide more accurate survival prediction than the AJCC stage. This nomogram can be used to identify patients at high risk for early disease recurrence, prior to surgery.

TH17-associated ileal hyperplasia requires IL-17A and IFNg to generate self

## Kacvinsky, Lauren — Poster 35 — Urban & Community Health

Follow up among violently injured patients after an emergency department visit

Authors: Kacvinsky L, Visotcky A, Melzer-Lange M
Project Mentor: Marlene Melzer-Lange, MD

Background: Youth violence victims are often evaluated in emergency departments. ED physicians can advise patients medical and psychosocial follow up and provide community resources that could reduce rates of injury. Project Ujima helps address the needs of youth violence victims by providing resources to help them recover physically and emotionally.

Objectives:

1. To determine whether violently injured patients who present to the ED are advised to follow up with a health care provider and if so, what specialty they are advised to follow up with.
2. To determine how often patients in this population follow up as advised.
3. To compare follow up among youth involved with Project Ujima with those not involved in the program.

Methods: Chart review of patients <21 years old evaluated at CHW Level 1 Trauma Center/ED from 1/1/14 - 11/1/15 and diagnosed with gunshot wound (GSW), stab, or assault.

Results: 303 patients met inclusion criteria. 52% were recommended to follow up with their PMD or a specialist, 5% were recommended to follow up as needed, and 43% were not given follow up recommendations. Patients who were admitted (p=0.010) and patients with GSWs (p=0.051) were more likely to be advised to follow up. Sixty patients were advised to follow up with specialists; this was more likely to be completed among patients who were admitted (p<0.001) and those with GSWs (p=0.026). Patients were most frequently referred to their PMDs or surgical specialties for follow up. There was a trend approaching significance of involvement in Project Ujima with completed follow up (p=0.07).

Conclusion: Multiple specialists, most frequently PMD and surgical specialists, come into contact with violently injured patients. Patient involvement with Project Ujima may improve completed follow up for specialty care.

## Kamassah, Mawusi — Clinical & Translational Research

Modifiable Factors Contributing to Blood Pressure Differences in Monozygotic Twins

Authors: Kamassah M, Coly G, Donohue M, Kidambi S
Project Mentor: Srividya Kidambi, MD

INTRODUCTION: Primary hypertension(HTN) involves genetic and environmental factors. Discordance in blood pressure(BP) levels among a significant proportion of monozygotic twins best illustrate environmental effects. However these environmental influences have not been clearly defined.

HYPOTHESIS: Distinct differences in higher dietary sodium, socioeconomic status (SES), and exercise will be identified among monozygotic twins with discordant BP levels.

STUDY METHODS: Monozygotic twins between 30 and 60 years were recruited from the Milwaukee and Michigan area. BPs were measured in triplicate after 5 minutes of rest at one minute intervals and averaged. Standardized and validated questionnaires were used to gather SES, exercise, and dietary sodium data.

RESULTS: Of the 43 pairs (58% women, 26% hypertensive), 23 pairs (54%) were discordant( 10mmhg difference in systolic or diastolic BP or diagnosis of HTN) . Discordant pairs (46 ± 10 years, p=0.05) had a greater body mass index (30.8 ± 8.4 kg/m2, p<0.05), waist-hip ratio (0.94 ± 0.13, p<0.05) and waist circumference (103 ± 16 cm, p<0.05) than concordant twins. The cotwins with higher average BP (134/85 mmHg vs 119/76 mmHg, P<0.05) tended towards higher waist circumference (106 ± 17 cm vs 100 ± 17 cm, p=0.26) and higher dietary sodium consumption (3971 ± 1698 mg vs 3412 ± 1455 mg, p=0.29).

CONCLUSIONS: Blood pressure differences between monozygotic twins likely result from environmental factors. Discordant twins were 4 years older than concordant twins. Dietary sodium and waist circumference differences were statistically insignificant. Some differences in SES and exercise emerged. Increasing the sample size can further elucidate these differences.

# The impact of medical trainee culture shock on host communities in short-term global health electives

Authors: KelmS, Kuzminski J, St. Clair N
Project Mentor: Nicole St. Clair, MD

Introduction: Medical trainee interest in global health and international electives continues to rise, leading to an emphasis on developing ethical, sustainable, and mutually beneficial partnerships. Although the benefits for trainees have been explored, the impact on host sites, particularly as it pertains to trainee culture shock, is not well known. We performed a literature search on the impact of visiting trainees on hosts during short-term global health electives to better inform a larger study on emotional responses of trainees during global electives.

| Kenny, Eleanor | Poster 36 | Urban & Community Health |
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Effective Training Curriculum for Public School Vision Screening

Authors: Kenny E, Costakos D
Project Mentor: Deborah Costakos, MD
Community Partner: Prevent Blindness Wisconsin

Of the 3,000 children who failed their vision screening in the 2014-2015 school year in Milwaukee Public Schools, only 9% received further follow-up vision care [Prevent Blindness Wisconsin data, internal review, 2014]. Currently there is no reliable system of referral and follow-up with parents, health care providers or schools after school screenings take place. It is estimated that up to 70% of learning results from visual input. Thus, receiving prompt and adequate vision care is vital to the healthy development of a child. Obtaining proper vision screening and receiving subsequent follow up care is a complex problem with multiple barriers that need to be addressed in order to successfully provide adequate care. This project focuses on training individuals of multiple education levels and diverse backgrounds on proper vision screening and care for children of school age. The groups of individuals trained include social workers, school nurses, school parents, primary care physicians, HMO advocates, and community health navigators in the Milwaukee area. The effectiveness of this training curriculum was assessed using a set of IRB approved pre and post test questions. Of the 62 participants, 80% received >90% on the post test questionnaire. 100% of the participants received >80% on the post test questionnaire. 100% of participants improved or achieved the same score from pre to post test. This curriculum is an important piece to the solution of a complex problem with multiple facets.

| Kiehl, Chelsea | Poster 37 | | Global Health |
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| Klimara, Miles | | | Clinical & Translational Researc |

## Kortes, Samuel — Poster 38 — Clinical & Translational Research

Analysis of Shoulder Biomechanics of Wheelchair Athletes with Paraplegia during Cross-training Exercises

Authors: Miller C, Garlanger K, Kortes S, Riebe J, Schnorenberg A, Brook Slavens B, Lee K
Project Mentor: Kenneth Lee, MD
Community Partner: University of Wisconsin Milwaukee, Mobility Laboratory

Objective: To evaluate shoulder joint kinematics during cross-training exercises in athletes of varying experience.
Design: Observational study
Setting: Motion Analysis Laboratory
Participants: Three wheelchair athletes, average age of 37.1 ± 4.6 years, with spinal cord injury levels of T8, L2, and T10, whom were novice, intermediate, and experienced with regards to cross-training respectively.
Interventions: Motion capture was performed during multiple trials of three cross-training tasks: battle rope, sled pull, and overhead press. Our custom model was applied to determine shoulder joint angles.
Main Outcome Measures: Range of motion and peak joint angles
Results: During battle ropes, with increasing experience there was a trend towards adduction [illegible] adduction [illegible] overhead press, with increasing
Conclusions: Shoulder joint kinematics during cross-training exercises differ amongst the wheelchair athletes with varying experience levels. These findings may help guide prescription of sports activity and proper technique to reduce or prevent injury during cross-training exercises in wheelchair athletes. Further research is underway to characterize the kinematics of other upper extremity joints and determine the effect of spinal cord injury level.

## Krawchuk, Lindsey — Poster 39 — Clinical & Translational Research

Outcome Analysis of Atrial Fibrillation Management in the Emergency Department

Authors: Krawchuk L, Conti M, Mielnicki D, Rubenstein J, Lohr N, Gitter M
Project Mentor: Nicole Lohr, MD, PhD

Introduction: Atrial fibrillation (Afib) is a common cardiac dysrhythmia frequently leading to inpatient hospitalization. Estimates show 75% of annual spending for Afib occurs in inpatient setting, with the Emergency Department (ED) accounting for 60% of admissions. Limited studies suggest significant reductions in hospitalizations occur when appropriate pr

Termination of resuscitation checklist: duration and outcomes of resuscitation

Authors:

## Liu, Chrissy — Clinical & Translational Research

Gallbladder Carcinoma: An Analysis of the National Cancer Data Base to Examine Hispanic Influence

Authors: Liu C, Berger N, Rein L, Tarima S, Clarke C, Mogal H, Christians K, Tsai S, Gamblin TC
Project Mentor: T. Clark Gamblin, MD, MBA

Background: Gallbladder cancer (GBC) is a lethal disease with high incidence among Hispanics. Overall survival (OS) among races/ethnicities has not been described using the most recent National Cancer Database. This study hypothesized that prognosis is worse for Hispanics compared to similar non-Hispanic populations.
Methods: Patients with GBC were identified from the National Cancer Database and categorized as White, Black, Hispanic, and Other. Descriptive statistics, OS, and Cox regression were examined.
Results: The study identified 12,952 patients. Median age was 71 years and 68.8% were female. The study characterized 69.8% White, 13.9% Black, 11.0% Hispanic, and 5.4% other patients. 5-year OS curves differed, with survival highest in Hispanic patients (27% vs. 23% Other, 18% White, and 13% Black, p<0.001). Hispanics presented at younger ages (67 vs 72 years, p<0.001), were more likely to be uninsured (17.3% vs 3.9% p<0.001), had lower income (p<0.001), and education levels (p<0.001) compared to Whites. Following multivariable modelling, treatment at an academic facility (HR 0.90, 95% CI 0.84-0.97) and year of diagnosis (HR 0.90, 95% CI 0.88-0.92) related to survival. Hispanic ethnicity did not show significance (p=0.207).
Discussion: Hispanic ethnicity exhibits the highest OS for GBC, but after adjusting for covariates, this influence is not significant.

## Liu, Kristen — Poster 42

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| Lyons, MPH, Victoria | Poster 44 | | |

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| McVey, Natalie | Poster H8 | | |

## Menard, Michael — Clinical & Translational Researc

Impact of Comic Concussion Discharge Instructions on Caregiver Knowledge

Authors: Menard M, Thomas D
Project Mentor: Danny Thomas, MD, MPH

It has been found that nearly 20% of caregivers fail to retain key information from the traditional text heavy concussion discharge instructions. This project investigated the effectiveness of the traditional text heavy discharge instructions versus a comic themed set of discharge instructions. Furthermore, the socioeconomic status and health literacy of caregivers was determined and analyzed with respect to the effectiveness of the two forms of discharge instructions. This study took place in the Emergency Department of the Children's Hospital of Wisconsin in Milwaukee.

## Meyers,

## Mier, Neil — Clinical & Translational Research

Laparoscopic versus Open Inguinal Hernia Repair Quality of Life Analysis

Authors: Mier N, Helm M, Helmen Z, Bosler M, Nielsen A, Kastenmeier A, Gould J, Goldblatt M
Project Mentor: Matthew Goldblatt, MD

Background: The introduction of laparoscopic repair has given surgeons an additional option to inguinal hernia repair alongside the traditional open repair. Patient quality of life (QOL) was evaluated for open and laparoscopic inguinal hernia repairs in a long-term longitudinal study. Methods: All patients were administered Short Form-12 (SF-12) surveys at standard intervals to assess patient quality of life. Physical and Mental Component Scores (PCS and MCS) were calculated pre-operatively and post-operatively up to one year after the initial surgery. Results: A total of 68 patients met inclusion criteria for laparoscopic (n=43) and open (n=25) hernia repairs. Physical Component Scores for laparoscopic and open repair demonstrated a mean increase of (3.4±6.9 and 6.9±9.7, p=0.089) respectively. Mental Component Scores for laparoscopic and open repair showed a mean decrease of (0.2±7.5 and 1.0±9.4, p=0.634) respectively. Conclusion: There were no statistically significant differences when comparing QOL results between laparoscopic and open repair.

## Miller, Adam — PODIUM — Clinical & Translational Research

Transcatheter Aortic Valve Replacement (TAVR) In Older Adults Improves Symptoms but Not Physical Function

Authors: Miller AT, Stefanacci C, Grant E, Querijero M, Blaum C, Williams M, Duthie EH, Dodson JA
Project Mentor: Edmund H. Duthie, MD and John A. Dodson MD, MPH (NYU)

Introduction: Patients undergoing Transcatheter Aortic Valve Replacement (TAVR) frequently have mobility limitations from advanced age and co-morbidities. Previous studies have shown that TAVR improves symptoms of aortic stenosis, but it is unclear if this leads to increased physical activity levels. We therefore evaluated patient symptoms and physical activity in the perioperative setting two weeks pre- and post-TAVR to determine if TAVR improves physical function. Methods: Patients with severe aortic stenosis who underwent TAVR between September 2015 and July 2016 were

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Authors:

Navarrete, Emily

Bleeding and Blood Transfusion is a Risk Factor for VTE

Authors: Nielsen AW, Helm MC, Bosler ME, Helmen ZM, Gould JC
Project Mentor: Jon Gould, MD

Background: Morbidly obese patients are at an increased risk for venous thromboembolism (VTE) after bariatric surger We sought to evaluate the relationship between perioperative bleeding and postoperative VTE in bariatric surgery patients. Methods: Univariate and multivariate regressions were used to determine perioperative factors predictive of post-operative VTE within 30 days in patients who experience a bleeding complication necessitating transfusion. Results: Multivariate analysis revealed that the rate of VTE was significantly higher after blood transfusion (Odds Ratio [OR]=4.9; p<0.0001). Conclusions: Bariatric surgery patients who receive a postoperative blood transfusion are at an increased risk for VTE. In those who bleed, consideration should be given to reinitiating chemoprophylaxis when safe

## Park, Jiyoon — Clinical & Translational Research

Use of I2b2 Cohort Discovery Tool to Identify Potentially Unrecognized Primary Hyperparathyroidism (pHPT)

Authors: Park J, Yen TW, Doffek K, Coan KE, Wang TS
Project Mentor: Tracy S. Wang, MD, MPH

Background: The majority of patients with hypercalcemia may not be appropriately referred for further evaluation/treatment of potential primary hyperparathyroidism (pHPT), as nonspecific presenting symptoms are heterogeneous to normal aging or other diseases. The purpose of this study was to determine the prevalence of potentially undiagnosed pHPT.
Methods: This is a retrospective review of de-identified patient data from Freodtert Hospital collected within the i2b2 Cohort Discovery Tool. The cohort was defined as any patient with at least one serum calcium >10.2mg/dL (normal, 8.6 - 10.2) and PTH>30pg/mL (normal, 12 - 72) in the study period (1/1/15 to 9/30/15). A PTH>30 is considered elevated in the setting of hypercalcemia. The presence of an ICD-9 diagnosis of HPT, symptoms of pHPT, and referral to Endocrinology or Surgery were compared in patients with PTH 31-70 and those >70.
Results: Of the 941 patients, 446 (47%) had PTH 31-70 and 495 (53%) had PTH>70. Patients with a PTH>70 were more likely to have a diagnosis of HPT (393, 80%) than patients with PTH 31-70 (160, 36%; p=<0.0001). There was no difference in reported symptoms between the two groups (p=0.521). However, those with a PTH>70 were more likely to be referred for additional evaluation (262, 53%) than patients with PTH 31-70 (200, 45%; p=0.005).
Conclusion: Patients with elevated serum calcium and PTH 31-70 appear to be less frequently referred for evaluation/treatment of potential pHPT than patients with PTH>70pg/mL. Despite the limitations of de-identified database, this suggests that pHPT may be underdiagnosed and undertreated within the health care system.

## Patel, Gina — Poster 51 — Global Health

Acquired Factor X Deficiency in Light Chain (AL) Amyloidosis is Rare and Associated with Advanced Disease

Authors: Patel G, Hari P, Szabo A, Rein L, Baumann Kreuziger L, Chhabra S, Dhakal B, D'Souza A
Project Mentor: Anita D'Souza, MD, MS

Systemic light chain (AL) amyloidosis can lead to an acquired coagulopathy secondary to acquired factor X (aFX) deficiency. However, it is not very clear who develops aFX deficiency in AL amyloidosis. We therefore undertook this single center study to better characterize AL amyloidosis associated aFX deficiency. Out of 121 AL patients who had FX testing at the time of their first evaluation at our institution, including 17 patients on warfarin at the time of testing, 10 out of 104 patients (8.3%) with systemic AL amyloidosis were found to have FX levels below 50%. Acquired FX deficiency was associated with advanced stage of AL amyloidosis and elevated cardiac biomarkers. Lower FX activity, advanced stage, and cardiac involvement by disease were associated with higher hazard of death on univariate analysis. On multivariate analysis, stage of AL amyloidosis was the only significant predictor of survival. Median survival time of patients with FX deficiency was 9.3 months compared to 118.4 months in those without. We conclude that while aFX deficiency is rare in systemic AL amyloidosis, it is a marker of advanced disease.

## Patel, Paraj — Clinician Educator

Mitochondrial dynamics and electrophysiology in ALS iPSC-derived motor neurons.

Authors: Ebert A, Seminary E, Patel P
Project Mentor: Allison Ebert, PhD

Motor neurons from Amyotrophic Lateral Sclerosis (ALS) patient induced pluripotent stem cell (iPSC) lines were developed to better understand the roles of C9orf72 and SOD1 mutations. ALS is an adult-onset neuromuscular disorder with devastating consequences. Understanding these mutations and how they affect lower motor neurons is essential for discovering novel therapies. Previous literature has proposed that mitochondrial malfunction mediates motor neuron loss in ALS. However, it is unclear whether mitochondrial defects are consistent across different mutations. Therefore, we tested mitochondrial transport and metabolism, Ca2+ homeostasis, and basal neuronal spontaneous firing in C9orf72 and SOD1 ALS iPSC derived motor neurons. Live cells assays were used to measure mitochondrial velocity in C9orf72, SOD1, and control wildtype neurites. Live cell metabolic assays were used to determine oxygen consumption rate and respiratory capacity between patient and control motor neurons. Basal neuronal spontaneous firing was measured using microelectrode arr

## Phillips, Emily — Molecular & Cellular Research

Role of the Histone Methyltransferase Dot1L in Cohesin Mutated AML

Authors: Phillips E, Fisher J, Stelloh C, Rao S
Project Mentor: Sid Rao, MD, PhD

Acute myeloid leukemia (AML) is a hematopoietic malignancy that remains difficult to treat. Understanding leukemogenesis is critical to developing new AML therapies. Cohesin is a critical protein complex with a role in cell division. AML with cohesin haploinsufficiency expresses elevated levels of HoxA9, a transcription factor essential for self-renewal. Histone methyltransferase, Dot1L, is responsible for laying down the histone methylation mark (H3K79) that drives expression of Hoxa9. We hypothesized that Dot1L inhibitors will decrease self-renewal in cohesin haploinsufficient bone marrow cells. Bone marrow was obtained from mice and transfected with Rad21 shRNA to mimic cohesin haploinsufficiency and establish dysregulated self-renewal. Dot1L was depleted via shRNAs or inhibited via Dot1L inhibitors. Results indicate that although H3K79 is significantly reduced upon Dot1L inhibition, cohesin haploinsufficient bone marrow cells maintain dysregulated self-renewal one week post Dot1L inhibition. Future studies will focus on whether DOT1L inhibitors have an effect on self-renewal after one week.

## Ponkratz, Alexandria — Poster H2 — Clinician Educator

Retrospective Analysis of a Peer Mentorship Program

Authors: Ponkratz A, Thompson K, Gallagher M, Lauck S, Chou E, Treat R
Project Mentor: Sara Lauck, MD and Erica Chou, MD
Community Partner: Marquette University, University of Wisconsin-Oshkosh

Literature studies suggest widespread advantages to peer mentoring programs; however, data about medical student undergraduate mentorship is limited. To study this gap, a mentorship program, Med Pair Up (PMPU), was established at the Medical College of Wisconsin. Medical students from the University of Wisconsin-Oshkosh and Marquette University were paired with medical student mentors. The program provided peer mentorship and resources including monthly newsletters, checklists, volunteer resource guides, and interview advice intended 7(P(ment)10)3(edi)3

Adolescent Health Risks and Behaviors Survey: A School Based Survey in Central Nepal

Authors: Thapa B, Powell J, Yi J, McGee J, Landis J, Rein L, Kim S, Shrestha S, Karmacharya B
Project Mentor: Bipin Thapa, MD, MS, FACP
Community Partner: Dhulikhel Hospital: Department of Community Programs

assessed trends in demographics, nutrition, hygiene and related infrastructure, causes of injury, violence, mental health, substance use, and female hygiene. A 40 question survey was adapted from the CDC's Youth Risk Behavior Surveillance System and translated to Nepali. Approximately 1200 surveys were administered anonymously to students in 8 different schools in central Nepal. The data has identified nutrition, infrastructure, mental health, and female hygiene as areas for im5(r )10men

Ramahj

## Social inequalities in health in the Balkan countries: a systematic review

Authors: Polasek O, Bosjnak Z, Regala P
Project Mentor: Zeljko Bosnjak, PhD and Ozren Polasek, MD, PhD

SPECIFIC AIMS: The aim of this systematic review was to determine the extent of research on social inequalities in he in the wider-sense Balkan countries, including Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, M Monteneg Romania, Serbia, and Slovenia.
STUDY METHODS: A systematic literature review was based on Pubmed, SCOPUS, and Web of Science searches, identifying all studies that had social inequalities in health as the primary study outcomes. A total of 38 p pieces information were extracted from all of the identified studies. We had also developed a novel methodological approach of synthesis of the different data reporting schemes, by using beta coefficients from linear regression across strata, which is independent of the number and nature of classes used for social status estimation.
RESULTS: The initial database search yielded 15,363 articles, which were reduced to a total of 71 studies that provide 82 data points (there were a few studies that had provided multiple samples). Most studies originated from Croatia (n=16), followed by Romania (13) and Slovenia (13). Total summative sample size exceeds 170,000 subjects, with mos commonly investigated social strata in relation to obesity, hypertension, maternal and other vaccination.
CONCLUSIONS: The negative effects of social deprivation are widely reported and their related health outcomes are reflected in higher morbidity and mortality rates of the less affluent. Some countries in the region managed to mobilize their researcher capacities towards better understanding of social inequalities and their effect on the health. This study

## Bioprosthetic pulmonary valve endocarditis: incidence, risk factors, and clinical outcomes

Authors: Robichaud B, Hill G, Cohen S, Woods R, Earing M, Frommelt P, Ginde S
Project Mentor: Salil Ginde, MD, MPH

Background: Pulmonary valve replacement (PVR) is a common operation in patients with congenital heart disease (CHD). As survival with CHD improves, infective endocarditis (IE) is a growing complication after PVR. The aim of this study w

The Effect of Customized Low Sodium Diet on Blood Pressure and Vascular Function

Authors: Rubens M, Moosreiner A, Obi B, Cowley Jr A, Kotchen T, Widlansky M, Beyer A, Mattson D, Liang M
Kidambi S
Project Mentor: Srividya Kidambi, MD

Introduction: Research studies have shown modest lowering of blood pressure (BP) with low

CRISPR/Cas9 ex vivo gene editing of rat primary hepatocytes as a therapeutic model for genetic disease

Authors: Sandy SJ, Rasmussen S, Niebuhr J, Grzybowski M, Geurts A
Project Mentor: Aron Geurts, PhD

This project aimed to knock out multiple genes that are highly expressed in hepatocytes, including Fah and Cyp2e1. Multiple targeted CRISPR/Cas9 plasmids were constructed and tested using polymerase chain reaction. The PCR results confirmed banding patterns consistent with CRISPR/Cas9 plasmids targeting the Fah gene, as well as Cyp2e1. Transfection 1 36 0 1 36 601.78 Tm [(Tran)3(sfect)-4(i)13(o)-5(n)3( 1 36 0 1 36 601.78 Tm m)-5(n)3( 1 36 0 1 36 601



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| Schurman, Alexander | | | |

Factors contributing to increased mortality in higher risk stratified congenital heart surgery patients

Authors:



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# How Funding Allocation Influences Programs and Goals for Small to Large Scale Global Organizations

Authors: Somani S, Deshpande R, Sanger J
Project Mentor: James Sanger, MD, FACS

## Introduction

Illnesses requiring surgical intervention make up an estimated 11% of the global healthcare burden. This review compares how the budgets and resources of three organizations affect their ability to deliver global care. The Bill and Melinda Gates Foundation (BMGF) represents a large, multibillion-dollar group. Operation Smile (OS) is a multimillion-dollar global organization. The Milwaukee Medical Mission (MMM) is a local organization with a small budget working in one country.

## Analysis

The massive resources of the BMGF allows them to fund other organizations and influence public health policy in various countries. From 2003 to 2015, their program expenses grew by $6 billion, while management expenses were stagnant,

| Stoeckel, Ashley | Poster H10 | |
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Tan, Kevin | Poster 63 | Quality Improvement and Patient Safety

Insights from pharmacists and pharmacy technicians about expedited partner therapy in Wisconsin

Authors: Tan K, Pickett M, Borchardt L, Drendel A

Project Mentor:

[redacted]

| Tumilty, Hannah | Poster 64 | Quality Improvement and Patient Safet |
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The availability, cost, and accessibility of counseling services for medical students

Umhoefer, Katherine Urban & Community Health

## Ptpn22 Deficiency Leads to Upregulation of Pro-Inflammatory Cytokines and Increased Rate of T1D Onset

Authors: Umhoefer K, Khaja S, Siecko A, Yi-Guang, C
Project Mentor: Yi-Guang Chen, PhD

Ptpn22 is a lymphocyte tyrosine phosphatase that is expressed in all hematopoietic cell types and has inhibitory effects on T-cell receptor (TCR) signaling. Ptpn22 mutations have been implicated in a variety of autoimmune disorders, including Type 1 Diabetes Mellitus (T1D). T1D individuals have increased frequencies of the Ptpn22 1858T SNP (620W

Vaughn, Alyssa | Poster H1 | Bioethics

Understanding Family Satisfaction after Care of Pediatric Traumatic Brain Injury

Authors:

A rare case of Urea Cycle Disorder in Adulthood

Authors:

# Addressing Social Determinants of Health with Individual Needs Assessment at a Student Run Free Clinic

Authors: Westein R, Kelm S, Lundh R, Thorson B, Young S
Project Mentor: Rebecca Lundh, MD

Introduction: Social determinants of health are the conditions in which people are born, grow, live, work, and age. This may include socioeconomic status, education, physical environment, employment, social support, and access to healthcare. It is easy to overlook the importance of taking these factors into consideration in patient care which can cause providers to misidentify the root cause of patient complaints. Saturday Clinic for the Uninsured (SCU) has a social worker available on-site 1

## Winsor, Kristen — Clinician Educator

Atrial Natriuretic Peptide knockout exacerbates renal and cardiac damage in salt sensitive hypertension

Authors: Winsor KN, Ilatovskaya DV, Staruschenko A
Project Mentor: Alexander Staruschenko, PhD

High blood pressure is a significant health problem, and a certain proportion of hypertensives are sensitive to salt intak
Atrial natriuretic peptide promotes salt excretion and can lower BP. Based on existing literature we hypothesized
improper ANP signaling could play a role in SS hypertension, and designed a study to observe the effects of ANP
deficiency on renal and cardiac function using the SSN

Isolation of Lipid Rafts from Mouse Peritoneal Macrophages

Authors: Yepez S, Chen Y, Silverstein R
Project Mentor: Roy Silverstein, MD

Liver Directed Therapy in Patients with Unresectable Hepatocellular Carcinoma or Liver Metastases: Focus

Authors: Zellmer T, Lea W, White S, Rilling W, Hohenwalter E, Patel P
Project Mentor: William Lea, MD

Objective: To determine effect of liver directe

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# Thank you for being a Project Mentor to the Class of 2021

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