
Scholarly Pathways
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Connie Truong, Junior Medical Student, Emcee

Opening Remarks
Leonard Egede, MD, MS
Director, Center for Patient Care and Outcomes Research
Professor of Medicine & Eminent Scholar
Chief, Division of General Internal Medicine
Associate Director for Cancer Disparities, MCW Cancer Center

Alexandra Dyer

Refreshments served

CLINICAL & TRANSLATIONAL RESEARCH

David Brousseau, MD, MS

Blalock, Michael — Poster1 — Bioethics Pathway

Notification Process in Exception From Informed Consent Studies

Authors: Lerner B, Blalock M
Project Mentor: Brooke Lerner, PhD

Introduction: The goals of this project were to identify similarities and differences in the notification process used in studies that followed the Exception from Informed Consent (EFIC) in Emergency Settings regulations (21CFR50.24), and to propose a standardized guideline for future EFIC studies. Methods: This was an observational study using an internet based survey to obtain information on the standardized operating procedures for the required subject/family notification process across several multi-center cardiac arrest related clinical trials. Results: Each site's method of notification was via letter/phone, however the timeline for notification ranged from 2-21 days, and demonstrated variability in whether or not a script was used to express condolences or explain the nature of the study. Discussion: Our research demonstrates a lack of standardization in the notification process; furthermore, emphasizes the importance of balancing respect for grieving family members and patients with the goals of the st udy.

Bodes, Rachael — Poster2 — Bioethics Pathway

A Diagnostic Evaluation of Froedtert's Short-Term Readmitted Patient Population

Authors: Rachael Bodes, James Billings
Project Mentor: Jonathan Rubin, MD

To avoid penalties established under the Hospital Readmissions Reduction Program, we aimed to identify the top initial diagnoses that resulted in short-term hospital readmissions and hoped to identify specific patient populations at high risk of readmission. Patients admitted to Froedtert Hospital from 1/1/2015 to 9/30/2015, who returned to the Froedtert emergency department within 30 days were analyzed for this study, constituting approximately 6,765 emergency department visits. Patients initially admitted for septicemia (ICD 038) represented the largest group of patients who visited the ED within 30 days of initial hospital discharge. Amon this group, 137 were seen in the ED and discharged to home, while 261 were seen in the ED and readmitted to the hospital. Thi information, can pave the way for further research to be conducted in establishing ways to reduce short term readmissions for all patients.

Falk, Christina — Poster3 — Bioethics Pathway

A Narrative Inquiry into Physician Impairment

Authors: Falk CM, Campbell B
Project Mentor: Bruce Campbell, MD

Case reports and nonfiction essays are often used to frame academic discourse about ethical dilemmas. The author of this pape Œ (š Á} Œ l }((] š] }v _ v Æ‰ Œ] v š] o]v À •š] P š] process of developing such accounts, µ v š • U might enhance our understanding of complex situations. Methods: A student writing group was formed. Sessions consisted of free-writing exercises on topics in medical ethics. Results: When the material generated was adequately informed by human experience it attained sufficient emotional authenticity to maximize reader engagement with ethically-relevant content. The author's final piece of writing was inspired by an encounter with diversion program participants and their characterization of physician impairment.

Yang Vincent	PODIUM	Bioethics Pathway

Debating Physician-Assisted Suicide: A Rational Discussion

Authors: Yang VG, Spellecy R
Project Mentor: Ryan Spellecy, PhD

Physician-assisted suicide refers to the intentional killing of one-self by one-self with the aid of a physician. On the surface, the act appears to be one that goes against all of the basic instincts we have to survive, but the issue is much more complex. This paper rationally looks at Physician-assisted suicide through the perspectives provided by Principlism and explores the conclusions reache by each of the four main pillars of Principlism, namely1(4.006(al(n)-6.998(am)-.)8(lle)8(cch)am)3.996(y)-3.996(,)-2.008(b)-6.998(e) ecch Physician-assisted suicide and its opplecchitional views, it is hllecched that medical professionals will gain a greater cchamlld the topic beyllecchd their initial gut reaction and be able to formulate their awam thocchghts usimg ralltional and valid approaches.

Alvarez Angel	Poster4

Hypertension During Weight Lifting Reduces Flow Mediated Dilation in Non-Athletes

Authors: Buchanan CE, Hoch AZ, Gutterman DD, Durand MJ
Project Mentor: David Gutterman, MD & Matthew Durand, PhD

It is unknown if increased systolic blood pressure or a circulating neurohumoral factor is the damaging stimulus which reduces vasodilation in non-athletes who perform resistance exercise. We hypothesize that attenuating the rise in brachial artery pressure during weight lifting prevents post-exercise impairment of brachial artery flow-mediated dilation (FMD). Nine sedentary and six exercise-trained individuals performed maximal exertion leg press exercises on two occasions and had brachial artery FMD assess using ultrasonography. During one visit, a blood pressure cuff was inflated to 100 mmHg on the upper arm to protect the distal vasculature from the exercise-induced hypertension. Without the cuff, FMD in sedentary individuals was significantly reduced after weight lifting, while in exercise-trained individuals FMD was unchanged. Protecting the brachial artery from exercise-induced hypertension enhanced FMD in sedentary and exercise-trained individuals. Ter

Chinn, Ashley PODIUM Clinical & Translational Research Pathw

Joining Forces: Military Academic Enrichment Elective

Authors: Chinn A, Cooper S, McBride-Hayes M, Kiehl C, Lee K, McBride M

Project Mentor: Kenneth Lee, MD

[redacted]

Gonzalez, Luis — Clinical & Translational Research Pathw

Exome Sequencing Identifies VOS Patient with a Novel RASA1 Mutation

Authors: Gonzalez LE, Drolet BA
Project Mentor: Beth Ann Drolet, MD

Vascular overgrowth syndromes (VOS) are complex disorders which most often present with cutaneous and skeletal abnormalities as well as regional overgrowth. They are difficult to classify clinically due to their variability in presentation and overlapping clinical features. Correlating the genetic profile of a patient with their phenotypic presentation offers an alternative approach to better understanding each disease. We sought to sequence affected tissue samples from patients with VOS via targeted next generation sequencing. In a patient with clinically diagnosed Parkes Weber syndrome we found a novel premature stop codon in the RASA1 gene associated with vascular malformations, which had been missed by previous clinical whole blood sequencing. Testing using whole blood, while easier to obtain, may thus not provide the entirety of the patient's relevant genetic profile. Obtaining affected tissue for sampling presents its own challenges, but selective sampling could reveal undiscovered mutations allowing for a better understanding of VOS.

Gorman, Richard — Clinical & Translational Research Pathw

The Prognostic Utility of Baseline Alpha-Fetoprotein for Hepatocellular Carcinoma Patients

Authors: Jack P. Silva, Richard A. Gorman, Nicholas G. Berger, Susan Tsai, Kathleen K. Christians, Callisia N Clarke, Harveshp Mogal, T. Clark Gamblin
Project Mentor: T. Clark Gamblin, MD, MS, MBA

Retrospective Analysis of Pathology Review Criteria for Cancelled Specimens

Authors:

Jain, Sandeep PODIUM Clinical & Translational Research Pathwa

Nasal Fiberoptic Endoscopic Evaluation to Predict Obstructive Sleep Apnea

Authors: Jain S, Kallio P, Less K, Simon E, Uhrich T, Barney J, Ebert T
Project Mentor: Thomas J. Ebert, MD, PhD

Introduction: Undiagnosed Obstructive Sleep Apnea (OSA) is common, frequently undiagnosed and increases perioperative risk. Purpose To describe how Nasal Fiberoptic Endoscopic Evaluation (NFEE) could predict OSA diagnosis and severity in a pre-opera setting. Methods: 27 patients underwent airway evaluation via NFEE during their pre-operative visit with pictures taken in various

Kim, Jean Poster12 Clinical & Translational Research Pathw

Racial Disparity in Hyperthyroidism Prior to Surgical Referral

Authors: Kim J, Wang TS, Doffek K, Evans DB, Yen, TWF

Project Mentor:

Meinerz, Carolyn			

Moore, Caitlin	Hallway	Clinical & Translational Research Pathwa

Does a Splenic Blush Really Matter?

Authors: Moore C, Peschman J, Kugler N, Carver T
Project Mentor: Thomas Carver, MD

/ v š Œ } µ š] } v W d Z •] P v] ( ] v } (} v š Œ • š Æ š Œ À • š] } v U } Œ [illegible] This study was performed to determine whether the presence of a blush correlated with failure of NOM (Non-Operative Management). Methods: A 5-year retrospective chart review was performed on all adult trauma patients evaluated at a ACS Level 1 trauma center admitted for blunt splenic trauma following contrast-enhanced CT scan. Results: NOM was attempted in 258 patients and failed in 18 (7%). A blush was present in 55.5% of NOM failures but was only predictive of failure in patients not on anticoagulation prior to injury (p = 0.027). Blush was not predictive in patients on anticoagulation (p=.35). Conclusion: The presence of a splenic blush may predict failure of NOM in patients who do not take aspirin or warfarin.

Neiman, Alexandra		Clinical & Translational Research Pathw

Park, David — Clinical & Translational Research Pathw

Dose Determination of Doxorubicin Administered During DEB-TACE By Spectral Measurements

Authors: Park D, Gogineni V, White SB
Project Mentor: Sarah B. White, MD, MS

Hepatocellular Carcinoma (HCC) is the second leading cause of cancer-related death worldwide. Drug-eluting bead transarterial chemoembolization (DEB-TACE) is one treatment option. In DEB-TACE, microspheres coated with chemotherapeutic drugs, such doxorubicin, are delivered directly to arteries feeding tumors. The drugs then release slowly. DEB-TACE is limited by unknown amount of drug delivered; thus, the specific aim is finding the effective dose delivered. Loading efficiency was determined by loadir Doxorubicin onto LC beads, followed by performing UV/Vis/NIR spectrophotometry on the supernatant. To calculate delivered drug dose, residual DEBs were eluted and placed under UV/Vis/NIR spectrophotometry to determine residual drug concentration. Volum of residual beads was measured with a syringe. Loading efficiency was greater than 99.8%. From the 8 patients that underwent DE TACE, residual amounts of doxorubicin ranged from 7.6mg to 43.2mg with a mean of 28.46mg and residual volume collected was from .20mL to 1.25mL with a mean of .82mL.

Paul Rajamanickam, Eunice — Clinical & Translational Research Pathw

Poor Glycemic Control is Associated with Failure to Complete Therapy and Surgery in Localized Pancreatic Cancer

Authors: Paul Rajamanikcam ES, Christians KK, Aldakkak M, Krepline AN, Ritch PS, George B, Erickson BA, WD, Aburajab M, Evans DB, Tsai S
Project Mentor: Susan Tsai, MD, MHS

The impact of glycemic control in patients with localized pancreatic cancer treated with neoadjuvant therapy is unclear. Glycated hemoglobin (HbA1c) values were measured prior to any therapy and after neoadjuvant therapy prior to surgery. HbA1c levels greater than 6.5% were classified as abnormal. Patients were categorized based on the change in HbA1c levels from pre-treatmen preoperative: GrpA, always normal; Gr B, worsened; GrpC, improved; and GrpD, always abnormal. HbA1c levels were evaluable in 123 patients. 92 (75%) completed all intended therapy to include surgery; 57 (85%) patients in GrpA, 4 (50%) patients in GrpB, 16 (72%) patients in GrpC, and 15 (58%) patients in GrpD (p=0.01). Elevated preoperative carbohydrate antigen 19-9 (CA19-9) (OR:0.22;[0.07-0.66]), borderline resectable (BLR) disease stage (OR:0.20;[0.01-0.45]) and abnormal preoperative HbA1c (OR:0.30;[0.11-0.90]) were negatively associated with completion of all intended therapy. Elevated preoperative HbA1c is associate with failure to complete neoadjuvant therapy and surgery.

Rana, Puneet — Clinical & Translational Research Pathw

Assessment of Manual Wheelchair Propulsion with Intensive, Routine Therapy in Children with Orthopaedic Disabilities

Authors: Rana PV, Rammer JR, Osborn C, Tarima S, Daley R, and Harris GF
Project Mentor: Rodger Daley MD PhD

Children with orthopedic disabilities relying on manual wheelchairs for independent mobility places great demands on upper extremities (UE) resulting in higher rates of injury. The objective of this study is to investigate the biomechanics of wheelchair propulsion in a pediatric population of manual wheelchair users (MWU) undergoing intensive therapy. We selected 10 pediatric MWU receiving individualized therapy for 3 weeks and utilized markerless motion capture technology and kinematic modeling to

Gait and Strength in Patients of Distal Femoral Reconstructions

Authors: Reason NG, Neilson JC
Project Mentor: J.C. Neilson, MD

Limb-salvage surgery is the standard of care for soft-tissue and bony sarcomas. The most common site of malignancy is about the knee, and despite growing interest in strength and gait outcomes, current literature has not shown whether the extent of femoral resection plays a role. We hypothesized that patients with more resection had greater deficits in gait and knee strength. A retrospective chart review was conducted on 19 patients that underwent this procedure and analysis. Femoral resection was calculated from x-ray imaging and patients were dichotomized as those with less than 40% removed versus those with 40% or mor removed. Group averages were analyzed for differences in joint kinematicst reatg injoi45(d)-3.996q13.002(s)5(co)-3revy sarcomas

Schwartz

XRT or Ablation for Solitary HCC: A Survival Analysis

Authors: Berger NG, Tanious MN, Hammad AY, Miura JT, Christians KK, Tsai S, Gamblin TC
Project Mentor: T. Clark Gamblin, MD, MS, MBA

Hepatocellular carcinoma (HCC) patients are often ineligible for resection. This study hypothesized that external beam radiation (XRT) and ablation therapy (AT) would be equally effective for selected HCC patients. The Surveillance, Epidemiology, and End Results (SEER) identified HCC patients (2004-2012) undergoing XRT or AT for solitary HCC lesions. Propensity score modeling adjusted for baseline characteristics. Median OS for XRT and AT was 22 and 32 months (p=<0.001) respectively. AT was associat

Van Wickle, Jonathan Poster18 Clinical & Translational Research Pathw

Radiation Therapy Dose Escalation in Rectal Adenocarcinoma, a Review

Authors: Jonathan D. Van Wickle, Eric A. Paulson, Paul Knechtges, Jerome C. Landry, Beth A. Erickson, Will A. Hall

Project Mentor: William A Hall, MD

INTRODUCTION: Total mesorectal excision after neaoadjuvant chemoradiotherapy (CRT) has offered superior control for patients with locally advanced rectal cancer, but carries a high quality of life cost. Fortunately, some patients achieve a complete response after chemoradiation alone without the added morbidity caused by surgery. Efforts to increase fidelity of radiation treatment planning and delivery may allow for escalated doses of radiotherapy (RT) with limited off-target toxicity and elicit more pathological complete responses to CRT sparing more rectal cancer patients from surgery. AREAS COVERED: Methods of delivering escalated boost above 45-50.4 Gy are evaluated including: 3D conformal, intensity-modulated radiotherapy, and brachytherapy. Newly developed adaptive boost strategies and imaging modalities us2(l ca)-2.008(n)-3 tR-13.002(e)5(s)-6.998(tan)-6.004(n)-3.996(in)-3.

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Declusin, Anthony		Clinician Educator Pathway

Lyme Disease Presentation: Improving the Knowledge of Medical Practitioners

Authors: Declusin AR, Bower D, Ruffalo L, Treat R
Project Mentor: Douglas Bower, MD

Lyme disease is the most commonly reported vector-borne illness in the United and is a serious public health issue in the state of Wisconsin. A presentation on Lyme disease was offered to general practitioners at the 2016 MCW Winter Refresher Course for Family Medicine with the goal of improving their knowledge of the illness. A pre- and post-test was administered to the audience at the time of presentation to evaluate learning. The results show a statistically significant improvement (N=73, p=.001) in their confidence of their knowledge of the various topics discussed during the presentation. The presentation successfully met the goal o measurably furthering the education of the attendees.

Destiche, Daniel	Hallway	Clinician Educator Pathwa

Heinze, Adam

Ledvora, Laura Poster 25 Clinician Educator Pathwa

The Development, Implementation, and Evaluation of a Suicide Prevention Gatekeeper Training Curriculum for High School Students

Authors: Ledvora L, Russeth K
Project Mentor: Kathy Russeth, MD
Community Partner: Prevent Suicide of Greater Milwaukee

Ample research supports the efficacy of suicide prevention gatekeeper training programs for adults, but little research evaluates their use with adolescents. This study modified an adult suicide prevention gatekeeper training to include statistics and examples relevant to adolescents and a suicidality screening. This curriculum was implemented with 32 high school students who participated in a pretest, the curriculum, and a posttest. Efficacy was evaluated using paired samples t-tests comparing participants' pre and posttest scores. Posttest scores were significantly higher compared to pretest scores in the categories of declarative knowledge about suicide/suicide prevention behaviors [(M= 1.22, SD= 1.75); t(32)=4.01, p <0.001] and self-perceived confidence and comfort enacting suicide prevention behaviors [confidence: (M= 0.72, SD= 0.58); t(32)=7.22, p <0.001] [comfort: (M= 0.45, SD= 0.75); t(32)=3.39, p =0.002]. These results indicate that it is feasible to implement a suicide prevention gatekeeper training program for adolescents and that such a program is effective.

Qaisar, Tonia Poster 26 Clinician Educator Pathwa

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Taylor, Allison Poster28 Clinician Educator Pathwa

Clinical Instruction in Physical Examination on the Internal Medicine Clerkship: A Mixed-Methods Descriptive Study

Authors: Taylor A, Bergl P, Muntz M, Feagles J, Quirk K, Fletcher K.
Project Mentor: Paul Bergl, MD

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Camenga, Elizabeth Global Health Pathway

Online IPE and Immigrant & Refugee Health Curriculum Quality Improvement

Authors: Camenga E, Thompson G, Holt J, Zabler B, Sanders J
Project Mentor: James Sanders, MD, MPH
Community Partner: University of Wisconsin - Milwaukee, College of Nursing Institute for Urban Health Partnerships

To improve healthcare quality, the University of Wisconsin - Milwaukee (UWM) College of Nursing's Institute for Urban Health Partnerships (IUHP) developed an asynchronous, online module, teaching interprofessional competencies and information on culture and health of immigrants and refugees (I&R). Two components of the module were voice-over PowerPoint presentations, o interprofessional education (IPE) and on immigrant & refugee (I&R) culture and health. The IPE PowerPoint covered the

Ismail, Zahra

Latent Tuberculosis Infection (LTBI) Targeted Testing and Treatment in Milwaukee Community Clinics

Authors: Lacey M, Jin Y, Hansen S, Lundh R, Hunter P
Project Mentor: Paul Hunter, MD

Background: Reactivation of LTBI in at risk patient groups continues to be a source of TB transmission within the US. Completing antibiotic treatment prevents reactivation in 90% of cases. We developed an LTBI targeted testing and treatment protocol at a weekly free clinic in Milwaukee. Methods: The protocol includes a risk assessment questionnaire, same day testing and methods to ensure treatment adherence. A retrospective chart review was used to assess its effectiveness. Results: Between 6/27/15 and 12/31/16, 74.7% of patients completed the risk assessment. 82 of 432 (19.0%) patients met criteria for ordering tuberculosis blood testing and 33 of those 82 (40.2%) completed testing. We received 2 positive results and 1 patient completed treatment successfully. Conclusions: Implementing a targeted testing protocol for LTBI at a student-run free clinic in Milwaukee was feasible and sustainable. Future iterations will focus on increasing the percentage of patients completing the risk assessment and testing.

The Soldier's Heart: A Resource for Veteran Post Traumatic Stress

Authors: Mooney JM, Jelacic NP, Weber MW
Project Mentor: Mike McBride, MD

Post-Traumatic Stress Disorder in veterans is a modern health epidemic in America. It is estimated that up to 20% of 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 veterans suffering from PTSD in their lifetime1. Lack of understanding about PTSD symptoms, difficulty in finding connections to resources, and avoidance of discussing these sensitive topics in healthcare settings all contribute to veterans not accessing needed care. The mission of The Soldier's Heart is to provide a comprehensive website for veterans, families, and providers to understand

Placone, Nicholas	Poster 35		Global Health Pathway

A Qualitative Analysis on Substance Abuse and Care Engagement Amongst PLH in Russia

Authors: Smith JA, Amirkhanian YA, Kelly JA, Amirkhanian AG
Project Mentor: Jeffrey Kelly, PhD

While it is known that adherence to antiretroviral therapy (ART) and engaging in medical care both improve health and reduce transmission in people living with HIV (PLH), millions are out of care, and Russia's situation is particularly poor. We recruited 18 PL in St. Petersburg, Russia in and out of care and explored multiple aspects of their lives through in-depth interviews, which were audio recorded, transcribed, and qualitatively analyzed. A significant barrier to care identified was substance abuse, namely conceptions of the microbiological effects that substance abuse has on an individual's HIV and ART, an individual's capacity to take medications and make and keep appointments, and the personal character of one who abuses substances. By directly addressing from a multidisciplinary approach this pervasive component of Russian culture and lifestyle, a greater proportion of PLH in Russia may engage in care, infection rates could decline, and lifespan could be prolonged.

GERD and Acid Reduction Medication Use Following Gastric Bypass and Sleeve Gastrectomy

Authors: Barr AC, French MJ, Bosler ME, Goldblatt MI, Gould JC
Project Mentor: Jon Gould, MD

Background: Gastroesophageal reflux disease is a common comorbid medical condition of obesity. Laparoscopic sleeve gastrector has been associated with de novo and worsening GERD following surgery. For this reason, patients who suffer from GERD and ar considering bariatric surgery are often counseled to undergo gastric bypass. Given this practice, we sought to determine acid reduction medication (ARM) utilization in bariatric surgical patients who undergo one of these procedures prior to surgery and at one year following surgery. Methods: A retrospective review of prospectively maintained data on patients to undergo gastric bypass or sleeve gastrectomy between November 2012 and December 2014 was conducted after IRB approval. ARM utilization a

Brown, Andrew Health Systems Management & Policy Pathw

Fractures and Peripheral Neuropathy Among Elderly Breast Cancer Patients Receiving Taxanes

Authors: Brown AM, Neuner JM, Smith EC, Laud PW, Wozniak E, Kamaraju S
Project Mentor: Joan Neuner MD, MPH

We sought to examine the rates of fractures in patients receiving chemotherapy regimens containing taxanes. We also examined th relationship of fracture rate with peripheral neuropathy (PN) that warranted treatment. Using nationwide Medicare files, we identified women age 65 years and older with breast cancer who received adjuvant chemotherapy containing a taxane agent between 2006 and 2008. We identified treated PN by patients who received gabapentin, pregabalin, amitriptyline or nortriptyline after starting chemotherapy. 3,781 patients were included in our cohort. The fracture rate in the cohort was 10.31%. The fracture

Hollabaugh, William Health Systems Management & Policy Pathw

An Appraisal of Materials and Value for Patch Reconstruction of the Pulmonary Arteries

Authors: William Hollabaugh, Michael McGinnis, William K. Johnson, Michael E. Mitchell, James S. Tweddell, and Ronald K. Woods
Project Mentor: Joseph O. Hill, PhD

Background/Hypothesis: We sought to evaluate quality (re-intervention) and cost of various patch materials used for main and branch pulmonary artery (PA) patch reconstruction. Patients/Methods: Retrospective single-institution review spanning 1990-2015

Physical Activity Habits in Medical Students at MCW

Authors: Rennicke J, Hsu A
Project Mentor: Andrew Hsu, MD

Studies have analyzed the physical activity levels of the average population, but few have targeted the medical student population which is well known to spend hours per day studying. This study was designed to determine how sedentary typical first and second year medical students were, and to see what percentage of them met government recommended daily physical activity levels. The M1 and M2 classes at the Medical College of Wisconsin were surveyed on their physical activity habits via electronic survey.

Altering Buffer Ca2+ and Ph Stimulates Mitochondrial Ca2+/H+ Exchanger

Authors: Boswell MR, Blomeyer CA, Heisner JS, Aldakkak M, Camara AKS, Stowe DF
Project Mentor: David Stowe, MD, PhD

Ebben, Johnathan — Poster 53 — Molecular & Cellular Research Pathwa

Immunoprevention of Cancer Using Peptide Vaccines: In Vivo Proof-Of-Concept in EGFR-Driven Non-Small Cell Lung Cancer

Authors: Ebben JD, Gad E, Lubet RA, Disis ML, You M
Project Mentor: Ming You, MD, PhD

We hypothesized that using molecular markers and known non-small cell lung cancer (NSCLC) driver proteins as part of a preventi strategy could prevent tumorigenesis. Approximately 10% of US lung cancer cases are driven by mutations in the Epidermal Growt Factor Receptor (EGFR), with higher mutation rates in selected populations. We used a multi-peptide vaccine targeting two separa regions of EGFR to evaluate this hypothesis. Mice expressing inducible mutant human EGFR commonly implicated in NSCLC development were prophylactically vaccinated with EGFR peptide vaccine prior to induction of the transgene. Vaccination decrease subsequent tumor development by >75% in vaccinated mice vs. adjuvant treated controls. We observed a robust increase in speci immune populations that correlated with the degree of response. This work provides proof-of-concept indicating that molecular understanding of disease can be translated into vaccines that can prevent tumor development when administered in the right context.

Erickson, Stephen — Molecular & Cellular Research Pathwa

ASCL1 Knockdown Suppresses Neuroblastoma Growth Through induction of Apoptosis

Authors: Erickson SS, Balamurugan M, Kunnimalaiyaan S, Gamblin TC, Kunnimalaiyaan M
Project Mentor: T. Clark Gamblin, MD, MS

Introduction: Neuroblastoma is a leading cause of childhood cancer deaths. The transcription factor ASCL1 has been shown to be highly expressed in neuroendocrine tumors including neuroblastoma. Previous studies have suggested an oncogenic role for ASCL We hypothesized that ASCL1 reduction in neuroblastoma cells suppresses growth. Study Methods: Human NGP neuroblastoma ce were transfected with a doxycycline-inducible shRNA sequence against ASCL1. Western analysis was used to observe the effects doxycycline treatment on levels of ASCL1, apoptotic proteins, and neuroendocrine tumor markers. Proliferation was measured by MTT assay. Results: Doxycycline treatment decreased ASCL1 protein levels in NGP-ASCL1 knockdown cells. ASCL1 knockdown decreased cellular proliferation at the 4, 6, and 8 day time points. Knockdown cells exhibited lower levels of neuroendocrine marke

Peroxynitrite Produced Via Nitric Oxide Synthesis in Isolated Cardiac Mitochondria

Authors: Gerdes H, Yang M, Heisner J, Camara AKS, Stowe DF
Project Mentor: David F Stowe, MD, PhD

The presence of an endogenous nitric oxide synthase (NOS) isoform in cardiac mitochondria remains controversial. Our aim was assess production of ONOO- in isolated guinea pig cardiac mitochondria, and to determine if ONOO- production is dependent on th presence of endogenous mitochondrial NOS. Western blot analyses showed that anti-eNOS antibody was detected in both the whole-heart and isolated mitochondria samples. Isolated mitochondria were treated with succinate, CaCl2, and menadione, a redox

Klinka, Matthew — Molecular & Cellular Research Pathwa

Construction and Characterization of a Model for Studying Bacterial Exotoxins

Authors: Klinka M, Frank D
Project Mentor: Dara Frank, PhD

Pseudomonas aeruginosa is a significant bacterial pathogen in immunocompromised patients, hospitalized patients, and those with CF. It produces a variety of exotoxins, of which ExoS and ExoU are associated with significant morbidity and mortality. Both ExoS a ExoU require eukaryotic cofactors in order to be active and produce significant cytotoxicity. We sought to create a model for studying these toxins in a prokaryotic surrogate by modifying E. Coli to produce toxin and cofactor. With the model established for ExoU, we proceeded to develop a high throughput screen using out model to test for inhibitors of ExoU. We were successful in creating a protocol compatible with robotic high throughput screening and detecting a known inhibitor of ExoU. Further work i ongoing to detect new inhibitors of ExoU by searching small molecule libraries.

Kropp, Erin PhD — Molecular & Cellular Research Pathwa

Metabolic Shift During Cardiomyocyte Differentiation Promotes Survival During NAMPT Inhibition

Authors: Kropp EM, Weerasekera R, Broniowska KA, Corbett JA, and Gundry RL
Project Mentor: Rebekah Gundry PhD

Human pluripotent stem cells (hPSC) are a renewable source for the generation of cardiomyocytes (hPSC-CM). We have recently shown that inhibition of nicotinamide phosphoribosyltransferase (NAMPT) selectively eliminates remnant hPSC from hPSC-CM. NAMPT, the rate limiting enzyme in a salvage pathway for NAD synthesis, is important for maintaining sufficient NAD levels to support pluripotency. However, it is not understood how hPSC-CM develop resistance to NAMPT inhibition. This study tested how differentiation and maturation influence the mechanisms that control susceptibility to NAMPT inhibition. We found that with differentiation and maturation, cells survive extended periods of NAMPT inhibition and remain functional. Cell survival correlates with utilization of glycolysis and mitochondrial respiration to maintain ATP, despite a significant loss in NAD levels. These findings identify an important role for the NAMPT-dependent NAD synthesis pathway in hPSC and provide evidence to support a novel strategy by which unwanted cells can be removed from cardiomyocyte cultures.

Langlo, Christopher PhD — Poster 12 — Molecular & Cellular Research Pathwa

Residual Cone Structure in Achromatopsia: Implications for Gene Therapy

Authors: Langlo CS, Scoles DH, Fishman GA, Gamm DM, Struck M, Chiang J, Dubra A, Carroll C
Project Mentor: Joseph Carroll, PhD

Achromatopsia (ACHM) is associated with absent or severely reduced cone photoreceptor function.

Current gene-replacement therapy trials will depend on understanding the residual cone

Lee, Jane			Molecular & Cellular Research Pathwa

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Authors: Markwardt JE, Oleson BJ, Corbett JA
Project Mentor: John A. Corbett, PhD

Recently the cyclin- ‰ v v š l] v •] v Z]] š } Œ ‰ î í Á •] u ‰ell apoptosis] and ‰ell cycle arrest. However, it is

Shaheen, Zachary PhD | Poster 43 | Molecular & Cellular Research Pathwa

Elucidating Cellular Responses to Viral Infection in Autoimmune Diabetes Pathogenesis

Authors: Shaheen ZR, Stafford JD, Christmann BS, Moran JM, Voss MG, Oleson BJ, Corbett JA
Project Mentor: John Corbett, PhD

[illegible] cell damage and the development of autoimmune diabetes. Macrophage activation and expression of the cytokine interleukin-1 (IL-[illegible] to mediate [illegible] virus-[illegible] cell production of nitric oxide. While IL-[illegible]

Zappia

Chang Franklin PODIUM Quality Improvement & Patient Safety Pathwa

Expediting Diagnosis of Diabetic Ketoacidosis in the Pediatric Emergency Department

Authors: Baumer-Mouradian S, Chang F, Ferguson C
Project Mentor: Catherine Ferguson, MD

Diabetic Ketoacidosis (DKA) is a serious condition seen in the pediatric emergency department (ED). Delay of care can lead to life threatening conditions associated with acidosis, therefore it is imperative that DKA is identified early and appropriate treatments are started promptly. At the Children's Hospital of Wisconsin ED, we aimed to reduce the average time to first bicarbonate level (a value used for diagnoses of DKA) in patients with high suspicion for hyperglycemia from 80 minutes to 30 minutes over 16 months. By

Franko Jace	Poster47		Quality Improvement & Patient Safety Pathwa

Magee, Alexander | Poster 48 | Quality Improvement & Patient Safety Pathwa

Applying Quality Indicators in Adult Coarctation of Aorta Patient Care

Authors: Magee A, Ginde S
Project Mentor: Salil Ginde, MD

The provision of quality care to patients with Adult Congenital Cardiac Defects (ACHD) is a challenge to many cardiology groups. T work is a representation of the efforts of Children's Hospital of Wisconsin pediatric cardiology group specializing in the care of ACH patients to improve the quality of care provided to their patients with Coarctation of Aorta (COA). This was achieved by applying 11 Quality Indicators (QIs) in a retroactive chart review to all COA patients seen by the team. These QIs were taken from two guideline (Gurvitz et al and ACC/AHA) and modified per the team for application to their practice. This initial assessment elucidated certain deficits in care provided. Following an interprofessional discussion of causes, an intervention was enacted involving the electronic healthcare record and reassessment by sampling 6 months showed improvement in most QIs.

Mertens, Haley | Hallway | Quality Improvement & Patient Safety Pathway

Increasing Influenza Vaccination Rates in Children with Inflammatory Bowel Disease on Biologics

Authors: Mertens HR, Lerner DG
Project Mentor: Diana Lerner, MD

Children with inflammatory bowel disease (IBD) who are on biologics are especially susceptible to infection because of their artificially suppressed immune systems, so it is crucial that these patients receive the intramuscular influenza vaccine yearly. Yearly influenza vaccination rates within this population at Children's Hospital of Wisconsin (CHW) are around 50%, with a rate of 54% for the 2013-2014 influenza season. The goal of this project is to increase influenza vaccination rates among pediatric patients with IB on biologics to 70% by the end of the 2016-2017 influenza season. Plan-study-act (PDSA) cycles were used in order to implement new intervenced (t2nt

O'Day, Peter		Quality Improvement & Patient Safety Pathwa

Akauola

Brichta, Christine Urban & Community Health Pathwa

Dietary-Texture Progression is Not Diagnostic of Eosinophilic Esophagitis in Young Children with Feeding Disorders

Authors: Brichta CE, Feuling MB, Delaney AL, Silverman A, Larson-Nath C, Goday PS
Project Mentor: Praveen Goday, MD

[redacted]

Investigation of Cancer Services Provided Through Nationwide Specialty Access Programs

Authors: Jorgenson J, Stolley M
Project Mentor: Melinda Stolley, PhD

Introduction: Underinsured Americans are less likely to get cancer screening and have a higher late-stage incidence and mortality compared to those who are insured. Many of these patients receive care through safety-net clinics, which tend to lack accessible specialist services. Specialty access programs exist to address this barrier by connecting underinsured patients with specialist care is not well understood what cancer services are available or how they are delivered through specialty access programs. The goal o this study was to better understand cancer services available through specialty access programs nationwide. Methods: Nine representatives from programs nationwide were identified and a phone interview conducted Results: The majority of programs

Promoting Breast Education and Screening Mammography for Women with Barriers

Authors: Krause K, DeNomie M, Sahr N, Banerjee A, Kamaraju S
Project Mentor: Sailaja Kamaraju, MD

Access and adherence to breast cancer screening guidelines is challenging for women with language, cultural and financial barrier
We report the results of our community-academic partnership model for women of various ethnic backgrounds. We partnered with
several community sites in Milwaukee, the Wisconsin Well Woman Program, and a mobile mammography unit to organize monthly

Olander, Ellen — Poster 62 — Urban & Community Health Pathwa

Evaluation of Health Education Talks at Highland Gardens

Authors: Olander EM, Burns E

Project Mentor: Edith Burns, MD

Community Partner: SET Ministry

In 2009, an MCW medical student began to meet monthly with residents at Highland Gardens, a low-income apartment complex in downtown Milwaukee, to discuss health questions and take blood pressures. This program, made possible by a partnership with SE Ministry, soon evolved into a large-group health education session. Now first to third year medical students present monthly health education talks on resident-chosen topics such as mental health, joint issues and diabetes. Throughout the past year, this program was evaluated for its effectiveness and resident satisfaction. The methods used included an attendance log, observations of the residents (reactions, questions asked, assumed interest) and a satisfaction survey. The results of the survey showed that 55% of residents were completely satisfied with the current talks while the remaining 45% identified several areas for improvement. The use of this data will help guide changes in future presentations at Highland Gardens.

Olesiak, Samantha — Poster 63 — Urban & Community Health Pathwa

Factors Influencing the Decision to Pursue Rural Practice in Wisconsin

Authors: Olesiak SJ, Ruffalo L

Project Mentor: Leslie Ruffalo, PhD, MS

Community Partner: Wisconsin Academy of Family Physicians

As rural physician shortages are projected to rise, it is critical to develop new approaches for growing this workforce. For example,] v š] (Ç] v P ^ • š ( ] š _] v] À] µ o • (} Œ Œ µ Œ o ‰ Œ š] Œ o Ç] v š Z utment and š Œ] v] v retention of rural physicians. This project focused on investigating factors that impact one's decision to practice in rural communitie at every level of medical training. In partnership with the WAFP, we conducted a survey and focus groups with medical students, residents and physicians to gather demographics, characteristics, and attitudes related to rural practice. A total of 183 respondents completed the survey and 14 participated in focus groups. We found that participation in a rural training track (p=0.003) and being patient-centered (p=0.04) was positively associated with interest in rural practice. The goal is to use this information to provide admission recommendations to recruit students interested in rural practice.

Ouyang, Wei Lin — Urban & Community Health Pathwa

Early IUD Discontinuation at an Underserved Family Medicine Clinic

Authors: Wei Lin OuYang, Mary Bacsik, Camille Garrison

Project Mentor: Camille Garrison, MD

Objective: The study aimed to explore reasons for high early IUD discontinuation and estimate the financial impact this has on the healthcare system. Method: The first part of the study was a retrospective cohort study of women who had an IUD implanted and removed between 2007-2014. The second part of the study calculated the the financial impact of a high IUD discontinuation rate. Z • µ o š W K À Œ o o U š Z • š] • (š] } v • } Œ • u } v P } µ Œ • µ i š • Á Œ ‰ } } Œ X d Z u } • š with abdominal pain and desire for pregnancy being the second and third most common. The estimated cost of this high IUD discontinuation ranges from $199,680-$479,232 per year. Conclusion: The study demonstrated various reasons for the high IUD discontinuation rate and the burden that having a high IUD discontinuation rate has on the healthcare system. Further study needs š } } v µ š š } Æ ‰ o } Œ Œ • } v • š Z š (o o µ v Œ š Z ^ } š Z Œ _ š P } Œ Ç X

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Rodrigues Pereira, Sophie Poster 67 Urban & Community Health Pathwa

Using Veteran Perspectives to Develop An Enhanced Peer Mentor Training Curriculum

Authors: Schneiderman M, Ruffalo L
Project Mentor: Leslie Ruffalo, PhD
Community Partner: Dryhootch

Background: There are 21.8 million living military Veterans in the U.S., many of whom experience reintegration challenges. It is critically important to understand Veterans' perceptions of the ways in which military culture facilitates or prevents successful reintegration into civilian society. Methods: We conducted two focus groups with 12 Veterans that served in the current conflicts to collect stories about their reintegration challenges. Focus groups were audio recorded, transcribed verbatim, and transcripts were qualitatively open-coded to elicit themes. Results: Focus groups analysis revealed six themes, including military sexual trauma, the struggle of explaining PTSD to loved ones, and the pressure to behave against the moral values of some veterans while in the service. Conclusion: Understanding the gr t4.006(h)-3.996(g deran)-5(b)-3.996998(e)3.9996(in)-3.002(tegratio)-4.006(n)-306(h)-4

Shah, Reema Poster 70 Urban & Community Health Pathwa

Improvement in Quality of Life in Youth After An Intervention

Authors: Levas M, Shah R

Project Mentor: Michael Levas, MD, MS

Understanding Barriers and Increasing Compliance with Colorectal Cancer Screening Guidelines

Authors: Watson A, Kos A
Project Mentor: Madelaine Tully, MD
Community Partner: Progressive Community Health Centers

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Thank you for being a Project Mentor to the Class of 2018!

Onur Asan, PhD
Tom Aufderheide, MD, MS
Courtney Barry, PsyD
Ivor Benjamin, MD
Paul Bergl, MD