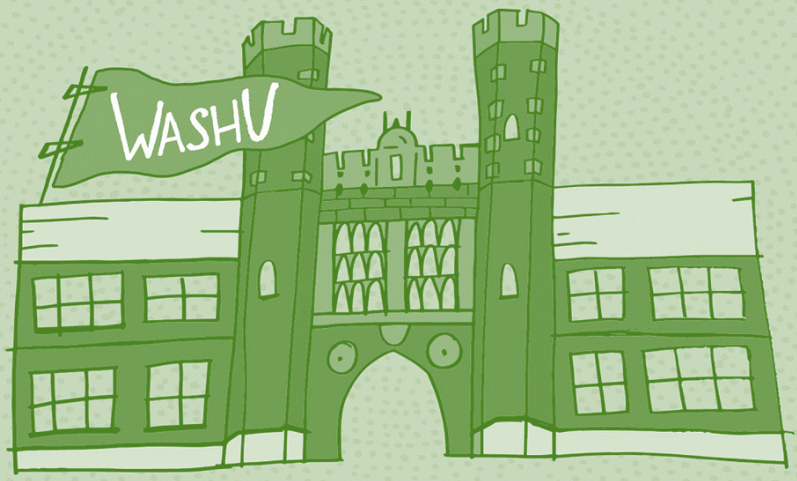
2023 Symposium

Institute for Public Health Summer Research Program

Public & Global Health and RADIANCE Tracks



9:00 am	**Welcome**
9:05 am	**Keynote and Q&A** **Dominic Reeds, MD |** Medical Director, Nutrition Support Service, Barnes Jewish Hospital; Associate Dean for Research, Goldfarb School of Nursing; Professor of Medicine, Washington University School of Medicine
9:50 am	**Caitlin Shin |** California University of Science and Medicine Creating and Operating Research Advisory Board in International Collaborations
10:00 am	**Juan Suarez |** Ponce Health Sciences University Clonal Hematopoiesis in Heart Transplant Recipients
10:10 am	**Justin O'Hagan |** University College Dublin Evaluating the Sustainability of the Early Warning Score Intervention in Global Pediatric Oncology Settings
10:20 am	**Emmanuella Alawode |** University of Missouri - Kansas City School of Medicine Relationship Between Fibrotic Gene Expression and Fibrosis on MRI in HCM Patients
10:30 am	**Natasha Zimmermann |** Washington University Creating a Workforce Development Intervention: A Community-Engaged Approach to Mitigating Health Disparities
10:40 am	**Break**
10:45 am	**Joaquin Figueroa |** Washington University CD2 Epitope Mapping for Chimeric Antigen Receptor Therapy
10:55 am	**Yao Deng |** Ponce Health and Science University Can Pre-Transplant SIPAT Scores Predict Outcomes for Heart Transplant Patients?
11:05 am	**Celeste Sangster |** University of North Carolina at Chapel Hill Implementing Medicaid Reimbursement for Home Visiting Models in Missouri
11:15 pm	**Bijay Shrestha |** Southern Illinois University Edwardsville Risk of Depression in a Medicaid Sample with Type 2 Diabetes
11:25 pm	**Amaris Hairston |** University of Missouri School of Medicine Formative Research to Implement a Polypill for Patients with Heart Failure with Reduced Ejection Fraction: Results from an Explanatory Sequential Mixed Methods Study
11:35 pm	**Closing Remarks and Lunch**

9:00 am	**Welcome**
9:15 am	**Ashley Lugo Huerta |** Washington University CD53 Expression in the Eu-Myc Mice Model
9:25 am	**Maeve Fahy |** University College Dublin An Assessment of Patient Barriers to Sexual Health Care and Their Social Determinants of Health
9:35 am	**Haytham El-Zaim |** University of Texas, Austin Sleep, Mental Health and Pain in Anemia
9:45 am	**Joshua Nelson |** Southeast Missouri State University Understanding Lysosomal Nutrient Sensing through C. Elegans
9:55 am	**Alexandria Swanson |** Loyola University Chicago The Role of Zinc-Metal Homeostasis in m. Smegmatis
10:05 am	**Break**
10:15 am	**Serena Florez Marques |** University of Puerto Rico at Rio Piedras Survival Outcomes in Patients with Intermediate-Risk Pulmonary Embolism Treated with Low Molecular Weight Heparin or Unfractionated Heparin, Time to Start of Anticoagulant Therapy
10:25 am	**Kyle Tran |** Washington University Analysis of Galectin-1 and Other Inflammatory Markers on Myeloproliferative Neoplasms
10:35 am	**Meti Abdella |** Bethany College Protective and Risk Factors Influencing Sexual Risk-taking Behaviors Among Adolescent Girls in Uganda
10:45 am	**Michael Vega |** Saint Louis University Analyzing Allocation Patterns of Medicaid-Funded Mental Health Spending in Missouri: A Comparative Study of Pre- and Post-COVID Periods
10:55 am	**Evelyn Lukanen |** Biola University Understanding the Experience of Caregivers of Children with Sickle Cell Disease
11:05 am	**Olivia Kim |** Washington University Air Pollution, Asthma, and Educational Outcomes as a Reflection of Systemic Racism in St. Louis
11:15 am	**Closing Remarks and Evaluation**

Keynote Speaker

Dominic Reeds, MD
Associate Professor, Division of Infectious Diseases, Department of Medicine, Washington University School of Medicine

Dominic Reeds' research activities involve the use of stable isotope tracers to study the regulation of substrate metabolism in humans in vivo. He is particularly interested in metabolic abnormalities present in patients with HIV infection, and interventions that improve insulin sensitivity. Dr. Reeds also directs the Barnes Jewish Hospital Nutrition Support Service.

Public & Global Health and RADIANCE Leadership

In alphabetical order

Jeanie Bryant, BSAg, BSEd
Part-time Coordinator, Global Health Center

Jeanie Bryant is retired and was formerly with the Global Health Center. Prior to her time with the Global Health Center, she enjoyed a long career with the Missouri Department of Health and Senior Services. This summer, she assisted with the 2023 Summer Research Program – Public & Global Health and RADIANCE tracks.

Victor G. Dávila-Román, MD, FACC, FASE
Director, Global Health Center, Institute for Public Health

In addition to his role with the Global Health Center, Victor Dávila-Román is a cardiologist; professor of medicine, anesthesiology and radiology; vice chair for global health in the Department of Medicine; and founding director of the Cardiovascular Imaging and Clinical Research Core Laboratory at Washington University. In addition, he is an effective and dedicated mentor who has made a lifelong commitment to training, having mentored over 120 US and LMIC trainees at all levels.

Dr. Dávila-Román has over 30 years of administrative and clinical research expertise and has received multiple NIH grants for the study of hypertension, hypertensive heart disease, hypertensive disorders of pregnancy, and heart failure. He is currently leading three large clinical trials, both locally and globally, on implementation science in hypertension and cardiovascular disease prevention in pregnancy. His extensive training and capacity building experience has been supported by several NIH-funded programs, including three National Heart, Lung and Blood Institute-funded programs at WashU: the PRIDE training program, the Mentored Training in Implementation Science program, and the SummeR reseArch DIversity ProgrAm iN Cardiovascular Disease & HEmatology (RADIANCE) track.

Mark Huffman, MD, MPH
Co-Director, Global Health Center, Institute for Public Health

Mark Huffman is a practicing cardiologist, researcher, and educator with more than a decade of experience in global cardiovascular epidemiology, clinical trials, implementation research, and health policy research and training. In addition to his role at the Global Health Center, he is a professor of medicine in the Cardiovascular Division at the Washington University School of Medicine. His research spans the spectrum of disease prevention. He is interested in improving global cardiovascular health and health care in low- and middle-income countries through the implementation of evidence-based interventions and policies and in bringing lessons learned back to the United States.

Guhan Iyer, MPH
Program and Research Coordinator, Summer Research Program-RADIANCE and Public & Global Health Tracks

Guhan Iyer is a Master of Public Health graduate with a specialty in epidemiology and biostatistics of Washington University's Brown School. In addition to his role with the Summer Research Program, he is a clinical research coordinator in the Division of Cardiology at the School of Medicine. Guhan grew up in Toronto, Canada and has lived in St. Louis for eight years.

Leah Kemper, MPH
Associate Director, Institute for Public Health

As associate director, Leah Kemper is charged with implementing the strategic plan and programs of the Institute for Public Health in collaboration with institute leaders to achieve the overarching mission and vision of the Institute. Prior to moving into her current role in October of 2022, Leah Kemper spent seven years as manager of the former Center for Health Economics and Policy (now the Center for Advancing Health Services, Policy and Economics Research). As center manager, she launched the Transforming Healthcare in Missouri meeting series, authored policy briefs, and managed center grants and the center's pilot grant program. Additionally, she provided technical assistance to researchers, and collaborated with institute, university, community and statewide partners on various initiatives.

Brenna Simmons, BA
Administrative Coordinator, Global Health Center, Institute for Public Health

Brenna Simmons recently joined the Global Health Center. She is a graduate of the University of Wisconsin-Madison, where she earned a bachelor's degree in international studies and German with a certificate in European studies. Her role at the center is to provide administrative assistance for center projects and programs, including the RADIANCE and Global & Public Health tracks of the Institute for Public Health Summer Research Program; the DS-I Africa training program; and other center-facilitated seminars and activities.

Public & Global Health Mentors

Ozge Sensoy Bahar, PhD, MSW
Research Assistant Professor, Brown School

Abigail Barker, PhD
Associate Director for Policy Partnerships, Center for Advancing Health Services, Policy & Economics Research; Research Assistant Professor, Brown School

Kia Davis, ScD, MPH
Assistant Professor of Surgery, Public Health Sciences Division, School of Medicine

Kelly Harris, PhD, CCC-SLP
Instructor, Occupational Therapy & Surgery, Department of Public Health Sciences, School of Medicine

Lori Holtz, MD, MSPH
Associate Professor, Pediatric Gastroenterology, Hepatology, and Nutrition, School of Medicine

Sara Malone, PhD
Instructor of Surgery, School of Medicine

Timothy McBride, PhD, MS
Co-Director, Center for Advancing Health Services, Policy & Economics Research; Bernard Becker Professor, Brown School

Amy McQueen, PhD
Associate Professor of Medicine, School of Medicine

Hilary Reno, MD, PhD
Co-Director, Public Health Data and Training Center; Associate Professor, Divisions of Infectious Diseases and Hospitalist Medicine, School of Medicine

Michelle Silver, PhD, ScM
Assistant Professor, Department of Surgery, School of Medicine

Christina Stallings, PhD
Professor of Molecular Microbiology, School of Medicine

RADIANCE Mentors

Angela Brown, MD
Professor of Medicine, Cardiovascular Division, School of Medicine; Director, Hypertension Clinic

Sharon Cresci, MD
Associate Professor of Medicine, Cardiovascular Division, School of Medicine

John DiPersio, MD, PhD
Virginia E. and Sam J. Golman Endowed Professor in Medicine; Chief, Division of Oncology; Director, Center for Gene and Cellular Immunotherapy

Abhinav Diwan, MD
Professor of Medicine, Cell Biology and Physiology, Obstetrics and Gynecology; Division Chief of Cardiology at Saint Louis VA Medical Center

Melanie Fields, MD, MSCI
Associate Professor of Pediatrics, Hematology & Oncology; Associate Director, Fellowship Program, Department of Pediatrics, School of Medicine

Mark Huffman, MD, MPH
Professor of Medicine, Cardiovascular Division, School of Medicine; Co-Director, Global Health Center, Institute for Public Health

Allison King, MD, MPH, PhD
Associate Professor of Occupational Therapy, Medicine, Pediatrics, Surgery, and Education, Department of Pediatrics, School of Medicine

Karen Joynt Maddox, MD, MPH
Associate Professor of Medicine; Assistant Professor, Brown School; Co-Director, Center for Advancing Health Services, Policy & Economics Research, Cardiovascular Division, School of Medicine

Kory Lavine, MD, PhD
Associate Professor of Medicine, Developmental Biology, Pathology and Immunology, Cardiovascular Division, School of Medicine

Xiucui Ma, PhD
Research Assistant Professor, Cardiovascular Division, School of Medicine

Jonathan Moreno, MD, PhD
Instructor of Medicine, Cardiovascular Division, School of Medicine

Stephen Oh, MD, PhD
Co-Chief, Division of Hematology; Associate Professor, School of Medicine

Kristen Sanfilippo, MD, MPHS
Associate Professor of Medicine; Hematology Division, School of Medicine

Laura Graves Schuettpelz, MD, PhD
Professor of Pediatrics, Hematology & Oncology; Director of Fellowship Program; Co-Director, High Risk Hematologic Malignancy, School of Medicine

Meti Abdella | Bethany College
Schilsky Family Summer Research Scholar

Mentor: Ozge Sensoy Bahar, PhD, MSW

Protective and Risk Factors Influencing Sexual Risk-taking Behaviors Among Adolescent Girls in Uganda

Authors: Meti Abdella, Bethany College; Ozge Sensoy Bahar, MSW, PhD, Washington University

Background: Adolescent girls in sub-Saharan Africa continue to be disproportionately affected by the HIV/AIDS epidemic. In Uganda, adolescent girls have fourfold rate of HIV infection than adolescent boys. While existing studies provide important insights into risk and protective factors influencing young girls' decision to engage in sexual risk-taking, qualitative studies examining multi-level and intersecting factors shaping adolescent girls' decisions are limited in sub-Saharan Africa, including Uganda. Yet, these factors have important implications for intervention development. **Objective:** This qualitative study explored multi-level protective and risk factors that influence adolescent girls' decision to engage in sexual risk taking **Methods:** As part of the Suubi4Her randomized clinical trial (N=1260), semi-structured, in-depth interviews (N=57) were conducted to explore participants' intervention experiences and multi-level factors impacting their decisions on sexual risk- taking. The data was analyzed using thematic analysis utilizing both a priori and open coding. **Results:** Preliminary results (N=57) showed that factors influencing adolescent girls' sexual risk-taking decisions transcended across individual, interpersonal and structural levels. Risk factors included poverty, peer pressure, and lack of positive family environment. Protective factors included stigma, positive peer influence, fear of negative health consequences, strong family relations, future goals, distrust in men, and "keeping busy." **Conclusion:** Findings from this study will be important in promoting multi-level combination HIV prevention strategies to reduce risk among adolescent girls and to advance their sexual and reproductive health needs in Uganda.

Emmanuella Alawode | University of Missouri-Kansas City School of Medicine
RADIANCE Scholar

Mentor: Sharon Cresci, MD

Relationship between Fibrotic Gene Expression and Fibrosis on MRI in HCM Patients

Authors: Emmanuella Alawode, BA, University of Missouri – Kansas City School of Medicine; Allie Li, MS, Washington University; Janice M. Huss, PhD; Washington University; Sharon Cresci, MD, Washington University

Background: Hypertrophic cardiomyopathy (HCM), a commonly inherited cardiac disease, is caused by >1550 variants in sarcomeric genes. HCM is characterized by left ventricle hypertrophy and altered myocardial function. Fibrosis is a feature of HCM that has been associated with worse outcomes. **Objective:** We tested the hypothesis that there is a relationship between the presence of fibrosis measured by late gadolinium expression (LGE) on MRI in patients with HCM and expression of genes previously shown to be upregulated in HCM, and known to be in the fibrosis pathway. **Methods**: Our cohort consisted of 51 patients with HCM who had tissue samples collected at the time of septal myectomy. RT-PCR measured mRNA levels for 6 genes previously shown to be upregulated in HCM patients vs controls. Gene expression data were corrected to GAPDH reference gene expression. LGE measurements were obtained from MRI reports for all patients who had MRI prior to myectomy (n=14). Mean relative expression was determined and t-test was used to determine p-values. **Results:** SFRP4 expression was nearly 3-fold higher in the those with LGE (n=7) versus those without LGE (n=7; 10.68 ± 6.80 versus 30.13 ± 14.05, $p < .01$). SMOC2 and SLITRK4 showed borderline statistical significance. There was no statistical difference in mean expression of FNDC1, TGFBR2 and THBS1.**Conclusions:** Patients with HCM and the presence of fibrosis had significantly higher mean relative SFRP4 expression compared with those without fibrosis. These findings suggest that SFRP4 is involved in the myocardial fibrosis of HCM, and may have implications for prognosis and/or future therapeutics.

Yao Deng | Ponce Health and Science University
RADIANCE Scholar

Mentor: Jonathan Moreno, MD, PhD

Can Pre-Transplant SIPAT Scores Predict Outcomes for Heart Transplant Patients?

Authors: Yao Xin Deng Lin, Sc. Med, Ponce Health and Science University; Geoffrey Ginter, MD, MS, Washington University School of Medicine; Jonathan Moreno, MD, PhD, Washington University School of Medicine

Background: Heart transplantation has fundamentally altered the treatment landscape for those with advanced heart failure. Despite the success of transplantation, it remains a resource-limited option. To maximize the efficiency of transplantation and ensure an ethical obligation that the donated organ is taken care of a patient must go through a social screening process once deemed to be a candidate. **Objectives:** A new tool to measure the psychosocial level of a patient for transplant has emerged, the Stanford Integrated Psychosocial Assessment for Transplant (SIPAT). This survey is divided into four domains with multiple questions. The summary score determines if a patient is a low-risk or a high-risk candidate for transplantation. Past research has demonstrated that SIPAT can correlate with certain aspects of post-transplant care, but these studies have not demonstrated a correlation with mortality. **Methods:** A cohort of 84 patients from the Washington University Transplant Program who underwent heart transplant between 1/1/2021 and 1/1/2022 were included in this project. The population was divided into two groups: the first underwent pre-transplant psychosocial testing using the SIPAT rubric, and the second underwent narrative assessment, which was later graded on a qualitative scale. Our goal was to correlate post-transplant outcomes with initial psychosocial impression to determine if the SIPAT had better discriminatory capabilities for predicting patients “at risk” for worsened 1-year outcomes following heart transplantation. **Results:** Currently data is being organized and analyzed. **Conclusion:** We anticipate that low-risk SIPAT scores correlate positively with compliance to post-transplant care, adherence to immunosuppressive medications and follow-up appointments.

Haytham El-Zaim | University of Texas, Austin
RADIANCE Scholar

Mentor: Melanie Fields, MD, MSCI

Sleep, Mental Health and Pain in Anemia

Authors: Haytham J. El-Zaim, University of Texas at Austin; Paula Germino-Watnick, Washington University; Melanie E. Fields, MD, MSCI, Washington University

Background: Patients with Sickle Cell Disease (SCD) suffer from vaso-occlusive pain. Existing studies suggest an association between sleep patterns and pain in adults with SCD, but the relationship between sleep, pain, mental health, and cognitive performance in children with SCD remains unclear. **Objective/ Methods:** Our study employed established surveys and questionnaires to assess sleep patterns, symptoms of anxiety and depression, cognitive abilities, and pain symptoms. We recruited and enrolled patients from three study cohorts: healthy participants, non SCD anemic participants (anemic control), and participants with SCD (any genotype). Data was collected from healthy and anemic controls during a single time point while participants with SCD underwent longitudinal data collection with an outpatient and inpatient study visit. **Results:** 6 participants (2 control, 4 SCD) completed study visits. The 4 SCD participants were 100% male with a median [IQR] age of 14.5 [11.8,15.0] years. The average pain score for SCD participants was 6.3/20. Fifty percent of SCD participants were at an elevated risk for anxiety and SCD participants slept on average 8.3 +/- 1.4 hours per night. In this small cohort, participants did not experience greater interference in daily life from pain and decreased sleep (spearman's rho = -0.949, p = 0.051). **Conclusion:** Data collection will continue to reach our goal of 82 participants.

Maeve Fahy | University College Dublin
Mark and Cathleen Reifsteck Summer Research Scholar

Mentor: Hilary Reno, MD, PhD

An Assessment of Patient Barriers to Sexual Health Care and their Social Determinants of Health

Authors: Maeve Fahy, BCL, University College Dublin; Hilary Reno, MD, PhD, Washington University

Background: The United States is experiencing a rising trend in sexually transmitted infections (STIs), prompting investigations into STI prevention. Healthcare providers are recognizing the importance of social determinants of health in providing holistic services. Measuring and monitoring patient experience is needed to address barriers to STI prevention. **Objective:** This study aimed to design a survey to assess patient barriers to sexual health care and evaluate patient satisfaction with the healthcare services provided by the County Sexual Health Clinic, St. Louis, Missouri. **Methods:** This study involved a quantitative survey of patients who presented to the clinic for a clinician visit. The SDOH patient survey was designed to assess demographics, sexual orientation and gender identity, and social determinants of health. **Results:** During the study period, 87 patients completed the survey. Patients who identified as women were more likely to indicate they had the support of friends and family to visit the clinic. Patients who identified as male reported less stress during a clinic visit. There was no significant difference between patients who identified as male or female and difficulty in making time for the clinic visit. **Conclusions:** To reduce the rates of STIs, it is necessary to have targeted interventions aimed at social factors that impact specific populations. Stress and having the support of friends and family are significantly more challenging for patients who identified as women. Further studies should examine the nature of the visit to understand the factors contributing to stress, offer resources, and improve care.

Joaquin Figueroa | Washington University
RADIANCE Scholar

Mentor: John DiPersio, MD, PhD

CD2 Epitope Mapping for Chimeric Antigen Receptor Therapy

Authors: Joaquin Figueroa, Washington University; John Jingyu Xiang, MD, MSCI, Washington University; John DiPersio, MD, PhD, Washington University

Background: T-cell malignancies are associated with frequent relapse and high morbidity in children and adults, partly due to the lack of effective or targeted treatment options. CAR (Chimeric Antigen Receptor) T-Cell Therapy is an immune therapy to engineer normal T-Cells so they can specifically recognize and kill cancer cells. Tumor-specific recognition by CAR-T cells is achieved through the binding of CAR-T cells to the epitopes on the specific target antigen of tumor cells. The target antigen we are focused on in our research is CD2, which is widely expressed on the cell surface of T-Cell malignancies. **Objective:** CAR T-Cells express both the CAR receptor that targets the CD2 antigen and the CD2 antigen itself on their surfaces, which causes fratricide. Traditionally, to avoid fratricide, CRISPR/Cas9 technology is used to knock out the CD2 protein on the CAR T-Cell's surface; however, due to the critical role of CD2 in CAR T-Cell function, deletion of CD2 resulted in reduced CAR-T cell functions. The solution to these issues is instead of knocking out CD2 from the reprogrammed CAR T-Cells, we will avoid fratricide and maintain normal CD2 function through epitope editing. The goal of this project is to identify the epitopes that CAR-T uses to bind to CD2. **Methods:** The initial step is to construct a mutagenesis library for CD2. Next, we will express this library in 293 Cells, which are CD2 negative, and perform flow cytometry to detect CD2-specific binding. Using this technique, we can detect which cells have low or negative CD2 surface expression. After detecting the negative cells, we will sort out the CD2 negative cells so that we can harvest, and DNA sequence them. We will use DNA sequencing to identify the key amino acid that contributes to the CD2 binding. Once we identify the key amino acid, we will evaluate its importance to CD2 function. And CRISPR/Cas9 mediated epitope editing will be performed to generate CD2 CAR T-cells that have functional CD2 without fratricide. **Results and Conclusion:** Preliminary results show that the mutagenesis library will be effective; however, we are still waiting to synthesize the library.

Serena Florez Marques | University of Puerto Rico at Rio Piedras
RADIANCE Scholar

Mentor: Kristen Sanfilippo, MD, MPHS

Survival Outcomes in Patients with Intermediate-Risk Pulmonary Embolism Treated with Low Molecular Weight Heparin or Unfractionated Heparin, Time to Start of Anticoagulant Therapy

Authors: Serena Flórez Marqués, University of Puerto Rico Rio Piedras; Kelsey Bria MD, Washington University; Brian Gage MD, MSc, Washington University; Nathan Droz MD, Washington University; Kristen Sanfilippo MD, MPHS, Washington University

Background: Patients with intermediate-risk pulmonary embolism (PE) have a high risk of 30- day mortality. Therapeutic unfractionated heparin (UFH) defined by activated partial thromboplastin time (aPTT) within 24 hours of PE diagnosis is associated with improved 30- day survival versus UFH + therapeutic aPTT after 24 hours. Early intervention in ischemic stroke and ST-elevation myocardial infarction, 120 and 90 minutes respectively, is associated with improved 30-day survival. **Objective**: In this study, we aimed to assess the association between PE diagnosis to anticoagulant (AC) start time and 30-day mortality in patients with intermediate-risk PE treated with unfractionated or low-molecular-weight heparin. **Methods:** Retrospective cohort study of 135 patients with intermediate -low and intermediate- risk PE in the PERT database at Barnes Jewish Hospital. Using logistic regression, we assessed the association between 30-day mortality and AC start time while adjusting for potential confounders. Similarly, we assessed the association of AC start time and the composite of recurrent VTE within 30-days and discharge on oxygen. **Results:** Preliminary results show 30-day mortality of 6%. These 8 patients who died received AC on an average of 9.01 hours compared with the 127 patients who survived had an average of 4.97hours with a difference of 4.03 hours. Additional abstraction and further analysis are underway. **Conclusion:** In preliminary, unadjusted comparison, the average of patients with intermediate- risk PE that started treatment later had a 6% 30-day all-cause mortality compared with those that survived. Future directions include multivariable adjusted analyses and analyses of secondary outcomes.

Amaris Hairston | University of Missouri School of Medicine
RADIANCE Scholar

Mentors: Mark Huffman, MD, MPH; Angela Brown, MD; Anubha Agarwal, MD, MS and Justin Chen, MD, MPHE

Formative Research to Implement a Polypill for Patients with Heart Failure with Reduced Ejection Fraction: Results from an Explanatory Sequential Mixed Methods Study

Authors: Amaris Hairston, University of Missouri School of Medicine; Justin Chen, MD, Washington University; Adam Hively, MPH, Washington University; Anubha Agarwal, MD, MSc, Washington University; Mark Huffman, MD, MSc, Washington University

Background: Guideline directed medical therapy (renin angiotensin system blockers, β-blockers, mineralocorticoid receptor antagonists, and sodium glucose co-transporter 2 inhibitors) substantially reduces the risk of morbidity and mortality for patients with HFrEF. However, there is widespread underutilization of GDMT for HFrEF patients. A polypill that combines multiple drug classes into a single pill may bridge this implementation gap. **Objective**: We aim to identify barriers and facilitators for implementation of a polypill for patients with heart failure with reduced ejection fraction (HFrEF) in St. Louis. **Methods**: This explanatory, sequential mixed methods study is organized using the Implementation Research Logic Model. We administered stakeholder surveys and conducted in-depth interviews of healthcare providers and patients with HFrEF at Barnes Jewish Hospital in St. Louis from April 2023 - August 2023. Qualitative interview data were transcribed, analyzed and coded using a thematic, framework approach. **Results**: To date, we have recruited 8 providers (mean age = 45 years, 38% female) and 5 patients with HFrEF (mean age = 61 years, 40% female). Barriers included low baseline levels of medication adherence, polypharmacy, potential out-of-pocket costs of polypills and limited titration options. Facilitators included the relative advantage of a polypill due to a reduction in the number of pills taken and preference of a HFrEF polypill for patients on stable doses of GDMT. **Conclusion**: This formative study shows that a HFrEF polypill may be acceptable. Important barriers need to be addressed prior to implementation, including flexible dosing regimens and financing strategies to reduce out-of-pocket costs.

Olivia Kim | Washington University
Little Medical School Scholar

Mentor: Kelly Harris, PhD, CCC-SLP

Air Pollution, Asthma, and Educational Outcomes as a Reflection of Systemic Racism in St. Louis

Authors: Olivia Kim, Washington University; Ahmed Ebada, University of Missouri; Aakarsh Rai, Washington University, Kelly Harris, PhD, CCC-SLP, Washington University

Background: A chronic illness which is highly affected by environmental factors such as air pollution, asthma is also a leading cause of student absenteeism and poses a threat to academic development. Affecting 7.7 percent of children, asthma is particularly prevalent among low-income minoritized youth in urban areas. In St. Louis, stark racial and socioeconomic inequalities exist along a geographic continuum because of the city's historical practices of segregation and redlining, making it a compelling location to assess the relationships between environmental risk, childhood asthma rates, academic outcomes, and socio-demographic characteristics. **Objective:** This study investigates associations between fine particle matter (PM 2.5) exposure, pediatric asthma, school attendance, third grade Missouri Assessment Program (MAP) scores, as they relate to socioeconomic and racial demography. **Methods:** This is a geospatial retrospective regional cross-sectional study, using geospatial analysis to bring together publicly available datasets to visualize and analyze their relationships. **Results**: Findings are situated in an understanding of how systemic racism has disproportionately exposed specific populations to increased levels of risk. Results revealed significant PM2.5 emissions and ambient PM2.5 concentrations in St. Louis City. Results further showed statistically significant correlations between higher asthma rates and poorer academic outcomes in predominantly low-income minority areas with high levels of PM2.5 exposure. **Conclusions:** This study demonstrates differential environmental, health, and academic outcomes that disadvantage low-income minoritized youth, illustrating a case of environmental injustice perpetuating health.

Ashley Lugo Huerta | Washington University
RADIANCE Scholar

Mentor: Laura Graves Schuettpelz, MD

CD53 Expression in the Eu-Myc Mice Model

Authors: Ashley M. Lugo Huerta, Washington University; Mousumi Chakraborty, PhD, Calcutta University; Laura G. Schuettpelz, MD, PhD, Washington University

Background: CD53 is a member of the tetraspanin family of transmembrane proteins; it is also a transcriptional target of EBF1, a critical transcription factor in early B-cell development. Previous research shows that CD53 expression is unregulated in B-cell malignancies such as B-cell lymphomas and leukemias. Although the role of CD53 expression in the development of these B-cell malignancies is still not well understood. **Objective:** The objective of this research is o study the surface CD53 expression levels in the circulating B-cells in Eu-Myc mouse model of B lineage leukemias and lymphomas and relate them to the development of malignancy. **Methods:** We used two 12 week old WT and Eu -Myc mice for the study. To obtain the peripheral blood, we performed a retro-orbital bleeding procedure. We then proceeded to lyse the red blood cells and stain them with anti-mouse B220+ antibody and the anti-mouse CD53 antibody for flow cytometry. **Results:** Using the flow cytometry data, we separated the peripheral blood B-cell population, and the CD53 expression levels in that population were determined. We observed in an increase in peripheral blood B-cell CD53 expression in the Eu-Myc mouse compared to the WT mouse. **Conclusions:** Our finding allow us to draw the conclusion that elevated CD53 expression in peripheral blood B-cells is associated with the development of lymphoma. With this information, we have been able to develop new questions on the effects CD53 expression would have on the development of lymphoma if it were inhibited.

Evelyn Lukanen| Biola University
RADIANCE Scholar

Mentor: Allison King, MD, MPH, PhD

Understanding the Experience of Caregivers of Children with Sickle Cell Disease

Authors: Evelyn Lukanen, Biola University; Halima Bello-Manga, MBBS, MPH, Barau Dikko Teaching Hospital - Kaduna State University; Allison King, MD, MPH, PhD, Washington University

Background: Sickle cell disease (SCD) is an inherited red blood cell disorder affecting 50 million people worldwide and 4-6 million individuals in Nigeria. Individuals with SCD experience complications including acute vaso-occlusion episodes, stroke, and other end-organ damage. Children with SCD require considerable support from caregivers, leading to challenges in caregivers' social, physical, and psychological aspects of quality of life. These stressors may impact the caregivers' ability to nurture the children's development. **Objective**: To further understand lived experiences, challenges, and assistance to caregivers of children five years and above with SCD in Kaduna, Nigeria. Interview themes will inform the development of interventions to support caregivers and their ability to support the health and development of children aged 0-5. **Methods**: A qualitative descriptive approach gathering data on around 10-15 caregiver experiences through interviews. Questions address themes from the Exploration, Preparation, Implementation, Sustainment (EPIS) implementation science framework. De-identified interview transcripts are coded by the Washington University research team using the software program NVivo. **Results**: Ten caregivers were interviewed, and the identified themes: using faith as coping, inadequate genotyping, parental shame, and financial barriers present hardship negatively impacting caregivers' quality of life, and necessitates intervention in Kaduna. Responses expose mistrust toward healthcare facilities due to previous experiences. Data shows caregivers voicing needs for financial, networking, and informational support. The goal is to address these themes to reduce caregiver stressors and improve pediatric patient outcomes. **Conclusions**: Results from the interviews inform content development for a parental education support program. We intend to guide caregivers in navigating support and resources to reduce stress, improve personal quality of life, and enhance patient well-being.

Joshua Nelson | Southeast Missouri State University
RADIANCE Scholar

Mentors: Abhinav Diwan, MD and Xiucui Ma, PhD

Understanding Lysosomal Nutrient Sensing through C. Elegans

Authors: Joshua Nelson, Southeast Missouri State University; John Murphy, PhD, Washington University; Abhinav Diwan, MD, Washington University School of Medicine

Background: The Center for Cardiovascular Research at Washington University School of Medicine has a primary focus in research on disorders of the heart. The Abhinav Diwan lab's interest is in cardiometabolic disorders exacerbated by obesity and diabetes which are dieses of overnutrition. **Objective:** The objective of our studies is to determine how deleterious variants of T08A11.1 affect the ability to recover from starvation. We will investigate mTOR activity during starvation and refeeding by looking at the location of hlh-30 in a worm strain that has a mutation in DEPDC5 which is unable to recover from a fasted state upon refeeding. **Methods:** Worms of two different strains were crossed to create a new strain with a fluorescently labeled hlh-30 protein in a specific mutant background. Male mutant [T08A11.1(am346) III] crossed with hermaphrodite worm with fluorescently tagged hlh-30 protein [hlh-30(syb1452) IV]. The worms would then be run through a PCR to confirm we obtained a sample with the desired syb1452 allele. Once homozygous samples of syb1452 were found they were sent off for sequencing in order to see if they contained am346 (since am346 is a single base pair change and primers couldn't be used). **Results:** PCRs on our crossed worms depicted that 11 of the 34 samples of worms were homozygous for the syb1452 alleles 18 of them were heterozygous for syb1452 and WT allele, and 5 of them were homozygous for WT allele. Unfortunately all 11 of our homozygous samples for syb1452 sent for DNA sequencing did not contain the am346 allele. **Conclusion:** In conclusion, our results show that we have successfully created a worm that contains alleles with syb1452 but not the alleles of am346.

Justin O'Hagan| University College Dublin
University College Dublin Scholar

Mentor: Sara Malone, LCSW, PhD

Evaluating the Sustainability of the Early Warning Score Intervention in Global Pediatric Oncology Settings

Authors: Justin O'Hagan, University College Dublin; Luke Zabotka, BA, Washington University; Bobbi Carothers, PhD, Washington University; Asya Agulnik, MD, Washington University; Sara Malone, PhD, LCSW, Washington University

Background: This study evaluates hospital unit communication quality and sustainability capacity of the Pediatric Early Warning Score system (PEWS) within resource-variable hospitals. **Objective:** We explore the relationship between communication, measured by the Critical Communication Survey (CritCom), and PEWS's sustainability capacity, measured by the Clinical Sustainability Assessment Tool (CSAT), including the influence of individual factors on this relationship. **Methods:** A cross-sectional survey was implemented across 12 hospitals employing PEWS. The data was collected from 738 respondents, 306 for CSAT and 432 for CritCom. Spearman Rank Correlation, Mann Whitney, and Kruskal-Wallis tests were used for statistical analysis. **Results:** Participants included 376 nurses and 302 physicians, with average CSAT and CritCom scores ranging from 3.56 to 4.79 (scale 1-5). Total CSAT and CritCom scores showed moderate correlation (ρ =0.36, p=0.2463). "Empowerment" in CritCom and "Workflow Integration" in CSAT correlated positively to their opposing surveys, albeit statistically insignificant due to sample size. Questions on EVAT's quality care importance ($\rho = 0.914$, $p < 0.001$) and its supporting scientific evidence strength ($\rho = 0.837$, $p < 0.001$) exhibited strong positive correlation with CSAT. **Conclusion:** Patterns between communication and sustainability were found, with CritCom's "Empowerment" and CSAT's "Workflow Integration" being positively linked. The belief in the importance of PEWS for quality care and strength of its supporting scientific evidence showed strong correlation with sustainability. Future analysis aims to uncover further trends within the data and replicate this assessment with larger samples.

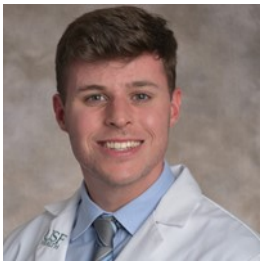
Celeste Sangster | University of North Carolina at Chapel Hill
Cora Faith Walker Scholar

Mentors: Abigail Barker, PhD and Timothy McBride, PhD, MS

Implementing Medicaid Reimbursement for Home Visiting Models in Missouri

Authors: Celeste Sangster, University of North Carolina at Chapel Hill; Abigail Barker, PhD, Washington University

Background: Home visiting is a multi-disciplinary approach to prenatal and postpartum care that is effective in improving health outcomes for mothers and babies. Missouri has a history of poor maternal health and one of the highest maternal death rates in the U.S. **Objectives:** This project examines the outcomes of home-visiting programs across the U.S., identifies considerations for implementing Medicaid reimbursement for home-visiting programs, summarizes reimbursement strategies in other states, and presents implementation recommendations for Missouri Medicaid. **Methods:** Methods include: a literature review on the topics of home visiting effectiveness, Medicaid reimbursement, and different states' approaches to Medicaid-reimbursed home visiting; a review of recordings of two listening sessions with home-visiting agencies and workers; and, a series of key informant interviews with experts in home visiting and Medicaid, who gave insight into the process of implementing Medicaid reimbursement and details to consider when changing Medicaid policy. **Results**: The most common approach to Medicaid-reimbursed home visiting is under the Targeted Case Management benefit using a fee-for-service payment system. States have the flexibility to choose which home visiting services and models to reimburse, their client eligibility, and provider qualifications. States must also consider how Medicaid funds will be braided with current funding streams to maximize the impact of Medicaid reimbursement. **Conclusion:** Missouri has the freedom to construct its own approach to Medicaid-reimbursed home visiting given their current Medicaid billing and reimbursement system, health priorities, population demographics, home visiting landscape, and intended outcomes. Policy recommendations for Missouri will be constructed with this context in mind.



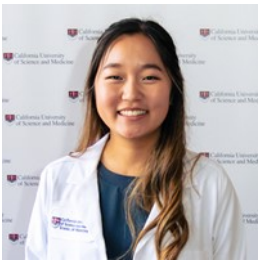
William Sayre| University of South Florida Health Morsani College of Medicine
SPRIGHT Scholar

Mentor: Lori Holtz, MD, MSPH

Determining the Origin of the Infant Virome and Microbiome Through Postnatal Environmental Exposures

Authors: William Sayre, USF Morsani College of Medicine; Mary Boyle, RN, MSN, CCRC, Washington University; Michelle Mut, BA, Washington University; Lauren Walsh, MPH, Washington University; Stephanie Fritz, MD, MSCI, Washington University; Lori R. Holtz, MD, MSPH, Washington University

Background: The community of bacteria and viruses residing in our body (microbiome and virome), impact the health of every organ system. They play a vital role in our metabolic processes, immune system, and particular microbes have been associated with a variety of diseases. The environmental sources of the virome and microbiome acquisition are unknown. **Objective:** While the overall study goal is defining the source of the infant gut virome and microbiome by determining the microorganisms present in the postnatal environment, including the home, parents, and pets, our immediate aim is determining the bacterial load on household surfaces before the birth of the baby and 6 months post-delivery. **Methods:** Healthy first-time pregnant mothers and their household contacts are enrolled. Study visits include swabbing households before and after birth, totaling six home visits over 12 months. Surface swabs of high-contact surfaces, skin, breast milk, water samples, dust, and stool samples from each household member are collected each visit, along with survey data on cleaning behavior and activity. We will perform 16s qPCR on four households to determine bacterial load on home surfaces. **Results:** Over 280 swabs were collected from four households. Two households either have a dog or cat, and two do not have pets. Across all four participants, survey data indicated that overall home cleanliness increased from before the infant's arrival to 6 months after birth. Conclusions**:** Analysis is ongoing, but we anticipate that household bacterial load will be lower after the arrival of the infant due to a demonstrated increase in cleaning activity.



Caitlin Shin | California University of Science of Medicine
SPRIGHT Scholar

Mentor: Michelle Silver, PhD, ScM

Creating and Operating Research Advisory Board in International Collaborations

Authors: Caitlin Shin, MA, BS; Kayla Wallace, BS, Washington University; Vikram Murugam, BA, Washington University; Michelle Silver, PhD, MSc, Washington University

Background: In Zambia, cervical cancer remains the leading cause of cancer-related deaths, despite the proven effectiveness of the HPV vaccine in preventing up to 90% of cases when administered before sexual activity. The REACH project aims to increase HPV vaccination rates among Zambian adolescents, including those living with HIV. As part of the project, a research advisory board (RAB) has been established to gather valuable insights on the country's health infrastructure and consult on implementing HPV vaccination campaigns. However, there is currently a lack of process-based literature outlining the necessary steps and considerations for convening and operating RABs across international borders. **Objective:** Document the steps and considerations of establishing and convening RABs in the REACH project. **Methods:** Weekly meetings among the REACH team were established to develop the RAB. When creating the RAB, diversity of backgrounds and experiences was heavily emphasized in its members. Zambian team members called prospective members and emailed invitations. To prepare, an informational letter and memorandum of understanding template was developed to inform members of the project, establish expectations, and facilitate communication. **Results:** Potential barriers to a successful RAB include different modes of communication between the US and Zambian members and cultural hierarchies based on age and status. It is expected that the facilitators will include making sure that all perspectives are brought to the table through creation of a memorandum of understanding and instilling time limits during the meeting. **Conclusions:** The first RAB meeting will be July 24, 2023, after which a process evaluation will occur.

Bijay Shrestha | Southern Illinois University Edwardsville
Amelia Jane Brown Johnson Memorial Award Scholar

Mentor: Amy McQueen, PhD

Risk of Depression in a Medicaid Sample with Type 2 Diabetes

Authors: Bijay K. Shrestha, MD, Southern Illinois University Edwardsville; David A. Von Nordheim, MA, Washington University; Amy McQueen, PhD, Washington University

Background and Objective: About one in five adults with type 2 diabetes has depression, which can accelerate the development of diabetes complications due to poor self-management. Our study examined factors associated with the risk of depression among adult Medicaid beneficiaries with type 2 diabetes. **Methods:** Secondary data analyses were conducted of an ongoing social needs intervention trial involving participants (N = 473) with Medicaid claims data indicating a diagnosis of type 2 diabetes who had at least one HbA1c test performed within 120 days prior to recruitment, and self-reported unmet social needs (e.g., housing, food, transportation). A baseline survey assessed the outcome using the Patient Health Questionnaire-2 (PHQ-2); scores >3 indicate a higher risk for depression. Baseline correlates examined included: social needs, psychosocial factors, and health factors. Descriptive statistics and logistic regression analyses were used to identify significant covariates associated with the risk of depression. **Results**: Bivariate analyses revealed that unemployment, social needs, comorbidity burden, smoking status, diabetes oral medication use, stress, diabetes distress, executive function problems, and poor self-rated health were positively associated with greater odds of depression risk. Annual income ≥ $20,000, greater health literacy, exercise, sleep quality, diabetes self-efficacy, social support, and future time orientation were negatively associated with depression risk. In the multivariable logistic regression model, use of oral diabetes medication, stress, diabetes distress and executive function problems remained significant covariates. **Conclusions:** Results show that multiple factors had independent associations with depression risk, and not all can be addressed by diabetes self-management alone.

Juan Suarez | Ponce Health Sciences University
RADIANCE Scholar

Mentor: Kory Lavine, MD, PhD

Clonal Hematopoiesis in Heart Transplant Recipients

Authors: Juan F. Suarez, MS, Ponce Health Sciences University; Lakshmi Gokanapudy-Hahn, MD, Washington University; Kory Lavine, MD, PhD, Washington University

Background: Clonal Hematopoiesis (CH) occurs when a hematopoietic stem cell obtains a somatic mutation and it proceeds to divide, creating a genetically different population of cells which will have an advantage over other progenitor cells. CH is historically associated as an independent risk factor for negative cardiovascular health outcomes such as heart failure, atherosclerotic cardiovascular disease, and thrombosis. Contrary to this, recent mouse models with CH mutations (TET2, ASXL1, etc.) exhibit less episodes of rejection and generally positive post-transplant outcomes. **Objectives:** This investigation aims to assess if this phenomenon found in the mice models translates to people. **Methods:** Samples of 50 heart transplant recipients were ran through a CH panel along with Whole Exome Sequencing (WES) 75x coverage. These results will later be analyzed through RStudio in order to single out those patients with the desired Variant Allele Fraction (VAF). The mutation analysis data is then cross-referenced with patient history of possible transplant rejection outcomes. **Results:** Analysis on the collected data is ongoing and results are anticipated sometime in August 2023. **Conclusions:** Analysis on the collected data is ongoing and final conclusions are anticipated sometime in August 2023.

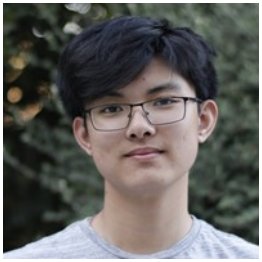
Alexandria Swanson | Loyola University Chicago
Gold Family Summer Research Scholar

Mentor: Christina Stallings, PhD

The Role of Zinc-Metal Homeostasis in m. Smegmatis

Authors: Alexandria N. Swanson, Loyola University Chicago; Erin Wang, Washington University; Christina Stallings, PhD, Washington University

Background: Metal homeostasis is a system that promotes viability in bacteria. In particular, changes to zinc uptake significantly alter bacteria growth. Despite this being a biological process commonly studied, the role of zinc in the Mycobacterium family remains incomplete. However, modification of metal homeostasis is a potential way to regulate growth of pathogenic bacterium; such as m. Tuberculosis. **Objective/Methods:** Due to its nonpathogenic nature to, m. Smegmatis was used to conduct metal homeostasis experiments. First, Microplate Alamar Blue Assays (MABAs) and Zones of Inhibition Assays (ZOIs) were performed in conjunction with ZD9379. ZD is a compound that targets metal regulation systems. Tests were done with various types of enriched media and different ZD analogs were tested. Second, recombinant DNA techniques were used to delete the FurB gene. FurB has been identified as a gene heavily involved in Zinc regulation. **Results:** Data collected from MABAs and ZOIs show differences in bacteria growth depending on the media and analogs used. The MABAs, reveal the IC50 (minimum concentration of drug needed to inhibit growth by 50%) of each analog in various types of media. Zinc enriched media increased the IC50 threefold. The ZOIs provide a assessment of the most effective analog, pointing to analog 210 as the strongest ZD compound. **Conclusions/Future Direction:** The MABA and ZOI data will be used to receive more grant funding, to fuel more research on the ZD compound in conjunction with Zinc regulation. There are no results for FurB gene deletion because recombination is still underway.



Kyle Tran | Washington University
RADIANCE Scholar

Mentor: Stephen Oh, MD, PhD

Analysis of Galectin-1 and Other Inflammatory Markers on Myeloproliferative Neoplasms

Authors: Kyle Tran, Washington University; Fan He, MBBS, PhD, Washington University; Stephen Oh, MD, PhD, Washington University

Background: Myeloproliferative Neoplasms (MPNs) are a group of hematopoietic disorders that result in the overproduction of red blood cells, white blood cells, or platelets. Galectin-1 is a beta-galactoside binding protein that is associated with the inflammatory process in conditions such as AIDS, diabetes, and MPNs. The abnormal expression of galectin-1 has been linked to mediate cancer development and progression, however the exact role of galectin-1 in MPNs is still being explored. **Objective:** As the role of galectin-1 in MPNs is not well known, this study aims to evaluate the effects of pathological MPN mutations on the expression of galectin-1 and explore the effects of galectin-1 suppression or supplementation on inflammation. **Methods:** A series of RNA extractions, Q-PCR assays, and immunofluorescence assays (IF) were used to explore the relationships between pathological MPN mutations, inflammation, and galectin-1. **Results:** Data from immunofluorescence assays show raised levels of LGALS1 mRNA in cell lines with pathogenic MPN mutations (MPL W515L) compared to the parental cell line (MPL). Results from RNA extraction and q-PCR show an increase in inflammatory cytokine markers (CXCL8, CXCL10) with the supplementation of recombinant galectin-1 in U937 monocyte cell lines. Likewise, qPCR indicates a reduction in inflammatory cytokines in the presence of OTX008, a galectin-1 inhibitor, in U937 cells. Recent trials of OTX008 in wild-type mice show no signs of acute toxicity. **Conclusion:** qPCR and IF data indicate that galectin-1 abundance is associated with pathogenic MPN mutations and inflammation. There is still work to be done to confirm that pathogenic MPN mutations cause higher levels of galectin-1.

Michael Vega | Saint Louis University
RADIANCE Scholar

Mentor: Karen Joynt Maddox, MD, MPH

Analyzing Allocation Patterns of Medicaid-Funded Mental Health Spending in Missouri: A Comparative Study of Pre- and Post-COVID Periods

Authors: Michael Vega, MPH, CPH, Saint Louis University; Karen Joynt Maddox, MD, MPH, Washington University; Tim McBride, PhD, Washington University; Abigail Barker, PhD, Washington University

Background: Medicaid significantly funds mental health services in Missouri. Between 2019 and 2022, Missouri's Medicaid enrollment surged by almost 50%, driven by expansion and the pandemic's public health emergency, preventing Medicaid disenrollment. **Objective:** This study investigates Medicaid-funded mental health spending for Certified Community Behavioral Health Clinics (CCBHCs) among Missouri Medicaid recipients from 2019 to 2022. It seeks to identify evidence of crowding out due to capacity constraints at CCBHCs. **Methods:** Medicaid spending on CCBHCs was analyzed using MO HealthNet Monthly Management Reports for June 2019 and June 2022. Enrollment, total spending, and per-capita spending were compared across six groups: individuals over 65, individuals with blindness, individuals with disabilities, custodial parents, children, and individuals eligible through adult expansion. **Results:** From 2019 to 2022, CCHBCs experienced a 25% increase in Medicaid beneficiaries receiving mental health care, with total adjusted costs rising by 12%. However, adjusted costs per recipient decreased by 10.4%. Subgroup analysis revealed significant growth in the adult expansion group, along with growth in children, individuals with disabilities, and those over 65. While adjusted costs per recipient were relatively similar across groups and time, spending changes varied. Costs per recipient decreased for individuals with disabilities, custodial parents, and children. **Conclusions:** The study shows varying changes in spending and recipient numbers across different population groups. Per-capita spending decreased in certain groups, indicating potential crowding out at CCHBCs as the adult expansion population sought services. Further analysis is necessary to understand the impact on mental health service availability and accessibility in Missouri.

Natasha Zimmerman | Washington University
Mark and Cathleen Reifsteck Summer Research Scholar

Mentor: Kia Davis, ScD, MPH

Creating a Workforce Development Intervention: A Community-Engaged Approach to Mitigating Health Disparities

Authors: Natasha Zimmermann, Washington University; Velva Hollimon, MSW, LCSW, Regional Health Commission; Riisa Rawlins, MSW, University of Missouri – St. Louis & Regional Health Commission; Kia L. Davis, ScD, MPH, Washington University

Background: This community-engaged project focuses on addressing economic disparities in low-income neighborhoods impacted by residential segregation, lack of diversity across the healthcare workforce, and high rates of physician burnout with the ultimate goal of reducing health disparities. The current objective is to understand the barriers and facilitators to implement a workforce development program that connects community members to high-paying clinical support roles. **Methods:** Literature reviews, theory, and input from the Regional Health Commission (RHC) informed development of a semi-structured interview guide, protocol, and debrief guide. **Results:** Preliminary results show that clinical support roles pay a living wage, do not require a four-year degree, and thus are one promising mechanism for a community-based intervention. Community members could pursue these roles, thereby addressing economic disparities and increasing healthcare diversity. Furthermore, clinical support staff are already being used in some anti-racism and physician burnout reduction interventions, both with positive results. The interview guide was developed using constructs from the Consolidated Framework for Implementation Research, including Tension for Change, Engaging, Assessing Needs, Available Resources, and Implementation Facilitators. **Conclusion:** This community workforce intervention provides promising potential to reduce disparities. Next steps include conducting qualitative interviews with the Director of Health for the City of St. Louis and the Director of the Public Health Department to inform the interview strategy and additional stakeholders to engage. Ultimately, through collaboration with the RHC and community members, the aim is to adapt and implement an evidence-based intervention for a St. Louis context to mitigate health disparities.

Acknowledgements

We would like to thank the mentors for their guidance and support of the students in the 2023 Institute for Public Health Summer Research Program — Public and Global Health and RADIANCE Tracks.

We are very grateful to the staff at the Institute for Public Health for their tremendous logistical support, including Emily Hickner, events and communications specialist, and Kim Furlow, communications manager.

Funders

The program is supported by the Institute for Public Health; Global Health Center; Children's Discovery Institute; National Heart, Lung and Blood Institute; University College Dublin; and the following donors: Cora Faith Walker Health Equity Scholarship Fund, Cynthia and Rich Schilsky, Mark and Janice Gold, Mason Family Foundation, Mark and Cathleen Reifsteck, Amelia Jane Brown Memorial.