HRSA PRIME PROJECTS

In 2020, Indiana University School of Medicine was awarded a $12.1 million grant from the Health Resources and Services Administrations (HRSA) to create the Primary Care Reaffirmation for Indiana Medical Education (PRIME) program. The following projects are a representation of the school's multi-year initiative to investigate medical care for underserved communities, innovation in primary care, and the impact of racism on health equity.

Social Determinants of Health Associated with Inpatient Admissions for Congestive Heart Failure, Diabetes, Chronic Obstructive Pulmonary Disease, and Asthma

John Quentin Deckbar, Kelly DeMichael, Wael Gad, Baraka Muvuka, Jonathan Guerrero; IUSM-NW

Introduction: The CDC and American Lung Association estimate that congestive heart failure (CHF), diabetes, chronic obstructive pulmonary disorder (COPD), and asthma (COPD/asthma) cost Americans $30.7 billion, $327 billion, and $50 billion respectively each year. They account for most inpatient readmissions at St. Mary Medical Center (SMMC), an urban hospital in Northwest Indiana. There is need for further research on the social, behavioral, and demographic determinants associated with these conditions. This study examined the social, behavioral, and demographic determinants associated with inpatient admission for CHF, diabetes, COPD/asthma in SMMC's service area.

Methods: This retrospective study was part of a multi-phased Community-Based Participatory Research partnership between SMMC and Indiana University School of Medicine Northwest. SMMC implemented a pilot screening and referral program to assess social determinants of health in their service area as part of their Hospital Readmission Reduction Program. This study included data from 10,953 inpatient admissions between January 2021 to March 2023, majority of whom were transferred from the emergency department. Data analysis consisted of univariate, bivariate (Chi-square), and multivariate (binary logistic regression) analysis in SPSS 29.0.

Results: Bivariate analysis revealed a statistically significant association between CHF and smoking, age, insurance type, and income. Diabetes was significantly associated with smoking, smokeless tobacco use, age group, race, income, and sex. COPD/asthma was significantly associated with smoking, age group, transportation needs, stress, insurance, ethnicity, and sex. Multivariate analysis found the following significant associations: age group with both CHF ($p<0.001$) and diabetes ($p<0.001$), former smoking with both CHF ($p = 0.007$) and COPD/asthma ($p = 0.049$), current smoking with COPD/asthma ($p = 0.016$), and sex with diabetes ($p <0.001$).

Conclusions: These findings indicate significant associations between multiple socio-behavioral factors and admission for CHF, diabetes, COPD/asthma. Multi-risk-factor interventions may address these interactions and contribute to reducing readmission.

Teaching Residents Interpretation Best Practices

Katherine Wade, MD – OB/GYN Resident, PGY3
Kelsey Pape, MD – MFM Fellow, PGY5
Jenifer Akinduro, MD – OB/GYN Resident, PGY2
Nadia Gidia, MD – OB/GYN Resident, PGY4
Nicole Scott, MD – OB/GYN Residency Program Director
Jasmine Johnson, MD – OB/GYN Co-Director of Diversity, Equity, Inclusion and Justice
Anthony Shanks, MD, MEd – OB/GYN Vice Chair of Education

Purpose: To determine if a curriculum on cultural competency and interpretation best practices improves resident knowledge and performance when working with interpreters.

Background: Working with medical interpreters is vital for communication with Limited English Proficiency (LEP) patients, but formal training is lacking. Additionally, improving cultural competency – the ability to understand and interact effectively with people from different cultures – may be key to improving equity in healthcare. By combining education on cultural competency and best practices for working with medical interpreters, we aim to better equip residents to provide compassionate, equitable, and effective patient care.

Methods: A literature search was conducted to develop best practices and a lecture-based curriculum was then created in partnership with the Immigrant Welcome Center of Indianapolis, IN. The Immigrant Welcome Center is a local nonprofit committed to serving our diverse population of immigrants in Indianapolis. The sessions were "Navigating Cultural Bias," "Haitian Culture," and "Best Practices for Using Interpreter Services." These sessions were presented during weekly protected didactic time for faculty and residents.

Results: All forty OB/GYN residents participated in the didactic sessions and completed pre and post training surveys. There was a statistically significant increases in mean score in understanding interpretation best practices (39.2 to 46.8, p < 0.01). Additionally, there was a significant increase in understanding cultural competency (44.2 to 46.8, p 0.03).

Discussion: Resident understanding of cultural competency and interpretation best practices significantly increased. This demonstrated the importance of formal training and benefit of connection to community resources. Future study can focus on education of medical students transitioning to residency and impact to patient care.

Group Prenatal Care Models, Experiences, and Outcomes: An Integrative Review

Michelle LaTurner, Baraka Muvuka; IUSM-NW

Background: The United States (US) has the highest maternal and infant mortality rates among developed countries. Indiana has the third highest maternal mortality rate in the US. Group Prenatal Care (GPC) was piloted in the early 1990s to improve perinatal experiences and outcomes through enhanced social support and education. Further research is needed as GPC is increasingly implemented in diverse contexts. This study critically synthesized current evidence on GPC models, experiences, and perinatal outcomes in the US to inform a Community Based Participatory Research Partnership between Indiana University School of Medicine-Northwest and Community HealthNet.

Methods: This integrative review utilized PRISMA guidelines to conduct a systematic search in Embase, CINAHL, and PubMed. Two researchers screened articles for inclusion criteria and quality. Studies were included if they were empirical research or meta-analyses conducted in the US and published in English between January 2013 and June 2023. Data synthesis utilized a qualitative analytical approach that sorted findings thematically.

Results: We retained 98 articles, including 8 meta-analyses, 4 randomized trials, 3 cluster randomized trials, 3 quasi-experimental studies, 4 prospective cohort studies, 12 observational studies, 19 qualitative studies, and 46 retrospective cohort studies. There were several GPC

models adapted to high-risk groups such as persons living with HIV, gestational diabetes, pre-existing or pregnancy-induced hypertension, and substance use disorders. GPC was associated with decreased preterm births among low income and minority women, with more significant reductions when attending 5 or more GPC sessions. GPC improved psychosocial outcomes including satisfaction with care, empowerment, and social connectedness. It was also associated with increased breastfeeding rates in adolescents and African Americans, and increased contraception use among adolescents.

Conclusions: Engaging in GPC may have benefits for high-risk pregnancies, adolescents, low-income, and minority populations. More studies are needed to evaluate GPC's impacts on perinatal experiences and outcomes among high-risk women.

Exploring methods of introducing PoCUS practice to rural physicians and evaluating barriers to uptake

Ellen Ireland, James Wilcox, Katheryn Smeltzer, Myanna Cook, Roarke Tollar

This study was designed to pilot best practices for introducing orthopedic/musculoskeletal aspects of point-of-care ultrasound to rural primary care practitioners. We recruited primary care practitioners from six clinics across Indiana with rural or split rural/urban patient populations to participate. Each location was provided with a kit (iPad, Butterfly probe, case, wipes, gel.) They watched a Canvas module with approx. 1 hour of videos, followed by an in person 2-hour training session on selected evaluations of common cardiovascular, respiratory, musculoskeletal and soft tissue disorders developed previously by Dr. Wilcox. Surveys were provided before and after training, and at 6+ months. Ongoing support was provided through offers of remote teleguidance, access to training videos, and a PoCUS themed Project ECHO.

Technology, access to support, and reimbursement/practice issues (e.g. space) proved to be minor concerns. Although interest from participant pool was strong, the major barrier proved to be time. The initial surveys suggested increased comfort with PoCUS among all participants (two had very little experience, two had limited past experience, and two had current OBGYN experience) but ongoing training engagement was difficult to

manage; they were very busy. An unexpected result of this study was observing the issue of rural practitioner understaffing in real time- during the course of this one-year project, two participants shifted from rural to urban practice, and two went on maternity leave. This study was small and qualitative, but it may suggest that one of the motivating factors for learning PoCUS is that it can be considered a skill advancement to improve the odds of getting desired work placement, and also that those practitioners in primary care who have ongoing OBGYN work are more comfortable with learning new applications for the technology.

Geographic Distribution and Associations Between Health Outcomes, Health Behaviors, Social Determinants of Health, and Demographics in an Urban Hospital

Antonio Presutti, Omkar Tamhankar, Emma Love, Sydnye Nosbusch, Jonathan Guerrero, Baraka Muvuka; IUSM-NW

Background: Social determinants of health (SDOH) account for over 50% of health outcomes. As healthcare institutions increasingly implement SDOH screenings, community-based health facilities are well positioned given their service to underserved populations. An urban community hospital in Northwest Indiana was the first acute care hospital to implement comprehensive SDOH screenings and referrals in Indiana using the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE). This study was part of an academic-health system partnership to examine the geographic distribution and relationships between SDOH and adverse health outcomes in urban medically underserved areas.

Methods: This descriptive study analyzed an EPIC™-generated limited dataset with SDOH, demographic, behavioral, and health outcomes data for adult inpatient visits in an urban hospital in Northwest Indiana from January 2021 to June 2022. Descriptive and bivariate analyses (p<0.05) were conducted in SPSS 28.0 while geographic analysis was conducted using ArcGIS Pro version 3.0 and Python 3. This study was exempted by Indiana University Human Research Protection Program (IRB # 14040).

Results: This study included 4370 admissions across 3038 patients from 184 zip codes. Participants were predominantly White (75.7%), older adults (65 ± 24), and publicly insured (76.3%). There were overlapping geographic clusters of adverse social, behavioral, and health outcomes. Circulatory (20%) and digestive (12.4%) conditions were top adverse health outcomes, with highest concentrations in 46307 zip code. Food insecurity, social isolation, and physical inactivity were the predominant social-behavioral concerns, overlapping in 46342 zip code. Tobacco use was significantly associated with most SDOH including insurance type (p<.001), housing risk (p<.001), financial risk (p<.001), unmet transportation (p<.001), and cumulative social risk (p=.012), with the highest prevalence in 46405 zip code.

Conclusions: Understanding relationships between adverse health outcomes, SDOH, and health behaviors while identifying high density areas can inform prioritization, co-development of targeted interventions, and community mobilization.

Virtual Point of Care Ultrasound (POCUS) Training Model for Rural and Global Education

James Wilcox, MD, FAAFP, Indiana University School of Medicine, Assistant Professor of Clinical Family Medicine
Andrea Janota, MPH, Director of Indiana University Purdue University School of Medicine ECHO Center
Kaley Liang MPH, MS Assistant Director, of Indiana University Purdue University School of Medicine ECHO Center
Norelimane Bouzar, BS Program Management Specialist
Robinson (Rob) Ferre MD, FACEP Associate Professor of Emergency Medicine and Director of Indiana University School of Medicine POCUS Initiative

Background: In response to persistent disparities and critical healthcare delivery gaps in rural communities, we developed a Point of Care Ultrasound (POCUS) Extension for Community Health Outcomes (ECHO) program, hosted in partnership with Indiana University (IU) School of Medicine and IU Fairbanks School of Public Health. Rural healthcare clinicians connected with expert mentors in interactive sessions to democratize education, promote POCUS use in remote areas, support enhanced diagnostic accuracy, and ultimately reduce healthcare disparities. The project was initially designed for healthcare professionals in rural Indiana

yet expanded with participation from clinicians across the nation and the globe.

Methods: POCUS ECHO sessions were hosted using Zoom and supported by a "hub team" of subject matter experts (SMEs) who determined the target audience, set the recurring schedule, and co-designed the curriculum. Participants were recruited through professional associations, local marketing campaigns, and word of mouth. The program met twice a month for ninety minutes. Live sessions included evidence-based didactics presented by SMEs and de-identified patient cases presented by learners.

Results: From December 2022 to June 2023 thirteen sessions were hosted, attracting 117 participants. Learners included MDs (74), RNs (8), and students (8) from diverse geographical locations: spanning 28 Indiana counties, multiple states, and participants from Kenya and the United Kingdom. Post-surveys revealed high satisfaction; 98% of the respondents rated the session quality as excellent or good and 91% rated the sessions as meeting their expectations extremely or very well. These results highlight participants' value of the program and their view of the importance of POCUS in patient care.

Conclusions: The POCUS ECHO program successfully addressed rural healthcare education disparities, connecting clinicians locally and globally through interactive Zoom sessions. The initiative attracted participants worldwide, showcasing high satisfaction rates and emphasizing the program's impact on democratizing education, promoting POCUS use, and bridging healthcare delivery gaps.