

2025 Public Health Showcase

Poster Presentation Abstracts

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Abstract Title: The Impact of Adverse Childhood Experiences on COVID-19-related Stress and Mental Health: A Study of Emerging Adults in Kentucky

Student: Botshelo Angoma

Mentor / e-mail: Yang Jiang / yjiang@uky.edu

Abstract: Adverse childhood experiences (ACEs) are defined as disruptive and harmful events that are typically chronic in nature taking place within a child's social environment. Literature suggests ACEs may amplify the impact of trauma experienced during the COVID-19 lockdowns. Enforced confinement may have triggered ACE exposure or painful reminders of past ACE, increasing vulnerability to mental health concerns. We test the hypothesis: The COVID-19 lockdown serves as a predictive factor in shaping the current mental health outcomes of young adults, amplifying the influence of individual ACEs. Survey data was collected from 42 young adults (aged 18-24) from Lexington, Kentucky using a Qualtrics cross-sectional survey. Respondents were surveyed on their ACEs, pandemic-induced stress, and mental health outcomes. Preliminary findings show the overall sample (31.0% male and 64.3% female) reported relatively low scores ($M = 0.83$, $SD = 1.06$) for total ACE burden (score range, 0-7). A linear regression showed that ACEs significantly predicted mean negative emotions impacted by COVID-related stressors, showing a moderate and positive relationship ($\beta = 0.303$, $t(40) = 3.01$, $p = .004$, $R^2 = .165$). Furthermore, ACEs significantly predicted mean post-covid anxiety, showing a weak but positive relationship ($\beta = .138$, $t(40) = 2.209$, $p = .03$, $R^2 = .046$). Results show that exposure to ACE serves as a predictive factor in determining COVID-19-related stressors in emerging adults. Preliminary insights underscore the importance of further research to explore the interplay between ACEs and pandemic-related mental health outcomes, particularly among emerging adults in Kentucky.

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Abstract Title:	Trends in High-Risk Human Papilloma Virus (hrHPV) Positivity by Genotype from 2000-2023
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Student:	Khushi Arora
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Mentor / e-mail:	Dr. Julie Ribes / jaribes@email.uky.edu
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Abstract:	<p>Human Papilloma Virus (HPV) testing has evolved to detect individual high-risk genotypes (hrHPV) associated with cancer, impacting test performance and positivity trends. This retrospective study analyzed hrHPV testing data from the University of Kentucky Clinical Microbiology Lab from 2001 to 2023. Initial testing used the Digene Hybrid Capture II assay until 2019, after which it transitioned to the Roche Cobas 4800 system, allowing for genotype-specific detection of HPV-16, HPV-18, and other hrHPV. Monthly testing volumes and positivity rates were tracked to assess the impact of changing guidelines and expanded screening criteria. Results indicate that while the number of hrHPV tests performed has increased, the overall positivity rate declined from ~30% to ~15%, likely due to broader testing in a lower-risk population. A significant drop in HPV positivity among women under 30 was observed from 2012-2014 (~50% to ~10%), with an increase post-2020 (~21%), possibly linked to increased social interactions following COVID-19. Genotype analysis showed an increase in overall positive cases for HPV-16 and other hrHPV from 2020-2023, but only HPV-16 exhibited a rise in positivity rate, while HPV-18 remained stable. The decline in overall positivity due to more liberal use of the assay establishes a new baseline of ~15% in the general population and ~10% in those women under 30. The findings highlight the impact of evolving testing guidelines and social factors on HPV detection trends.</p>
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Abstract Title: Comparing Cannabis Use Questions in National Surveys by Compiling Cannabis Use Repository

Student: Sophie Ciaverelli

Mentor / e-mail: Anne E. Ray / anne.ray@uky.edu

Abstract: Objective/ Background: The aim of this study was to create a repository of cannabis use measures from national epidemiological surveys, identify key characteristics of the measures, and organize the repository by characteristics. Compiling measures into a single, user-friendly repository can make it easier for individuals who are interested in future cannabis-related measurement and/or use of survey results (e.g., students, researchers, local public health officials) to find the information they need. Methods: Cannabis-specific measures were collected from 5 national surveys and put into a database. Three members of the research team reviewed the database to identify measure characteristics. Once key domains and subdomains were agreed upon, items were individually coded by each team member. The team met to discuss and reconcile any coding discrepancies. Results: Measures were organized within two primary domains: time and behavior. For time, six subdomains were identified: Most Recent, Past Month, Past Year, Lifetime Use, Pregnancy, and Age of Onset. For behavior, six subdomains were identified: Any Use, Frequency, Quantity, Mode of Consumption, Context (Who, How, Where), and Other Cannabis-related Behaviors. Past Month was the most measured timeframe (4 out of 5 surveys). Frequency was the most measured behavior (5 out of 5 surveys). Conclusion: As an undergraduate student, the experience of compiling a measures repository helped us to gain research experience including: searching for information; entering data; and qualitative data analysis. Our next step will be to document details related to accessibility of data from these surveys.

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Abstract Title: Combatting Colorectal Cancer in Butler County, Kentucky

Student: Sophie Ciaverelli

Mentor / e-mail: Paula Arnett / paula.arnett@uky.edu

Abstract: Colorectal cancer, or cancer of the colon and/or rectum is among the leading causes of cancer and cancer death in the United States. There are many risk factors that are modifiable (ex. diet, exercise, smoking) or non-modifiable (ex. genetics) that can influence the occurrence and severity of colorectal cancer. This cancer can be prevented and caught at early stages through screenings such as colonoscopies. Such colonoscopies can identify and remove polyps before they become life-threatening. However, there are still disparities in cancer occurrence and screening, particularly among populations of men over the age of 50, or uninsured individuals living in poverty. This project works to assess the high incidence of colorectal cancer in the Butler County, Kentucky population and the factors influencing it. To do this, it will review the community itself, key risk factors and disparities associated with colorectal cancer, existing intervention(s) that could be implemented in this community, and the advantages and disadvantages of intervention implementation.

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Abstract Title: Syringe Service Program Policies and Harm Reduction Supply Delivery Models in Central Appalachia

Student: Katherine Dietsch

Mentor / e-mail: April Young / april.young@uky.edu

Abstract: BACKGROUND Syringe service programs (SSPs) operate to mitigate the adverse effects of injection drug use by exchanging used syringes for sterile syringes, distributing harm reduction (HR) supplies, and providing other services. SSPs can reduce drug-related harms, but program policies and service delivery models can impact utilization. The aim of this environmental scan is to describe Central Appalachian SSP exchange policies and supply delivery models. METHODS A list of Central Appalachian counties was created using data from the Appalachian Regional Commission. SSP information was collected via web searches and by phone. Data collected included exchange policy and availability of non-staffed supply delivery models (i.e., vending machines and naloxone boxes). Policies were classified as 1:1 (one syringe returned: one distributed), 1:1 (one syringe returned: one or more distributed) or need-based. Data was recorded and analyzed using Excel. RESULTS A total of 106 SSPs operated in the 237 counties. Of the SSPs for which policy data was available (n=92), 1:1 models were most common (53%, n=49), followed by need-based (35%, n=32), and 1:1 (12%, n=11). Of the 92 SSPs, few had a vending machine (12%, n=11) and 41% (n=38) had a naloxone box. CONCLUSION The majority of SSPs operate with a 1:1 exchange policy, which may limit syringe coverage for those whose syringes are confiscated, lost, or stolen. Likewise, absence of non-staffed supply models may result in suboptimal utilization among those experiencing shame and barriers to staffed-site use. Education around and resources for need-based exchange and non-staffed service delivery models are needed.

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Abstract Title:	Obesity Intervention Implementation in Fulton County, Kentucky High School Students
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Student:	Dayra Garcia
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Mentor / e-mail:	Sarah Cprek / sarah.cprek@uky.edu
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Abstract:	Obesity prevalence in adolescents is increasing while also contributing to the increasing prevalence of obesity in adulthood and other chronic diseases associated with obesity such as diabetes, cardiovascular disease, and cancers. The proposed project is an obesity intervention for high school students in Fulton County, Kentucky that encourages students to take initiative, effectively reducing obesity rates. The intervention will be structured to benefit students in Fulton County and incentivize taking initiative to address obesity. This county was chosen as both physical inactivity and access to exercise opportunities are higher compared to the rest of Kentucky, yet has one of the highest rates of adult obesity in the state.
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Abstract Title: Geographic Trends in Preventable Hospitalization Across in Kentucky

Student: Abigail Humphrey

Mentor / e-mail: Dr. Rachel Hogg-Graham / Rachel.Hogg@uky.edu

Abstract: Preventable quality indicators (PQI) are a measure used to identify barriers in access to healthcare and expose unnecessary hospital expenses. This study examines geographic and longitudinal trends in PQIs across Kentucky. We used PQI data from the Agency for Healthcare Research and Quality from 2019-2023 to examine longitudinal trends in preventable hospitalizations. We then examined rates geographically using regional groupings in alignment with Kentucky Council of Area Development Districts. PQIs 90-93 capture overall rates and composites of acute, chronic, and diabetes-related hospitalizations per 100,000 population respectively. Longitudinal trends suggest that overall, acute, and chronic hospitalizations decreased and then stabilized in recent years. Diabetes-related hospitalizations steadily increased from 2019-2021, with a leveling of rates in recent years. Our analysis of geographic trends suggests that the Kentucky River region (Eastern KY) has the highest preventable hospitalization rates while the Kentuckiana Regional Planning & Development Agency (KIPDA) region (Northwest KY) has the lowest. While longitudinal trends show some improvement in overall and chronic hospitalization rates, the sustained increase in diabetes-related hospitalizations and geographic variation in rates suggests ongoing challenges in addressing preventable healthcare utilization across KY.

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Abstract Title:	Decoding Kentucky's Street Drug Supply: Insights from the Harm Reduction Hub
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Student:	Samantha Jones
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Mentor / e-mail:	Rachel Vickers-Smith / rachel.vickers@uky.edu
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Abstract:	<p>The Kentucky Harm Reduction Hub is a pioneering initiative uniting academic and community-based scientists, harm reduction advocates, and local stakeholders to gain critical, early insights into Kentucky's street drug supply. By analyzing drug residues from used syringes, the initiative provides timely data on drug trends and composition, fostering a service-centered model with direct, two-way feedback loops to support community partners. This pilot study, conducted across Jefferson and Fayette counties, tested residues from 107 syringes, of which 73 contained detectable drug residues. Preliminary results reveal distressing patterns: xylazine, a powerful sedative, appears frequently, either alone or in mixtures. Methamphetamine, though sometimes present as a standalone substance, is often mixed with other drugs. Particularly alarming is the combination of methamphetamine and fentanyl, which rarely occurs without xylazine. Additionally, diphenhydramine (Benadryl) is commonly found, potentially added as a filler or to mimic sedative effects. The complex layering of substances underscores the heightened risks posed to individuals who inject drugs, as unexpected interactions can lead to severe health consequences. This hub's transdisciplinary approach allows for rapid response and tailored harm reduction strategies that adapt to evolving drug trends, aiming to protect and inform communities in Kentucky.</p>
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9**Abstract Title:** A Proposal for Safe Supply Clinics: Expanding Harm Reduction in Kentucky

Student: Sami Jones

Mentor / e-mail: Paula Arnett / paula.arnett@uky.edu

Abstract: Kentucky continues to experience a very high rate of opioid-related overdoses, with synthetic opioids and unknown polydrug use contributing to an escalating public health crisis. The increasing presence of fentanyl, xylazine, and other adulterants in the illicit drug supply has led to a surge in fatal overdoses, complicating traditional treatment and harm reduction efforts. While Kentucky has implemented harm reduction initiatives, including syringe service programs (SSPs) and expanded access to naloxone, gaps remain in addressing the risks associated with an unregulated drug supply. To combat these challenges, the establishment of Safe Opioid Supply (SOS) clinics is proposed, which will provide testing of street drugs alongside the option of offering tested, regulated substances to reduce contamination risks and prevent overdoses. These clinics would also connect individuals with healthcare, substance use treatment, and social services, ensuring a comprehensive approach to harm reduction. Staff training would focus on overdose prevention, substance testing, trauma-informed care, and peer support. Collaboration with existing harm reduction organizations and public health agencies across Kentucky would enhance service delivery and community trust. Additionally, partnerships with local legislators are essential to adapting state policies that support harm reduction and ensure sustained funding for these clinics. Expanding existing laws to encompass safe supply initiatives would align with Kentucky's ongoing efforts to improve access to care and reduce overdose deaths. By integrating evidence-based harm reduction strategies with legislative support, this initiative seeks to create a more effective, sustainable, and compassionate response to Kentucky's overdose crisis.

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10**Abstract Title:** Socioeconomic Inequality and AMR in Kentucky

Student: Shelby Jones

Mentor / e-mail: Paula Arnett / paula.arnett@uky.edu

Abstract: Background: Antimicrobial resistance (AMR) has been a growing global problem since its first documentation in 1942. Bacteria mutating against antibiotics has led to treatments becoming less effective, healthcare costs increasing, and long-term effects becoming more severe. Antimicrobial resistance has directly caused almost 1.2 million global deaths and contributed towards 5 million deaths annually. The aim of this study is to identify and address direct causes of antibiotic resistance in high AMR communities. Methods: A meta-analysis of the global correlation between socioeconomic status and antibiotic resistance was done to test for a direct relationship. This data was compared to high AMR rate states such as Kentucky to find primary causes. Socioeconomic status was tested as a factor relating to overuse and misuse of antibiotics in specific communities. Results: The results ultimately showed a direct correlation between socioeconomic status and antibiotic resistance. Factors include lack of education leading towards misuse, overuse, inadequate healthcare access, and lower quality antibiotics. In 2023, Kentucky had a median income 23.11% lower than the national average, and 1,666 residents with carbapenem-resistant infections. Overuse was prevalent with data on over-prescriptions such as Kentucky having 1,053 antibiotic prescriptions per 1,000 people in 2022. Conclusion: The results found the primary causes of growing antibiotic resistance in high AMR rate areas. The educating and monitoring of AMR are essentials for interventions placed in Eastern KY populations. Pharmaceutical companies can use this data to provide AMR awareness and restrictions on antibiotics to avoid overprescription in lower income communities.

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Abstract Title: Individual and community-level barriers and needs for diabetes self-management in rural Appalachian Kentucky

Student: Victoria Kopelen

Mentor / e-mail: Aaron Kruse-Diehr / kruse-diehr@uky.edu

Abstract: Background. Rural areas of the United States experience significant disparities that contribute to unequal health outcomes, particularly in the management of chronic conditions. Disparities in Appalachian Kentucky include limited health care access, inadequate health education, poor dietary resources, and low social support, collectively contributing to multilevel challenges to self-management of type 2 diabetes (T2D). Our study sought to identify unique regional factors contributing to these barriers and feasible methods to mitigate them. Methods. We conducted interviews with residents in one rural Appalachian Kentucky to map networks and resources specific to that county and its surrounding region. Participants were asked to describe resources that helped or hindered their access to health care and identify qualities they perceived as most important for effective healthcare leaders in formal and informal (i.e., community) settings. Data were transcribed verbatim and then analyzed using thematic analysis, wherein we identified recurring patterns related to healthcare barriers and resources perceived as necessary but currently lacking. We refined our codebook iteratively to ensure consistency in code operationalization and held regular debriefing meetings to minimize researcher bias in our interpretations. Results. Among the 79 interviewees, most individuals were long-term residents of the region, and about half reported having large family social networks. Participants noted several barriers to managing T2D including distrust of medical professionals, limited health education, restricted access to care, and challenges with affordability and transportation. To better manage their T2D, participants specifically cited the need for both general health education as well as diabetes-specific education and emphasized the need for trustworthiness and open-mindedness

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Abstract Title:	Principles to Outcome Driven Practices (P2ODP) Participatory Evaluation Project
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Student:	Carly Meyers
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Mentor / e-mail:	Margaret McGladrey / margaret.mcgladrey@uky.edu
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Abstract:	<p>Background: Residential interventions (TRC) are inherently complicated. It is difficult to sort out the effectiveness of the activities and clinical approaches used in residential programs. This leads to inconsistency in service models and quality and lack of solid information or research about effectiveness, outcomes, or impact. Our goal is to assess the feasibility, usability, and replicability of a family-/child-/youth-engaged Theory of Change framework for co-designing and evaluating residential intervention quality improvement efforts. Methods: Steps to achieve our goal included conducting a pilot project to test the usability of the self-assessment tool (SAT) to inform quality improvement projects using the Theory of Change framework with five providers of TRC in Oregon. Providers are supported with consultation and technical assistance from our evaluation team and experts in TRC programming and family/youth lived experience. Results: Programs achieved nearly 100% SAT completion by children/youth in care, and staff displayed heavy involvement. Results indicated opportunities for improvements among all agencies, specifically acknowledging the need for increased youth and family inclusivity, initiative, and involvement. The consulting teams partnered with agencies to use the framework to create logic models to accurately and effectively measure inputs, outputs, and impacts. We will then provide the opportunity for agencies to implement their improvement projects. Conclusions: Results from the first year of this two-year demonstration project show the framework's potential to transform TRC research and program evaluation by meaningfully integrating youth and family team members into learning collaboratives and organizational capacity for quality improvement.</p>
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Abstract Title: Comparative Analysis of Substance Use for High School Students in Kentucky and The United States, 2015-2023

Student: Mihail Mihaylov

Mentor / e-mail: Dr. Svetla Slavova / ssslav2@email.uky.edu

Abstract: Introduction: Since the beginning of the opioid epidemic, Kentucky consistently ranks high on drug use. It is important to understand if this behavior begins at an early age. This study aims to comparatively investigate the trends in substance use among high schoolers in Kentucky and the United States, focusing on marijuana, methamphetamine, heroin, alcohol, cocaine, and tobacco. Methods: The data were collected through the CDC's Youth Risk Behavior Surveillance System (YRBSS), using a survey which focuses on priority risk behavior. This study relies on data regarding the use of those substances for Kentucky and United States high school students from 2015 to 2023. Results: Preliminary results show an encouraging decreasing trend in Kentucky and United States high school use over time for all examined substances. However, the percentage of Kentucky high schoolers who tried marijuana before 13 years of age in 2021 is 24% higher than the national average, for alcohol in 2023 it is 11% higher than the national average, and for cigarettes, it is 144% higher than the national average in 2023. Another concerning result is that Kentucky high school students continue to use tobacco at a significantly higher rate than the national average. The most striking disparity was found with daily electronic vape use in 2023, which is 74% higher in Kentucky than nationally. Conclusion: More research must be conducted regarding newer methods of tobacco use and their prevalence among youth. Educational outreach should be focused on deterring use of tobacco, marijuana, and alcohol at early ages.

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Abstract Title: Domestic Violence in the Child Welfare System Qualitative Data Coding using Critical Incident Review

Student: Abigail Miller

Mentor / e-mail: Dr. Elizabeth Riley / elizabeth.n.riley@uky.edu

Abstract: Although exposure to domestic violence is underreported across multiple studies, 7% to 23% of youth in general population surveys experienced exposure to domestic violence 36-39% of youth in domestic violence (DV) have witnessed violence while 45-46% of primary caregivers in child maltreatment investigations have experienced DV Mandated reporting: can increase the number of cases that come to the attention of child welfare, but without the resources for training and programming can create inappropriate reports and strains on the child welfare system Researchers have linked DV exposure to poor child psychological outcomes and negative environmental risk factors. Data came from the National Partnership for Child Safety, fatality review process, which includes both qualitative and quantitative data Primary data source: Safe Systems Improvement Tool (SSIT), which is an improvement strategy, facilitates outcomes measurement, a communication tool, it is a culture carrier. Domestic violence where child was NOT the victim (43% data) No evidence of family violence (30% data) Domestic violence where child was the victim (15% data) Father/boyfriend was the abuser (38% data) Court involvement (14% data) Mother was the abuser (8% data) Death of a child during an incident (7% data) Violence with a weapon, ie. knife, gun, arson (6% data) Sexual violence (3% data) Substance use described as involved in violence (4%) The issue of domestic violence in the child welfare system is important because even if a child is not directly harmed, intimate partner violence or family violence can contribute to behavioral, social, and emotional challenges in the long term.

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Abstract Title: The Urban-Rural Divide in Community Health Center Engagement in Public Health Activities

Student: Lauren Roehr

Mentor / e-mail: Rachel Hogg-Graham / rachel.hogg@uky.edu

Abstract: Introduction: Community Health Centers (CHCs) provide critical healthcare services in underserved communities and ensure the basic needs of these populations are met. In addition, they directly contribute to population health by engaging in public health activities that address the three core functions of public health. This study looks at longitudinal and geographic trends in CHC engagement in public health systems across the US. Methods: We used retrospective cohort data from 2006-2018 to examine the trends in CHC engagement in public health systems. The National Longitudinal Survey of Public Health Systems is an ongoing cohort study that tracks over 500 U.S. communities and their implementation of core public health activities. We conducted a descriptive analysis to examine the trends longitudinally and based on urban or rural location of CHCs. Results: While participation in overall activities fluctuated slightly overtime, we found that, on average, CHCs in urban communities participated in 26% of public health activities. Contrastingly, CHCs in rural communities participated in fewer activities (14%) and have decreased their participation overtime. We found that, compared to rural public health systems, CHCs in urban communities had higher engagement in public health activities that align with the assessment and policy development functions. CHCs in both urban and rural areas had low engagement in assurance activities. Conclusions: Rural CHCs demonstrate significantly lower engagement in public health activities compared to urban CHCs, particularly in areas crucial for community health assessment and policy development. This disparity highlights a critical need to strengthen rural CHC participation to ensure access to essential public health services for underserved populations. Enhanced engagement is imperative for improving population health outcomes.

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Abstract Title: Barriers and Potential Best Practices of MCO and CBO Referral Processes in Addressing Unmet Social Needs

Student: Isabel Schmitt

Mentor / e-mail: Dr. Margaret McGladrey / margaret.mcgladrey@uky.edu

Abstract: This project involves analyzing qualitative data collected through interviews with key staff from managed care organizations (MCOs) and community-based organizations (CBOs) in Kentucky about their partnership and referral practices for addressing unmet social needs. While CBOs and MCOs share a broad mission to address these needs, their motivations for partnership differ: MCOs focus on serving Medicaid beneficiaries, whereas CBOs function as social safety net organizations that MCOs rely on to meet their members' needs. Challenges to effective partnerships include data-sharing limitations, funding constraints, and inefficient referral systems. This study seeks to answer the research question: What barriers and potential facilitators exist within MCO and CBO referral processes for addressing unmet social needs? The study team used template analysis to code 43 interviews with key MCO and CBO staff, including 20 representatives from 19 CBOs and 23 representatives from 6 MCOs, to explore how these partners collaboratively address social determinants of health for their shared clients. By clustering codes around partnerships, referral practices, capacity, facilitators, and barriers, this research aims to identify obstacles to MCO-CBO collaboration and inform quality improvement efforts. The findings will offer actionable recommendations to enhance cross-system partnerships and effectively address unmet social needs.

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Abstract Title: Assessing Awareness and Perspectives on Driving Safety Legislation in Kentucky Drivers: A Pilot Study

Student: Madisyn Slone

Mentor / e-mail: Caitlin Northcutt / caitlin.pope@uky.edu

Abstract: Background: Legislation is an important part of improving population health. While motor vehicle crashes are a leading cause of unintentional injury and death, little is known about how drivers perceive driving safety legislation. Perceptions of legislation have been shown to be correlated with engagement in health behavior in other areas of public health. This study aims to understand driver perceptions on a variety of potential driving safety legislation topics. Methods: Participants (n = 41) were recruited from the community for a pilot study focused on aggressive driving behaviors and driving simulation. Questionnaires on demographics, driving history, driving risk frequency, and perspectives on driving safety legislation were administered. Descriptive statistics and Spearman's rank correlation were conducted. Results: Support for driving safety legislation varied depending on the driving safety topic. Overall, the topics with the largest support were for legislation on aerial-based speed enforcement in school zones (73.8%), cellphone and texting bans for all ages (76.2%), a legal limit for marijuana-impaired driving (78.5%), and knowledge and driving performance testing at license renewals for older drivers (85.7%). Regarding current legislation, one-third of the sample was unaware of Kentucky distracted driving legislation. Discussion: While perceptions of legislation do not infer engagement in safe driving behaviors, understanding what types of legislation drivers would support can inform focused public health strategies, education efforts, and interventions. Additional research in larger, more diverse groups of drivers across Kentucky is needed.

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18**Abstract Title:** Assessment of Evacuation Behavior after the East Palestine Train Derailment

Student: Megan Damico

Mentor / e-mail: Erin Haynes / erin.haynes@uky.edu

Abstract: Background: The evacuation behavior of 406 residents impacted by the East Palestine train derailment was evaluated by reviewing and summarizing their responses. The evacuation orders and guidance regarding the chemical spill were also examined. Methods: The total number of participants in the East Palestine Train Derailment Health Tracking Study was evaluated using household data, along with information regarding evacuation orders, vinyl chloride, and other chemical guidelines. Results: Out of 373 households, 134 evacuated, while 203 did not. Of those who evacuated, 45% had school-age children, compared to 27% of the non-evacuating households. Conclusions: Limited literature addresses evacuation behavior following incidents like this train derailment, highlighting the importance of studying such behaviors during such events to improve preparedness for future incidents.

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Abstract Title: Hearing Between the Lines: Analyzing Occupational Hearing Loss First Reports of Injury from 2005-2019 in Kentucky

Student: Amara Danturthi

Mentor / e-mail: Dr. Steve Browning / srbrown@email.uky.edu

Abstract: Excessive noise exposure, a workplace hazard affecting more than 22 million workers (Tak et al., 2009), is a largely preventable hazard that can lead to Occupational Hearing Loss (OHL) (NIOSH, 2024). Despite safety measures that have been implemented to protect workers from OHL, the all-industry prevalence of OHL has yet to decline (Masterson et al. 2015). A cross-sectional analysis was conducted on OHL workers' compensation First Report of Injury (FROI) data between 2005-2019 from KY to uncover demographic, situational, and temporal trends of OHL FROI (n=1125). As KY has high Manufacturing and Mining employment, industries that consistently have high OHL incidence, this study attempts to ascertain worker groups that are more vulnerable to OHL (Bureau of Labor Statistics, 2023a; Masterson et al., 2015; Masterson et al., 2023). The average age of OHL FROIs was found to be 52.75 years \pm 9.47, and 90.40% were male. 966 employees (85.87%) lost time, and more employees with traumatic hearing loss lost time ($p < 0.0001$). In line with previous literature, the rates of OHL FROI were highest in the Mining, Quarrying, and Oil and Gas Extraction (122.6 per 100,000 workers, 95% CI: 109.8, 136.5) and the Transportation and Warehousing (13.1 per 100,000 workers, 95% CI: 11.34, 15.06) industry. Construction and Extraction Occupations had the most OHL FROI (n=328). Between the study period, a reporting peak was identified in 2014 with 143 FROI. Workers' compensation has been found to underrepresent OHL incidence (Masterson et al. 2023), meaning that better hearing safety practices need to be implemented.

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Abstract Title: Health Disparities in Kentucky's Appalachian Counties: Interactions Between Physician Availability, Poverty, and Region

Student: Emma Hargis

Mentor / e-mail: Hubie Ballard / hubie.ballard@uky.edu

Abstract: Background: This research addresses the critical roles that physician availability and poverty have in influencing the health outcomes of Kentuckians across different regions of the state, by using publicly available data from the Appalachian Regional Commission (2018). Methods: Mortality rates for chronic diseases such as heart disease, cancer, COPD, stroke, and diabetes were compared between Kentucky's Appalachian and non-Appalachian counties. Primary care physician availability and household income below poverty were also included as crucial predictor variables for chronic disease mortality. Further, a variation of the Classification Tree machine-learning model was applied to predict whether a county should be classified as within the Appalachian region of Kentucky. Results: Key findings from these analyses include that heart disease, cancer, and COPD mortality were all significantly higher in Appalachian counties. While household income below poverty had a significant main effect of increased mortality across all chronic diseases included in this study, the main effects and interaction effects of primary care physician availability and being in the Appalachian region were disease dependent. The machine learning model also achieved an 88.3% mean accuracy in classifying counties as Appalachian or not within the state. Additionally, nine counties were misclassified as not in Appalachia by the machine learning model, indicating that these counties are performing better than expected by virtue of their location alone. Conclusion: This research elucidates how variables like physician shortages, economic hardship, and geographic location can both independently contribute and interact together to shape the landscape of health disparities in Kentucky.

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Abstract Title: Preliminary Pre-Post Intervention Analysis of Maternal Mortality Training Efficacy for Undergraduate/Graduate-Level Medical Students

Student: Rose Wood

Mentor / e-mail: Dr. Ann Coker / ann.coker@uky.edu

Abstract: Maternal mortality in the U.S. represents the risk that factors such as intimate partner violence, substance abuse, and mental health have to mothers and families. A training course was created for undergraduate and graduate level students majoring in areas such as medicine, nursing, public health, and pharmacy to promote surveillance of maternal mortality risks, intervention, and connecting patients to resources. (N= 118) completed the training program between August 2024 and December 2024. The training program covered topics such as maternal mortality risk factors, bystander action barriers, and mortality prevention strategies. Subjects took a survey before and after the course to ascertain the change in knowledge and attitudes on maternal mortality. Wilcoxon-Rank tests and Kruskal-Wallis tests were used to determine the changes in scores between groups with comparisons across subjects in different majors. The results of this study are anticipated to improve provider comprehension of maternal mortality risks, increase the screening of risks in pregnant mothers, and encourage structural change to providing care for pregnant/post-partum mothers.

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22**Abstract Title:** Community Resource Guides: Connecting Kentucky's Counties

Student: Mason Taylor

Mentor / e-mail: Dr. Margaret McGladrey / margaret.mcgladrey@uky.edu

Abstract: Resources within communities often hold barriers regarding accessibility, knowledge of resources, and stigmatization. Many communities lack a comprehensive report of all major resources available within and around their county. The increase of knowledge within the individual can increase participation of these resources, and in turn can increase overall health outcomes in a specific area. The goal was to create a list of comprehensive resources within each Kentucky county that can be distributed via pamphlet handout or website linkage. These resource guides have the ability to serve as a crucial connecting point between academia and local health departments. To create a resource guide, the internet and social media were scanned and community resources and representatives were contacted to get a holistic understanding of resources available. Resources were pulled from each county or if not applicable to a specific county, the nearest resource to that respective location. Within each resource guide, the following categories included were: behavioral health centers, domestic violence resources, food assistance, harm reduction/syringe program, health services, housing services, legal services, medication for opioid use disorder, meetings, naloxone location, social support services, support and treatment locators, and transportation services. Guides are updated periodically and by demand/when needed. Comprehensive guides covering all Kentucky counties have been developed and are undergoing review for distribution.

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Poster Presentation Abstracts

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Abstract Title: Barriers and Facilitators to Treatment Adherence: An Exploration of the Lived Experience of Patients with Heart Failure

Student: William Burton Burrows

Mentor / e-mail: Meredith Duncan / meredith.duncan@uky.edu

Abstract: Background Research suggests that only ~50% of patients with HF meet recommended medication adherence; rates of overall treatment adherence are even lower. Drivers of treatment nonadherence in this population remain poorly understood. This qualitative study aims to identify barriers and facilitators of treatment adherence among patients with HF. Methods We recruited 19 adult patients with a diagnosis of HF from 2 clinics in Kentucky to participate in interviews. A semi-structured interview guide was used to ask patients about experiences, habits, barriers, and facilitators to engaging in their HF treatment. Six patients participated in follow-up interviews to assess the study team's interpretation of their prior responses and to ask clarifying questions to ensure saliency of the findings. Results Patients (58%) identified physician communication as crucial to their experience, citing open dialog, honest explanations, and willingness to listen as key components. Many patients identified goal setting as critical to their treatment adherence. By setting small, obtainable goals with their medical team, patients described feelings of increased self-confidence and reported making positive lifestyle changes. Rising costs of medication, food, and other therapies were identified as barriers to adherence. Finally, patients (42%) discussed having significant fear regarding their HF diagnosis which began after a precipitating traumatic event, such as a hospitalization or heart attack, and persisted years later. Conclusion These qualitative findings suggest that patients are more likely to engage with their treatment plan when they have effective communication with their physician, set obtainable goals, and are able to afford both food and medication.

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Poster Presentation Abstracts

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Abstract Title: Survival of Patients Diagnosed with Cancer in the US during the First Year of the COVID-19 Pandemic

Student: Todd Burus

Mentor / e-mail: Krystle Kuhs / krystle.kuhs@uky.edu

Abstract: Purpose: The effects of COVID-19 pandemic-related disruptions on cancer diagnosis in the United States have been widely observed, but their impact on short-term survival has not been assessed. Methods: We included all individuals with a cancer diagnosis and complete follow-up reported in the Surveillance, Epidemiology, and End Results 22 Registries database between January 1 and December 31, 2020. We calculated one-year cause-specific survival (CSS) and compared it to one-year CSS among patients diagnosed in 2019. We also estimated excess deaths within one year of diagnosis in 2020 assuming CSS remained the same as in 2019. Site-specific analyses were performed on common cancer sites identified as having low-survival or high-incidence/high-survival. Results: Patients diagnosed with cancer in 2020 had a one-year CSS of 83.70% (95%CI, 83.60%-83.80%), which was a significant 1.21 percentage points lower than in 2019 (95%CI, 1.07%-1.35%) and resulted in an estimated 13,517 excess deaths (95%CI, 11,944-15,090). All five high-incidence/high-survival cancer sites examined, and three out of five low-survival sites, had significant CSS reductions compared to 2019. Small reductions in CSS for high-incidence cancers led to large percentage increases in deaths within one year of diagnosis, including approximately 20% more melanoma deaths than expected. The greatest number of excess deaths by cancer site were estimated for colorectal cancer (1,726; 95%CI, 1,285-2,168) and lung cancer (1,262; 95%CI, 545-1,980). Conclusion: Individuals diagnosed with cancer in 2020 experienced poorer short-term survival than those diagnosed in 2019, suggesting substantial harms related to cancer care disruptions during the first year of the COVID-19 pandemic.

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Poster Presentation Abstracts

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Abstract Title: Changing Trends in Nonmedical Gabapentin Use Among a Cohort of Rural Appalachian People Who Use Drugs: A Longitudinal Study Over the Time Period of Scheduling Changes in Kentucky

Student: Kara Cook

Mentor / e-mail: Rachel Vickers-Smith / rachel.vickers@uky.edu

Abstract: Background: Recently, nonmedical gabapentin use has increased in the United States, leading to its classification as schedule V substance in Kentucky in 2017. This paper examines patterns in nonmedical gabapentin use in people who use drugs (PWUD) over the time of scheduling changes. Methods: Longitudinal data (2008-2020) from the Social Networks among Appalachian People (SNAP) study were analyzed. SNAP participants (N=503) met criteria of being 18 years old, residing in Appalachian Kentucky, and reporting recent nonmedical prescription opioid, methamphetamine, cocaine, or heroin use. A mixed-effects logistic regression model assessed changes in nonmedical gabapentin use over time. Independent variables included baseline demographics and time-varying measures of age, disability status, insurance, and recent nonmedical substance use. Changes in gabapentin sourcing before and after scheduling were assessed using chi-square and McNemar's tests. Results: Nonmedical gabapentin use increased significantly (aOR=3.51, 95% CI: 2.91-4.24), from 0% in 2008 to 56% in 2020. By 2020, gabapentin use exceeded that of prescription opioids. Before scheduling, most (55%) participants obtained gabapentin from regulated sources; afterward, this dropped to one-third ($p<0.001$). A within-person analysis confirmed a significant decline in regulated sources ($p=0.01$). Conclusions: Nonmedical gabapentin use continued to rise post-scheduling, with sources shifting from regulated to unregulated. These findings highlight potential unintended consequences of scheduling policies on access and distribution.

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Poster Presentation Abstracts

26**Abstract Title:** Fast Food, Slow Burn: The Inflammatory Impact of Food Swamps

Student: Caitlyn Grunert

Mentor / e-mail: Dr. Rachel Hogg-Graham / rachel.hogg@uky.edu

Abstract: Food insecurity affects 50 million Americans, influencing dietary patterns and health. Unhealthy food environments, including food swamps are dominated by energy-dense, nutrient-poor foods creating barriers to a healthy diet. Individuals in food swamps may face higher risks inflammation-related conditions. The Dietary Inflammatory Index (DII) quantifies a diet's inflammatory potential, but limited research examines how food swamps influence DII scores, especially among socioeconomically disadvantaged populations. In this study, we examined the relationship between food swamp status and DII, hypothesizing that individuals in high-food swamp areas will have higher DII scores, reflecting a more pro-inflammatory diet, compared to those in low-food swamp areas. Among 30,183 participants from the Reasons for Geographic and Racial Differences in Stroke Cohort (REGARDS), we found that people living in high-food swamps areas were more likely to be high school graduates, female sex at birth, earn less than \$20K annually, White, and those who are married or widowed. Average DII scores were higher in people living in high food swamp areas (mean: 7.2, std: 9.6), as compared to people living in moderate (mean: 6.5, std: 9.3), and low food swamp areas (mean: 6.7, std: 9.5). The mean difference of DII between high food swamp areas with low food swamp areas was (mean difference: 0.4804, 95% CI: 0.0276, 0.9332, p-value = <0.05). These results suggest that poor food environment is associated with individual level dietary and biologic inflammation. Environmental hazard of healthy food options may be associated with deleterious health outcomes via chronic inflammation.

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Abstract Title: Genome-Wide Analysis of Short Tandem Repeat Expansions in Alzheimer's Disease

Student: Bikram Karki

Mentor / e-mail: Cody Steely / Cody.Steely@uky.edu

Abstract: ABSTRACT TITLE: Genome-Wide Analysis of Short Tandem Repeat Expansions in Alzheimer's Disease Authors: Bikram Karki^{1 3}, Yuriko Katsumata^{2 4}, David W. Fardo^{2 4}, Cody J Steely^{3 4} Affiliations: 1Department of Computer Science, University of Kentucky, Lexington, KY; 2Department of Biostatistics, University of Kentucky, Lexington, KY; 3Division of Biomedical Informatics, Department of Internal Medicine, University of Kentucky, Lexington, KY; 4 Sanders-Brown Center on Aging, University of Kentucky, Lexington, KY Category: Graduate student Background: Alzheimer's Disease (AD), the leading cause of dementia in older adults, has established genetic risk factors including mutations in APP, PSEN1, PSEN2, and APOE. While Short Tandem Repeats (STRs) are highly mutable sequences that are implicated in various neurodegenerative disorders, their contribution to AD pathogenesis remains largely understudied. Methods: We analyzed whole-genome sequencing data from the Alzheimer's Disease Sequencing Project (ADSP) cohort (5,022 AD cases, 5,524 controls). Using GangSTR for genome-wide STR genotyping and DumpSTR for quality control, we implemented filters for call rate, Hardy-Weinberg equilibrium, and read support. Case-control association analysis was performed with logistic regression, by defining expansions at the 99th percentile of control samples as threshold for classification (expanded/nonexpanded). For validation, samples were processed through ExpansionHunterDenovo to extract case-specific outliers from relevant genes identified by logistic regression analysis. Results: We identified significant STR expansions in dinucleotide, trinucleotide, and tetranucleotide sequences mapped to neurologically relevant genes (MTNR1A, ATG4B, THAP4, BOK, DUSP10). These genes demonstrate associations with neurodegenerative disorders and AD, wherein DUSP10 exhibits altered expression in AD

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Poster Presentation Abstracts

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Abstract Title: Predicting Colorectal Cancer Screening Uptake Using Feasible Solution Algorithm: A Machine Learning Approach

Student: Maliha Mehnaz Mitu

Mentor / e-mail: Katherine Thompson / katherine.thompson@uky.edu

Abstract: Colorectal cancer (CRC) is the third most diagnosed cancer and second most common cause of cancer deaths in the overall United States. Among all states, Kentucky ranks the highest CRC incidence rate (44.9 per 100,000) and third highest in mortality rate (16.2 per 100,000). Data from UK King's Daughters Medical Center (UKKD), includes information from 36,855 individuals aged 45-75, containing demographic, social determinants of health (SDOH), comorbidities, clinical measures, and colorectal cancer screening status by Colonoscopy, Fecal Occult Blood Test (FOBT), Sigmoidoscopy, Multi-Target Stool DNA Test (FIT-DNA), Colonography etc. Feasible Solution Algorithm (FSA) will be applied to develop a predictive model for screening status based on potential exposure variables, aiming to predict who are less likely to get screened. Increasing screening uptake may lead to earlier cancer diagnoses, reduction in both advanced staged CRC cases and CRC related mortality.

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Abstract Title: Investigating the Association Between Iron Metabolism and Alzheimer's Disease via Polygenic Risk Scores

Student: Xiaotong Ning

Mentor / e-mail: David Fardo / david.fardo@uky.edu

Abstract: Background: Dysfunction in iron metabolism has been increasingly recognized as a contributor to neurodegenerative diseases, including Alzheimer's disease (AD). Excessive iron accumulation promotes oxidative stress and neuronal damage, forming amyloid-beta plaques and neurofibrillary tangles, the hallmark pathologies of AD. Ferroptosis, an iron-dependent type of cell death, has also been implicated in AD progression. While studies of individual iron-related genes have provided important insights, a polygenic risk score (PRS) can more comprehensively capture the cumulative effects of genetic variants involved in iron regulation. This study aims to investigate whether genetic predisposition to iron metabolism dysfunction is associated with increased AD risk. Methods: Genome-wide association studies (GWAS) and the Polygenic Score (PGS) Catalog were reviewed to identify suitable summary statistics. SNPs were filtered using standard quality control measures, and linkage disequilibrium (LD) pruning was applied. The PRS was computed using PRSice-2. Association testing was performed using logistic regression models in the Alzheimer's Disease Genetics Consortium (ADGC) cohort, with adjustments for age and sex. Results: A well-recognized dataset related to iron metabolism disease (MONDO 0002279) in non-Hispanic white populations was selected as the base data. Quality control on target data has already been done. The PRS calculation and regression fitting are in progress. Conclusion: A PRS focused on iron metabolism disease may be associated with higher AD risk.

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Abstract Title: E-cigarette Use: A Predictor for Depression During Pregnancy among Young Women

Student: Aiemere Oikeh

Mentor / e-mail: Dr. Min-Woong Sohn / min-woong.sohn@uky.edu

Abstract: E-cigarette Use: A Predictor for Depression During Pregnancy among Young Women
Introduction Maternal depression is a significant public concern that can be linked to adverse outcomes for both mother and child. The rising popularity of e-cigarettes among adolescents and young adults raises concerns about their health impacts, especially when viewed as alternatives to traditional smoking. Although e-cigarettes are perceived as being less harmful than traditional cigarettes, accumulating evidence suggests that they may pose significant health risks, particularly during pregnancy. **Objective** To examine the association between e-cigarette smoking and maternal depression among pregnant women aged 20 years and younger. **Methods** This was a cross-sectional study using the Pregnancy Risk Assessment Monitoring System (PRAMS) data from 2016 - 2022. The PRAMS dataset is a population-based data on maternal attitudes and experiences before, during, and immediately following pregnancy. We conducted descriptive statistical analyses using survey-weighted data and used logistic regression models to estimate the association between e-cigarette use and depression. **Result** Our results indicate that e-cigarette use is associated with higher odds of experiencing depression both before (OR = 1.41; 95% CI = 1.08-1.85; $p < .05$) and during pregnancy (OR = 1.58; 95% CI = 1.23 - 2.03; $p < .001$). **Conclusion** Although there may be a two-way relationship between e-cigarette use and depression, it may be necessary to consider smoking education programs specifically designed for adolescents. Professional advice and counseling could potentially reduce the incidence of depression among pregnant teenagers, which in turn can lead to better maternal outcomes.

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Abstract Title: The Impact of Medicaid Reimbursement for Doula Services on Uptake of Doula Services

Student: Tolulope Oladele

Mentor / e-mail: Dr. Jayani Jayawardhana / jayani.jayawardhana@uky.edu

Abstract: Background: The United States continues to face a high maternal mortality rate, with 32.9 deaths per 100,000 live births reported in 2021, far higher rates than in other developed countries. Approximately 80% of these deaths are considered preventable. Racial, geographic, and socioeconomic disparities persist, prompting states to explore policy interventions. One strategy is expanding Medicaid reimbursement for doula services to improve maternal and infant health outcomes. This study examines the effect of Medicaid reimbursement on the uptake of doula services among Medicaid-insured pregnant women. Methods: Using pooled cross-sectional data from the Centers for Disease Control and Prevention's natality files (2009-2023), the National Academy for State Health Policy, and the American Community Survey, we evaluated whether Medicaid reimbursement policies increased doula-supported births. The study sample included approximately 18 million Medicaid-covered births. States with full policy implementation were the treatment group, while those without significant policy action served as controls. Doula-supported births are proxied using the 'Other Attendant' category under 'attendant at birth.' A difference-in-differences approach, combined with multivariate regression models, was used to evaluate the differences in uptake between treated and control states. Results: Doula-supported births remain limited but are more common in policy-adopting states (0.56%) than non-adopting states (0.47%). From 2009 to 2023, policy-adopting states exhibit a more pronounced post-2020 increase in utilization. These states also have a higher proportion of Hispanic, adolescent, and less-educated mothers. Conclusion: Medicaid reimbursement policies are associated with modest but meaningful increases in doula-supported births, suggesting the potential for improved equity in maternal care access

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Abstract Title: Increased microglial APOE expression in the prefrontal cortex is associated with more severe cerebral amyloid angiopathy burden.

Student: Lincoln Shade

Mentor / e-mail: David Fardo / david.fardo@uky.edu

Abstract: Background Recent studies have identified a novel locus in the APOE region protective against cerebral amyloid angiopathy (CAA) pathology after adjusting for known APOE risk haplotypes. This locus is also associated with decreased APOE expression in microglia, but the association between microglial APOE expression and CAA has yet to be investigated. Here, investigate the relationship between microglial APOE expression and CAA using snRNA-seq and pathology data. Methods Raw snRNA-seq data from deceased participants (N = 325) in the Religious Orders Study and the Memory and Aging Project (together, ROSMAP) were downloaded from www.synapse.org and underwent quality control according to the methods in Fujita et al. 2024. CAA and covariates were obtained from ROSMAP investigators. We used ordinal regression models with a four-level CAA variable as the outcome and square-root APOE expression, APOE diplotype, age-at-death, sex, study (ROS vs. MAP), and first three genetic principal components as covariates. Models with and without an interaction term between APOE expression and APOE diplotype were used. Results Square-root microglial APOE expression was significantly positively associated with CAA in the model using an interaction term (beta = 0.082, P = 0.031) but not in the model without an interaction term (beta = 0.062, P = 0.057). Conclusion We provide direct evidence that cortical microglial APOE expression is positively associated with CAA pathology burden, supporting a plausible functional mechanism for the CAA genetic risk locus and implicating microglial APOE expression as a potential therapeutic target for CAA.

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Abstract Title: Reasons for cannabis use among cancer patients and survivors in Kentucky in 2024

Student: Sydney Shafer

Mentor / e-mail: Dr. W. Jay Christian / jay.christian@uky.edu

Abstract: We conducted this study to assess reasons for cannabis use among recent cancer patients and survivors in Kentucky, where a new medical marijuana program commences in January 2025. We recruited individuals diagnosed with any cancer who were selected randomly from the Kentucky Cancer Registry and contacted by phone and/or email. We restricted eligibility to those who had been diagnosed within the last two years, but not the previous six months. The survey asked participants about their 'main' reason for using cannabis, during their treatment as well as secondary reasons. Participants also rated the effectiveness of cannabis for the reasons they reported. Our final sample included 187 respondents. There were 121 (65%) who reported using cannabis at least once in their lifetime. There were 47 (25%) who reported using cannabis during their cancer treatment. Respondents most commonly cited pain (57%), nausea (17%), or anxiety (13%) as their main reason for use. Respondents reported from one to 13 secondary reasons for use, including lack of appetite (18%), difficulty sleeping (16%), pain (14%), and anxiety (14%). The majority (81%) of participants reported that cannabis 'helps a lot' or provides 'total relief' for the main reason reported. Participants rated the effectiveness of cannabis highest for anxiety, difficulty sleeping, and lack of appetite. Cannabis patients in Kentucky are already using cannabis to minimize symptoms under the governor's executive order permitting it under certain conditions. In this survey, they reported it was most often used and effective for pain, anxiety, and difficulty sleeping.

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Abstract Title: Later-life hearing trajectories and longitudinal changes in cognition among initially cognitively normal adults

Student: Hannah Speaks

Mentor / e-mail: Erin Abner / erin.abner@uky.edu

Abstract: Hearing loss is linked to dementia, but the causal relationship remains unclear. Understanding hearing trajectories could inform strategies for dementia prevention and treatment. This study used longitudinal data from the National Alzheimer's Coordinating Center (NACC) to identify hearing trajectories and their association with cognitive decline in episodic memory, working memory, executive function, and global cognition (MMSE). We analyzed cognitively normal participants with at least three annual visits in the NACC Uniform Data Set (2005-2023). Hearing status was categorized as functional or non-functional at each visit, with non-functional hearing defined by deafness, hearing disability, inability to hear with aids, or inability to complete neurological testing. Cognitive domains were standardized to the NACC sample. Group-based trajectory modeling identified latent hearing trajectories, and linear mixed effects models estimated the relationship between hearing trajectory and cognitive decline over time, using the highest function hearing group as reference. The study sample (n=2661) had a mean baseline age of 69.5 years, with 35.6% male. Three hearing trajectory groups were identified: low function (18.6%), high function (67.8%), and variable hearing loss (13.6%). Hearing trajectory group was significantly associated with decline in episodic memory ($F(2, 14E4) = 9.52, p < 0.0001$), executive function ($F(2, 14E4) = 3.68, p = 0.0252$), and global cognition ($F(2, 15E4) = 7.39, p = 0.0006$). Low-function groups showed greater cognitive decline than high- and variable-function groups. This study suggests that hearing trajectories offer unique insights into how hearing changes over time affect memory and cognition, even with limited longitudinal hearing and hearing exposure data.

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Abstract Title: Enhancing Periodontitis Classification with Regularized LogitBoost: A Novel Machine Learning Method

Student: Qi Yan

Mentor / e-mail: Douglas Zhang / douglas.zhang@uky.edu

Abstract: Purpose: Periodontitis is a complex heterogeneous inflammatory disorder that is diagnosed primarily using clinical and radiographic assessments which focus on existing disease, not early detection. This study tested the hypothesis that a new method of Regularized LogitBoost based on non-clinical/radiographic findings can improve detection metrics over traditional classification methods such as logistic regression. Methods and materials: Salivary concentrations of 12 protein biomarkers and 14 oral microbiome species were determined by immunoassays and 16s rRNA sequencing, respectively, from 28 healthy adults and 28 Type 2 diabetic patients with periodontitis. Data were analyzed for discrimination of health or periodontitis using 7-repeat, 7-fold cross-validation using the novel Regularized LogitBoost compared to logistic regression, regular LogitBoost, Random Forest and Xgboost. Results: Using a limited number of model features, (i.e, 3 demographic and clinical features [age, BMI, number of teeth] and 3 biomarker combinations), Regularized LogitBoost (elastic net) achieved an accuracy of 0.890 and an AUC of 0.897, outperforming logistic regression (Accuracy 0.878; AUC 0.885), Random Forest (0.880; 0.891), and Xgboost (0.872; 0.834). Compared to its unregularized LogitBoost counterpart (0.888; 0.902), the elastic net model exhibited slightly higher accuracy but a marginally lower AUC. Conclusion: These findings demonstrate that Regularized LogitBoost achieved a slightly higher accuracy than logistic regression, unregularized LogitBoost, Random Forest, and Xgboost although its AUC was marginally lower than that of unregularized LogitBoost. This suggests that combining Logitboost with elastic net regularization may offer some advantages but only limited benefits over other machine learning methods for detection of periodontitis using saliva biomarkers.

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Abstract Title: Impact of religiosity on illicit drug use behavior among non-institutionalized delinquent adolescents

Student: Su Su Zin

Mentor / e-mail: Dr. Jayani Jayawardhana / jayani.jayawardhana@uky.edu

Abstract: Background: In the U.S., illicit drug use is a burden affecting 24.9% of adolescents aged 12 years. Although literature shows that religiosity has protective effect on drug use among adolescents, no studies examined the effect among non-institutionalized delinquent adolescents. This study examined the impact of religiosity on illicit drug use among non-institutionalized delinquent adolescents. Method: This cross-sectional study used 2023 National Survey on Drug Use and Health data (2,938 non-institutionalized delinquent adolescents aged 12-17 years). Religiosity score ranged from 0-4, calculated by adding four binary variables, namely religious service attendance, importance of religious beliefs to their life, influence of religion in life decision making, and sharing beliefs with friends. Crude and adjusted multivariable logistic regressions were used to examine the associations between total religiosity or individual factors (predictors) and illicit drug use (outcome), adjusting for sex, race, education, poverty level, and employment. Results: There were significant protective associations between the religiosity score and illicit drug use with the dose-response effect. Adjusted odds ratios (aORs) [95% confidence intervals (CIs)] decreased from 0.76 [0.58-0.99] for religiosity score-1 to 0.21 [0.12-0.35] for religiosity score-4. All individual religiosity factors showed significant protective associations with illicit drug use. Religious service attendance demonstrated the most protective effect (aORs [95% CIs] of 0.49 [0.36-0.64]) followed by sharing religious beliefs with friends (aORs [95% CIs] of 0.57 [0.45-0.71]). Conclusion: Both individual and combined religiosity factors have protective effect against illicit drug use in delinquent adolescents and interventions focused on religiosity may be effective in reducing their drug use.

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Abstract Title: Mediation Effect of Trauma Stress Symptoms on the Relationship Between Adverse Childhood Experiences and Sleep Problems Among Children and Adolescents

Student: Su Su Zin

Mentor / e-mail: Dr. Olga A. Vsevolozhskaya / vsevolozhskaya@uky.edu

Abstract: Background: Sleep problems are a well-documented consequence of chronic stress, with adverse childhood experiences (ACEs) being a particularly harmful form of stress. ACEs, including physical, sexual, and emotional abuse or neglect, are strongly linked to sleep disturbances in children and adolescents. However, the mechanisms connecting ACEs to sleep problems remain unclear, particularly in younger populations. While depression and anxiety have been explored as potential mediators, findings among children and adolescents are inconsistent. This study hypothesizes that trauma stress symptoms -- immediate and long-term responses to trauma -- mediate the relationship between ACEs and sleep disorders. Methods: In this cross-sectional study, initial assessment data from Idaho's Youth Empowerment Services (YES) program (2018-2023) were analyzed. The Child and Adolescent Needs and Strengths (CANS) tool assessed ACEs, trauma stress symptoms, and sleep problems. Mediation analyses, adjusted for age, sex, and race, examined the associations between trauma stress symptoms and sleep disturbances following ACEs. Results: Children with more ACEs had significantly higher odds of sleep problems (adjusted odds ratio [AOR] = 1.10 [1.06-1.14] for 6-12-year-olds; AOR = 1.12 [1.07-1.17] for 13-18-year-olds). Trauma stress symptoms partially mediated this relationship, with significant indirect effects (AOR = 1.06 [1.05-1.07] for 6-12-year-olds; AOR = 1.06 [1.05-1.06] for adolescents). Conclusion: Trauma stress symptoms play a key mediating role in the link between ACEs and sleep problems among children and adolescents. Interventions targeting these symptoms may improve sleep outcomes for children with ACEs.

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38**Abstract Title:** Childhood Trauma Intervention in Argentina

Student: Caitlin Deffendall

Mentor / e-mail: Paula Arnett / paula.arnett@uky.edu

Abstract: Since they were identified in the 1990s, Adverse Childhood Experiences (ACEs) have shaken up the health research community. Defined as traumatic events experienced in childhood, ACEs have been linked to nearly every leading cause of death. Latin America has one of the highest rates of ACEs in the world, despite lacking a consistent data source. Using data points associated with violence is the easiest way to make the connection between rates of trauma throughout Latin America and the Caribbean. Although there have been varying degrees of governmental responses among countries, the United Nations has encouraged reform throughout the region using the World Health Organization's INSPIRE handbook as guidance. The intervention proposed for Argentina, a country that still has strides to make in terms of policy, is also based on the INSPIRE handbook and could potentially be tweaked for applications beyond Argentina's borders.

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39**Abstract Title:** Stress and Fatigue among Child Welfare Professionals

Student: Tarise Dickens

Mentor / e-mail: Elizabeth Riley / elizabeth.n.riley@uky.edu

Abstract: Public child welfare system workers dedicate their time and hard work to improve the outcomes for children and their families. As a high-stake organization, there are possibilities for individuals to make mistakes ranging from minor missed case opportunities to critical incident cases pushing for policy change. The National Partnership for Child Safety (NPCS) is a peer-to-peer learning and data sharing collaborative of over 35 child welfare jurisdictions in the United States, and members are focused on systems improvements. One goal the NPCS wants to achieve is to develop an efficient model of a safety culture to be followed for overall psychological safety. With a focus in critical incidents, the NPCS developed a safe systems improvement tool aimed to understand possible influences in case errors. The main objective of this study is to find a correlation between stress and work outcomes using employees within the NPCS jurisdiction as a sample. The methods of this study include survey of child welfare workers reflecting on their critical incidents. Ultimately, the goal is to understand the different types of external stressors that impact child welfare workers and their target families. Currently, this study is through data analyzation; thus, conclusions are being developed. A full description of the database, study goals, and preliminary data will be presented at the showcase.

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40**Abstract Title:** Reducing Breast Cancer Mortality in Black Women in Washington DC

Student: Tarise Dickens

Mentor / e-mail: Paula Arnett / paula.arnett@uky.edu

Abstract: Secondary prevention such as mammogram screening has caused industries through the Public Health, Medical, and Research agencies to emphasize a nationwide push for women to get tested for Breast Cancer. Despite being historically proven as effective, there are certain barriers that have caused a low number in underrepresented communities, specifically African American women to be screened compared to their counterparts. External issues such as the fear of financial burden and access to healthcare causes many cases to be diagnosed in later stages where treatment is difficult and chances of recovery decreases. This project focuses on the high death of Breast Cancer within African American women in Washington DC. Additionally, this project will describe previous findings of the disparity, interventions possible for the area of focus, and the benefits and challenges of the implementations.

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Abstract Title: Comparing Alcohol Use Questions in National Surveys Through Compiling an Alcohol Use Repository

Student: Sophia Goodin

Mentor / e-mail: Anne E. Ray / anne.ray@uky.edu

Abstract: Purpose: The aim of this study was to create a repository of alcohol use measures from national epidemiologic surveys, identify key characteristics of the measures, and organize the repository by characteristics. Compiling measures into a single, easy-to-use repository can make it easier for individuals who are interested in future alcohol-related measurement and/or use of survey results (e.g., students, researchers, local public health officials) to find the information they need. Methods: Alcohol-specific measures were collected from 5 national surveys and put into a database. Three members of the research team reviewed the database to identify measurement characteristics. Once key domains and subdomains were agreed upon, items were individually coded by each team member. The team met to discuss and reconcile any coding discrepancies. Results: Measures were organized within two primary domains: time and behavior. For time, six subdomains were identified: most recent, past month, past year, lifetime use, pregnancy, and age of onset. For behavior, seven subdomains were identified: any use, frequency, quantity, peak drinking, heavy drinking, drinking context, and other drinking-related behaviors. Past month was the most measured timeframe (4 out of 5 surveys). Frequency of use and heavy drinking were the most measured behaviors (4 out of 5 surveys). Conclusion: As an undergraduate student, the experience of compiling a measures repository helped us to gain research experience including searching for information, entering data, and qualitative data analysis. Our next step will be to document details related to the accessibility of data from these surveys.

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42**Abstract Title:** Transforming the Grief Journey: The Power of Camp

Student: Sophia Goodin

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Abstract: 1 in 5 children will experience the death of someone close to them by the age of 18. The early years of a child's life should be full of chances to explore, dream, look forward, and feel connected. However, when a child loses someone significant, these moments are often overshadowed by guilt, anxiety, regret, and, perhaps most painfully, loneliness. Experience Camp was made for grieving children to find a community of support and to realize that they are not alone in the battles that they are facing. Experience Camp offers so much more than just a week long camp, they have a mission to build a community all year around by having family camps, adult retreats, day events, and even online events such as having a Roblox world and a content platform called Grief Sucks which was created by teens for teens. Over the past summer, I had the opportunity to be a part of the Georgia girl's camp. It has opened my eyes to how important it is to build community and a support system, as well as experiencing different ways to cope and to express your emotions in healthy ways. Through this poster, I will share statistics about childhood grief, healthy ways to cope with emotions, the importance of community and lastly my experience/ what I've learned from going to this camp.

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Abstract Title: Addressing Infant Mortality in Webster County Through a Mobil Maternal Health Clinic

Student: Emma Grace Hague

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Abstract: Despite decreasing steadily since the mid 1900's infant mortality rate (IMR) was identified as increasing at the national level in 2021. This increase is extremely concerning as IMR is considered a strong indicator of overall community health by public health professionals. Although this increasing rate is a nationwide issue, certain communities have been especially affected. Health Resources and Services Administration (HRSA) data reveals that in the most recently studied time frame of 2020-2022, the highest IMR in Kentucky was in Webster County. In Webster, the IMR is 14.2 deaths per 1,000 live births, which is far higher than the state and national average. Although infant mortality is a complex issue with many different causes, early pre-natal care is considered a protective factor. There is a demonstrated lack of pre-natal care in Webster with only 72.4% of pregnant women receiving pre-natal care in the first trimester. This project seeks to explore the possible use of a mobile maternal health clinic (MHCC) to ensure access to pre-natal care for the women of Webster as a means of ultimately decreasing infant mortality. The effectiveness of existing MHCCs will be evaluated and their feasibility in the context of Webster will be explored. Ultimately, this project seeks to provide information that could eventually be used for infant mortality interventions in areas that experience similar gaps in pre-natal care and subsequent high IMR.

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Abstract Title: Roots of Resilience: Reducing Childhood Anxiety through Parental Behavioral Changes through the Theory of Planned Behavior and Evidence-Based Program Components

Student: Ashley Hardin

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Abstract: Anxiety, affecting over 300 million U.S. adults, starts frequently in youth, heightening risks of severe outcomes like suicide, especially in low-income households where environmental stressors elevate stress-related biomarkers such as cortisol. Adverse Childhood Experiences (ACEs), including abuse, neglect, and family instability, significantly amplify risks for anxiety and related disorders, underscoring the importance of addressing these early life stressors. Emerging research links childhood anxiety to both immediate environmental conditions and long-term generational impacts through epigenetic modifications stemming from parental ACE exposures. In response, a targeted intervention was proposed in Floyd County, Kentucky, a region with high rates of child maltreatment, poverty and various environmental stressors. Utilizing the Theory of Planned Behavior framework, this initiative aims to reduce parental maltreatment by increasing parental knowledge and skills through the Incredible Years Program Curriculum model with experiential skill workshops, well-being and mindfulness training, and meal preparation courses that enhance and reinforce knowledge and skills while providing support, guidance and the tools needed to build strong parent child bonds through positive interactions. To further support family's social determinants of health care packages are provided containing meal kits, recipes, and hygiene products. Focusing on modifying parental behavior through community support and resources this program aims to reduce childhood anxiety and prevent future maltreatment which creates a significant shift in community health. This program is grounded in evidence-based practices and offers a framework for similar communities.

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Abstract Title: Encouraging Proper Self-Management of Diabetes Through Culturally Adapted Education

Student: Viviana Heredia

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Abstract: In Fayette County, diabetes lays a heavy burden on the health of its population, with a prevalence rate of 10% as of 2024 (County Health Rankings, 2025). In recent years, the Latino/Hispanic community has carried one of the highest prevalences of diabetes by race/ethnicity in the U.S (Cheng et al., 2019). Given that Fayette County has the second largest Latino/Hispanic population in Kentucky, it is likely that this trend in burden of disease can also be observed in Fayette County (Kentucky Department for Public Health, 2017). This concept emphasizes the need for culturally adapted diabetes care and education for Latino/Hispanic populations to ensure proper self-management of diabetes and lower the risk of negative health outcomes due to improper self-management of diabetes. This report describes the concept of a proposed program using evidence-based and culturally adapted programs aimed at delivering proper care and education around self-management of diabetes. This proposed program will take place at various accessible locations throughout Fayette County in partnership with trusted community partners, such as churches, libraries, and others, multiple times a week. During both small group and individual sessions, bilingual educators of various Latino/Hispanic cultures will lead hands-on education centered around the importance of proper self-management of diabetes. Sessions will focus on self-management skills such as blood glucose monitoring, problem-solving skills, handling devices such as insulin pumps, and compliance with medications. Additionally, culturally competent education will also be provided around coping mechanisms, health behaviors for risk-reduction, and patient advocacy techniques. Depending on its success, this program may be able to serve as a model for future diabetes management education programs tailored for Latino/Hispanic communities.

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Abstract Title: Cultivation of Empathy In Elementary-Age Students in Lexington-Fayette County using the MindUp School Intervention

Student: Maylee Skovron

Mentor / e-mail: Dr. Paula Arnett / paula.arnett@uky.edu

Abstract: The cultivation of empathy can have a lifelong impact. Empathy allows individuals to adapt socially, which can lead to more fulfilling relationships and better mental health. The cultivation and practice of empathy can start at a young age. Schools play an active role in shaping social culture and norms through the socialization of their students. The emphasis on empathy in schools can help students learn life-long skills to benefit themselves and the communities they will be part of. Skills derived from empathy include collaboration, communication, conflict resolution, and compassion. The following poster will explore how the cultivation of empathy is impacted by mental health, aggression, depression, and anxiety in a scoping literature review. Next, the poster details the pathways of empathy. Then, it will look into the various ways classrooms, family, peers, and the environment can shape a child's capacity for empathy. In addition, the personal and lifetime benefits of empathy will be explored. The Lexington-Fayette County will be the target community for the empathy-based intervention. Although there are few stats on the mental health of people and children in Lexington, the Lexington County Health Assessment of 2023 notes that the most pressing behavioral/physical health condition is mental health disorders. The MindUP Program was founded in 2003 and focuses on the cultivation of mindfulness, positivity, social-emotional learning, empathy, and stress management. This program could be beneficial in cultivating empathy in Lexington elementary schools.

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47**Abstract Title:** LFCHD 2025-2030 CHIP: Increasing Access to Behavioral Health Services

Student: Brayden Ward

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Abstract: Background: The University of Kentucky College of Public Health's Center for Public Health Systems and Services Research (CPHSSR) partnered with the Lexington-Fayette County Health Department (LFCHD) as part of their Lex-CHIP partnership for Community Health Assessment/Improvement Planning (CHA/CHIP). This collaboration utilized Photovoice as part of CHA primary data collection to identify community health assets and challenges. Based on CHA data, Lex-CHIP members prioritized improving access to behavioral health services for their 2025-2030 CHIP cycle. Objective: Increase behavioral health resource access in the Lexington-Fayette community by enhancing awareness and knowledge of local resources addressing social drivers of behavioral health. The goal was to streamline up-to-date resource information to support behavioral health service utilization. Methods: A comprehensive review of eight previously developed resource guides for Lexington-Fayette County was conducted. This review assessed description accuracy of the resources in previous guides and corrected any changes that have happened over time. Available resources were put into a user-friendly Excel-based directory and categorized into thirteen distinct categories ranging from behavioral health to transportation. Resource name, category, contact, brief description, and any eligibility requirements are included in the directory. Results: 328 local resources were reviewed and incorporated into the behavioral health resource directory. This directory will serve as a foundational tool for CHIP implementation in 2025-2030 as Lex-CHIP members co-design and evaluate strategies for promoting resources on the directory to populations/partners who might benefit most. It is accessible to the public on the LFCHD website and distributed in handout form through QR codes at community events.

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Abstract Title: Bridging the Gap between Academia and Practice: Provision of Decision Support Services

Student: Ashley Grospitch

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Abstract: Academic-practice partnerships play a critical role in bridging the gap between public health research and practice. This poster will explore the importance of decision support services within these partnerships. Team Up, an academic-practice collaborative in the University of Kentucky College of Public Health (UKCPH), has provided decision support services to public health practitioners, such as health departments and hospitals. Decision support services-including pulling, interpreting, and presenting statistical and social determinants of health data; developing surveys; conducting literature reviews; and compiling evidence-based policies and practices-help address challenges such as workforce shortages, high turnover rates, and the need for evidence-informed decision-making. Given that approximately 83% of the public health workforce has no formal public health training, decision support services provide practitioners with access to public health principles, data sources, and best practices, increasing the uptake of evidence-based decision-making. Additionally, these services are essential during public health emergencies, such as disease outbreaks or natural disasters, by providing rapid, localized guidance. From an academic perspective, decision support services inform competencies to better suit the needs of the public health workforce. By embedding faculty and students in real-world public health settings, partnerships like Team Up create a reciprocal exchange of knowledge, strengthening both community health outcomes and academic scholarship. Decision support services benefit both academia and practice. Academic-practice partnerships are the future of public health, and decision support services are vital in their development. This poster is part of a 3-poster series.

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Abstract Title: Bridging the Gap Between Academia and Practice: Workforce Development through Experiential Learning

Student: Keelie Jolly

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Abstract: Recent published literature has emphasized the importance of collaboration between public health academia and practice to facilitate the dissemination of evidence-based practices in communities, address rapidly changing community needs, and facilitate the sharing of expertise between academic and practice entities to improve public health outcomes. Team Up: A Public Health Academic Practice Collaborative, located within the College of Public Health (CPH), was launched in Spring 2023. The Team Up mission is to maximize public health learning experiences through three strategic priorities: Community-Engaged Decision Support Services, Collaborative Community Organizing, and Applied Scholarship. Within the priority area of Applied Scholarship is a focus on workforce development. This focus coincides with the University of Kentucky's recently introduced '10 Essential Skills Initiative,' which details ten essential employability skills that every student who graduates from the University should possess upon graduation to be workforce-ready. The purpose of this presentation is to detail the ways in which Team Up activities are preparing future public health professionals for practice-based public health work, through the development of each of the ten essential skills, in an ultimate effort to bridge the gap between public health academia and practice through workforce development. This poster is part of a 3 poster series.

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Abstract Title: Gestational Diabetes Under the Lens: Analyzing Physical and Mental Health Predictors

Student: Haritomane Brillakis

Mentor / e-mail: Rachel Hogg-Graham / rachel.hogg@uky.edu

Abstract: Gestational diabetes mellitus (GDM) affects approximately 7% of pregnancies worldwide, posing significant risks for both mothers and newborns. This study examines the combined influence of physical conditions (e.g., obesity, hypertension) and mental health factors (e.g., depression, anxiety) on GDM risk, using crosssectional data from the Pregnancy Risk Assessment Monitoring System (PRAMS) (2016-2022). This study examines the impact of physical health conditions (e.g., obesity, hypertension) and mental health conditions (e.g., anxiety, depression) on the prevalence of GDM, as well as the interactions between these physical and mental health conditions regarding GDM risk. Logistic regression analyses were conducted on a binary variable for GDM, comparing the odds of physical and mental health conditions, both unadjusted and adjusted for demographic and socioeconomic factors. Additionally, we evaluated any differences in GDM prevalence before and during the COVID-19 pandemic. Preliminary logistic regression analyses-adjusted for demographic and socioeconomic variables-identified obesity (OR=3.16), overweight status (OR=1.78), and advanced maternal age (35 years, OR>4.60) as the strongest predictors of GDM. During the pandemic, thyroid disorders (OR=1.23; 95% CI=1.01-1.50) and depression (OR=1.16; 95% CI =1.03-1.30) were associated with a higher risk of GDM than before the pandemic. Furthermore, the results indicate varying impacts on GDM risk from co-occurring physical and mental health conditions. Additional factors, including hypertension, thyroid disorders, polycystic ovary syndrome, and depression, also significantly increased GDM risk. These findings underscore the importance of integrated physical and mental health assessments and targeted policy interventions to improve GDM prevalence and associated complications.

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Abstract Title: Insights on the Social Needs Screening and Referral Process from Population Health CHWs and Community Partners

Student: Haritomane Brillakis

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Abstract: In January 2024, the Center for Medicare and Medicaid Services (CMS) mandated screening for social drivers of health across hospital systems. As part of the University of Kentucky HealthCare (UKHC) Population Health response, community health workers (CHWs) facilitate referrals to local community-based organizations (CBOs) to address patients' identified social needs. This study explored the strengths, challenges, and opportunities to improve this screening and referral process through qualitative focus groups. Using Ripple Effects Mapping (REM), a participatory evaluation method, we conducted three virtual focus groups in early 2025: one with CHWs, and two with representatives from basic needs and social service CBOs (N=13). Participants shared stories of success and barriers with social needs screening and referrals while facilitators visually mapped processes and themes using mind-mapping software (X-mind). Key strengths included increased referral volume from social needs screeners, the value of warm handoffs- especially in interpersonal safety cases- and strong relationships with trusted CBOs. Challenges included limited CBO capacity, CHWs' out-of-pocket expenditures to support patients, and role misperceptions among clinical teams and patients. Communication gaps between healthcare providers and CBOs also hinder the referral process. Our findings highlight the importance of integrating CHWs more fully into clinical workflows, improving communication between partners, and providing sustained financial support to CBOs and CHWs. These insights offer actionable policy recommendations to enhance the social needs screening and referral process, ensuring strengthened care delivery across health and community settings.

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Abstract Title: The impact of caregivers' needs for re-entry among children in out-of-home care

Student: Hyeun Shin

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Abstract: For children who have been in out-of-home care (OHC) and then reunited with their permanent caregivers, re-entry to OHC may negatively affect their permanent relationships, highlighting the need for better support for caregivers. To examine the relationship between caregivers' needs factors and the likelihood and timing of re-entry within one year after being reunified with their caregivers for children who have been in OHC. Our sample included children and adolescents (age 0-17 years) reunited with their permanent caregiver in the foster or residential care system from 2011-2021 (N=13,212) in a midwestern state assessed using the Child and Adolescent Needs and Strengths (CANS). Time to re-entry was defined as the period between a child's exit date from their first reunification, occurring from 2011 to 2021, and their subsequent return to care within 365 days. Caregiver's needs were dichotomized as 'one or more needs' and 'non-needs' groups based on six factors: behavioral, emotional, executive functioning, health, socioeconomic status, and social resources. Among 13,212 children reunited with their families, 2,588 (19.6%) re-entered foster care within a mean follow-up period of 10.53 months. The mean age at re-entry was 9.65 years (± 5.69). Controlling for demographic factors, children with caregivers who have one or more behavioral needs face a re-entry rate that is 20% higher ($P < 0.001$). In addition, children whose caregivers have health-related needs have a 16% higher re-entry rate ($P < 0.01$), and those with caregivers facing socioeconomic instability show a 26% higher re-entry rate ($P < 0.001$) compared to those without such needs. This study shows that the needs of each caregiver significantly influence the likelihood and timing of a child's return to care. It highlights the importance of addressing caregivers' unmet needs when developing interventions for chil

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Abstract Title:	The Efficient Epidemiologist: Utilizing R and Generative AI to Enhance Disease Surveillance
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Student:	Meghan Steel
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Mentor / e-mail:	Dana Quesinberry / dana.quesinberry@uky.edu
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Abstract:	<p>In the dynamic field of public health, efficiency in disease surveillance is essential. R programming and AI tools can be harnessed to optimize data management, analysis, and visualization processes. These powerful methods can significantly improve accuracy and reproducibility when properly utilized, improving the productivity of the epidemiologist regardless of their field. This poster presents practical techniques for simplifying the often-challenging task of working with large, population-level datasets while enhancing the efficiency of surveillance workflows. Key strategies discussed will include: 1) How to restructure datasets for clearer interpretation and to generate complex summaries; 2) Reproducible reporting to reduce the reliance on manual report generation that can result in potential inaccuracies and inconsistencies across analysts; 3) Enhanced visualizations to improve presentation standards through the implementation of techniques to increase clarity and audience engagement; and 4) Leveraging AI to assist with coding tasks, troubleshooting, and generating complex syntax. This includes an ethical discussion surrounding issues of intellectual property, accuracy, and security. These four topics will provide demonstrations that can highlight the benefits of using R Markdown to create dynamic, automated reports with embedded code and visuals. By integrating these proven methods, epidemiologists can significantly reduce manual effort, minimize errors, and produce clearer, more understandable outputs efficiently. This poster aims to equip public health professionals with essential techniques to make disease surveillance both rigorous and efficient, ensuring that any epidemiologist can efficiently deliver high-quality insights that are critical for policymaking and the protection of public health.</p>
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