

Abstracts

Poster #1

Abstract Title: **Educational Barriers Inhibit LARC Utilization and Promote Teenage Pregnancy**

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Abstract: West Virginia (WV) is listed amongst the top states for teenage pregnancy rates. While northern counties retain lower than average rates, southern counties such as McDowell, observe rates higher than even the worst state, upwards of 95% (5, 6). These regional specific differences highlight the southern part of the state. Teenage pregnancy results in high dropout rates of young girls (3, 4, 9), high opioid use (6, 7), and low-income job opportunities (8). Long acting reversible contraceptives (LARCs) have the highest effectiveness rate of contraceptive options; they are safe and reliable (1, 2). Using LARCs in place of other traditionally-prescribed methods would reduce adolescent pregnancy rates. This project aims to increase the awareness and use of LARCs among health care providers (HCPs), public health resources, and teenagers by demonstrating covariation between teenage pregnancy and low use of LARC. We evaluated West Virginia healthcare providers' use of LARCs and their perceived barriers to use. An electronic survey was sent via email to 2,196 HCPs likely active in prescribing birth control to adolescents and obtained 109 usable responses. While most providers knew that LARCs are the first line ACOG recommendation, the most commonly-prescribed contraceptive, birth control pills, did not follow that advice. The most frequent reason given that HCPs not prescribe and/or place LARCS is because they have not been properly trained. HCPs were also concerned about adolescents' acceptance of LARCs. These results indicate a need to provide educational opportunities/training to both HPCs and patients.

Supported by: West Virginia University National Center of Excellence in Women's Health

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Community Org Rep
Education

Abstracts

Poster #2

Abstract Title: **Exploring Programmatic Solutions to Smoking Cessation**

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Abstract: Data shows smoking rates for Rowan County KY to be well over the national average of 15.5%. It is evident to reach the 28% of adults and 23.1% of teenagers who smoke, creative solutions are crucial in this area. Adolescent tobacco use, lack of transportation, inadequate numbers of tobacco cessation professionals and discomfort associated with healthcare facilities were identified as barriers to cessation through interviews with primary care providers, school officials and community members. Based on this feedback, nontraditional solutions to smoking cessation programs were created including a school based tobacco cessation program and web-based access to counseling. Using the American Lung Association curriculum for adults entitled Freedom From Smoking and the program designed for adolescents, Not On Tobacco, course facilitators were trained to deliver evidence-based tobacco cessation counseling in comfortable settings. Preliminary data offers insight when these obstacles are addressed and ease of access is increased. As tobacco related illnesses continue to plague Kentucky, smoking cessation efforts must evolve to fit the needs of those effected; and the healthcare industry must strive to accommodate culture based barriers specific to Kentucky and further the discussion.

Supported by: National Center for Advancing Translational Sciences, UL1TR001998 through the Community Leadership Institute of Kentucky

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Abstracts

Poster #3

Abstract Title: **Cultural Competency Issues with Rural Appalachian Patients: The View from Native Appalachian Nurses**

Author(s): R. S. Seamon, Appalachian Healthcare Training & Consulting

Abstract: The Appalachian region has long experienced economic, social, and health disparities greater than the rest of the United States. While many factors underlie these disparities, one often-overlooked component is the cultural disconnect between health care provider and patient. In rural, underserved mountain areas, healthcare providers have often been recruited from outside the region or even from outside the country. Providing specific, culturally sensitive training, targeted to health care professionals, who work within Appalachia, will improve the quality of care and health outcomes residents in Appalachia experience. Studies show attitudes and biases of health care providers contribute to health disparities. New research has shown "that patient-provider communication problems are important contributors to health disparities" (Kilbourne, et al.) I will describe a qualitative research study in which interviews were conducted with native Appalachian nurses in order to explore the difficulties and challenges that arise when non-native Appalachian health care providers interact with rural Appalachian patients and how they can be improved. I conducted interviews with eight native Appalachian nurses who had been employed as registered nurses for five plus years. Questions about many topics explored the experiences of health care providers in providing care to native Appalachian patients. Questions covered communication issues with native Appalachian patients and non-native providers, Appalachian core values, family, faith, interactions with health care providers, and finally, how stereotypes affect the interaction between native Appalachian patients and the non-native health care providers. Important findings concluded that poor communication between provider and patient frequently led to poorer outcomes.

Supported by:

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Abstracts

Poster #4

Abstract Title: **Rural Field Offices Established Through Appalachian Partnership**

Author(s): W. Noble, Center of Excellence in Rural Health, U of Kentucky
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B. Bowling, Center of Excellence in Rural Health, U of Kentucky

Abstract: Background: Appalachia Kentucky has the highest rates of Diabetes, Heart Disease, Cancer, opioid use disorder and poor mental health. In 2006, the University of Kentucky established the UK Center for Clinical and Translational Science (CCTS). Later in 2011, CCTS applied for and received funding to expand their research efforts into Appalachia Kentucky. As a result, the CCTS Community Engagement and Research Core partnered with the UK Center of Excellence in Rural Health and provide funding for a community engagement field office, located in Appalachia. The partnership gave UKCCTS access to the Appalachian population. Objective: 1. Assist researchers, recruit, and consent; implement research projects through community engagement by developing and strengthening partnerships with coalitions, communities, and community organizations. 2. Research advising for grant applications. 3. Help with dissemination of research findings. Methods: Connect with community leaders, hold focus groups, form community advisory boards, provide community tours with targeted areas of research. Formulate research plans and necessary forms. Results: Numerous Principal investigators have completed successful research projects, and this gave them the ability to apply and receive further funding to expand on their research with the help of CCTS and UKCERH field offices.

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Abstracts

Poster #5

Abstract Title: **Community Health Workers Open Doors for Health Disparities Research to Improve Health Equity**

Author(s): F. Feltner, College of Medicine, Center of Excellence in Rural Health, U of Kentucky

Abstract: Rural Appalachia in eastern Kentucky experiences severe health disparities and barriers to healthcare. Community-based research is an effective way to address health disparities and promote equitable access to care. However, rural Appalachian populations can be difficult to reach, posing significant challenges for successful recruitment and retention of research participants. Kentucky Homeplace (KHP), a nationally-recognized Community Health Worker (CHW) program, has become an invaluable partner in research aimed at addressing profound health challenges. Established in 1994 by UK Center of Excellence in Rural Health (UKCERH), KHP engages with a well-established network of community partnerships across 30 Appalachian counties. KHP employs primarily local citizens who are trusted community members. This important requirement in KHP's staffing model supports culturally appropriate and effective research recruitment and engagement. CHWs are skilled in addressing barriers to research participation including, previous negative experiences with research, lack of transportation, low literacy rates, general distrust of those not from the area and poor understanding of the research process. UKCERH trains CHWs in human subjects protection, informed consent, survey administration, focus group facilitation, motivational interviewing, data collection and evidence-based self-management programs. As a result of UKCERH's investments to expand CHWs' roles, KHP has become a research partner on the topics of depression in Appalachian women, FIT screening, text messaging/social media to reduce colon cancer risk factors, lung cancer screening messaging and family support for early childhood behavior. These research projects have contributed to the knowledge base for improving health equity in rural Appalachia and best methods for reaching this population.

Supported by: Numerous sources of support including UK CCTS pilot funding.

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Abstracts

Poster #7

Abstract Title: **Assessing Diabetes Distress and Depression in Rural Appalachian Ohio**

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Abstract: Diabetes has reached epidemic proportions in the US and the people of Appalachia have been disproportionately affected by this disease. In rural southeastern Ohio, diabetes rates far exceed both the national (19.9% vs. 9.4%) and state prevalence (11.0%). The purpose of this study was to assess the emotional health of people with diabetes living in southeastern Ohio. We conducted a descriptive cross-sectional survey study to assess people's glycemic control, diabetes distress, and depressive symptoms. A total of 177 adult with diabetes participated (56.6% type 2 diabetes, 43.4% type 1, duration=10.5±9.3 years, mean A1C=7.3±1.4%, mean age=37.1±17.3 years; 61.1% female; 83.7% white; 43.4% college degree or more, 98.8% insured). Overall, 14.4% of participants showed symptoms of severe depression; 25.7% of people with type 1 diabetes exhibited high distress and 29.9% of people with type 2 diabetes exhibited high distress. Adults reporting severe depressive symptoms were more likely to report high diabetes distress for type 1 diabetes ($C2=12.361$, $p<0.001$) and type 2 diabetes ($C2=30.334$, $p<0.001$). Regression analyses found high scores of type 1 diabetes distress (standardized $b=0.325$, $p=0.037$) were independently associated with higher A1C levels after controlling for depressive symptoms ($p=0.809$), age ($p=0.093$) and gender ($p=0.071$). This model accounted for 19% of the variation in A1C. The same model found no association between type 2 diabetes, distress, and A1C. Adults with diabetes in rural Appalachia Ohio experience high rates of diabetes distress and depression. Diabetes interventions that incorporate cognitive behavioral techniques may benefit adults with diabetes distress and depression in this region.

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Abstracts

Poster #8

Abstract Title: Evaluating SHUTi (Sleep Healthy Using the Internet) to Reduce Insomnia, Sleep Aid Use, Stress, and Depression in Appalachian Women Ages 45+

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Abstract: Background and Aims: Insomnia is associated with a myriad of health disparities. Women aged 45 years and above living in Appalachia are at especially high risk for insomnia. Prescription and non-prescription sleep aids are the most prevalent insomnia treatment, but pose risks (e.g., falls, cognitive decline) and fail to treat underlying social or behavioral causes. Conversely, cognitive behavioral therapy for insomnia (CBT-I) is relatively risk-free and improves sleep while also reducing stress and depressive symptoms. This project aimed to pilot-test SHUTi (Sleep Healthy Using the Internet), a well-validated online version of CBT-I, in Appalachian women, ages 45+. Methods: Pre- and post-intervention, participants completed an online survey detailing their sleep, stress, mood, and sleep aid use. Data were analyzed using one-way repeated measures ANOVA or generalized estimating equations where appropriate. Outcomes of interest were: insomnia severity, stress, depressive symptoms, and medication use. Results: Forty-seven women enrolled; 36 have completed pre-and post-intervention surveys. Analysis revealed the post-intervention time point was associated with 0.27 times the odds of reporting sleep aid use, (95% CI with robust variance estimator 0.17-0.80; $p=0.01$). Further, there were significant and positive improvements in: insomnia severity index scores, self-reported stress, and depressive symptoms. Conclusions: Appalachian women live in an insomnia “hotspot,” and have limited psychosocial resources and access to health services. Results from this pilot project suggest that SHUTi may be a useful, non-drug insomnia treatment that also reduces stress, depressive symptoms, and sleep aid use. Future work should test SHUTi in a larger, more generalizable sample.

Supported by: This project was supported by a Building Interdisciplinary Research Careers in Women's Health Fellowship (NIDA grant: K12DA035150), pilot funding from the Igniting Research Collaborations Grant (University of Kentucky College of Pharmacy) and the University of Kentucky Center for Clinical and Translational Sciences (grant: UL1TROO1998). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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Abstracts

Poster #9

Abstract Title: **Mental Health Needs Assessment among local Organizations that serve the Latinx Community in Forsyth County**

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Abstract: The Latinx population in Forsyth County, NC, is growing rapidly and experiencing significant disparities in access to mental health care. Latinx are the largest minority in the United States, composing 17.5% of the national population. They are also the fastest growing minority in Forsyth county, composing 12.7% of the population. One of the major struggles faced by the Latinx community all around the country is the lack of access to affordable, culturally sensitive, and bilingual mental health services. Existing literature documents a multitude of both cultural as well as systemic factors that limit access and utilization of mental health services among the Latinx community. The stigma associated with seeking and/or receiving mental health services among the Latinx community is a known barrier to accessing care. In a recent study, emerging Latino adults who reported experiencing forms of social acculturative stress and discrimination also reported a history of past suicide attempts. This poster presentation summarizes mental health needs assessment data collected through a RedCap survey. Data were obtained from local organizations serving the Latinx community, and highlight the unique mental health needs, existing resources, challenges, and barriers to care for our local community. Data were shared during a community discussion group with survey respondents, and next steps for addressing challenges and barriers to mental health care were identified. Community-based participatory research approaches are essential for developing viable strategies for decreasing the health inequalities and increasing access to mental health care for this population.

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Abstracts

Poster #10

Abstract Title: **Message Content and Framing: Evaluating Motivators for Male Colorectal Cancer Screening in Appalachian Kentucky**

Author(s): M. Rogers, Markey Cancer Center, U of Kentucky
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Abstract: Introduction: This research examined colorectal cancer (CRC) screening message framing and delivery methods to identify Kentucky Appalachian male preferences for message content and modality as motivators to seek CRC screening. This presentation examines the impact of key messages to improve CRC screening knowledge among Kentucky Appalachian men of recommended screening age, and their preferred delivery methods to receive CRC screening messages. Methods: Sixteen men aged 41-61, residing in Appalachian Kentucky, were recruited at community events and meetings to participate in face-to-face interviews or small focus groups to review a variety of recent CRC screening messages in various formats. No incentives were provided. The formats reviewed included posters, flyers, television ads, radio ads, and pamphlets. In addition to basic demographic information, participants completed scaled-response and open-ended questions to collect opinions of preferred message content and delivery styles. Results: Feedback from this small, but impactful group suggests Appalachian men may not receive adequate information about what types of CRC screening tests are available, as only two of the 16 were familiar with fecal immunochemical testing (FIT) as an annual screening option. Additionally, nine participants identified information listing multiple screening options (e.g., FIT, colonoscopy, and sigmoidoscopy) for CRC is a key message. Regarding modality, participants identified social media, television, and healthcare providers as trusted and preferred message delivery points. Conclusion: These qualitative findings indicate additional research can further refine messages and delivery methods that combine population-based awareness with improved provider-based communication to better educate this population of appropriately aged males about CRC screening.

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Abstracts

Poster #11

Abstract Title: **Lung Cancer Prevention and Survivorship among low-income primarily male worksites in Southern Kentucky: Recommended Communication Strategies**

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Abstract: Background: Kentucky has the highest lung cancer incidence and mortality rates in the nation and the rates are highest among males. The Kentucky Cancer Consortium, Kentucky Cancer Program and University of Kentucky College of Public Health are collaboratively implementing a multicomponent intervention that builds non-traditional partnerships and addresses lung cancer disparities among rural, low-income employees in mostly male worksites in eight Southern Kentucky counties. Methods: One component of this intervention includes county-level Roundtable meetings with worksites. The first Roundtable meetings focused on an overview of lung cancer and a group discussion. The second Roundtable meetings discussed available lung cancer-related resources and specific ways to reach employees. If unable to attend a Roundtable, participants had the option of a key informant interview. Each participant completed a worksheet indicating preferred lung cancer messages and methods. These messages and methods were aggregated across all counties and measured by frequencies. Results: Representatives from 60 worksites participated in the first Roundtable meetings. Forty-four worksites participated in the second Roundtables and six participated in key informant interviews. The most recommended communication methods included: In-person meetings (35) and eye-catching flyers/posters (35). The most recommended messages include: Help with quitting smoking (40) and lung cancer screening and early detection (37). Conclusions: Roundtable meetings and key informant interviews provide a venue for worksites to discuss common health concerns and ways to meet the needs of their employees. Their recommendations have been utilized to inform the development of a Resource Kit that is currently being piloted in eight worksites.

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Abstracts

Poster #12

Abstract Title: **An Innovative Approach to Disseminate Geologic Radon Map Infographics and Increase Home Radon Testing: Train the Trainer Workshop**

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Abstract: Exposure to radon, a colorless, odorless gas derived from the decomposition of uranium in the ground, is associated with approximately 10% of lung cancer cases in the United States each year. The combined exposure to tobacco smoke and radon dramatically increases the risk of lung cancer. There is a need to increase knowledge and awareness about the dangers of radon exposure, as well as increase home testing for radon. The purpose of this study was to evaluate the impact of Train-the-Trainer workshops to disseminate county-level radon map infographics and free radon test kits. User-friendly geological map infographics were created for fifteen Kentucky counties, including 10 Appalachian counties. Forty-two public health professionals participated in Train-the-Trainer workshops and were asked to distribute geological map infographics and free radon test kits to the public. The impact of the Train-the-Trainer approach on overall home radon testing was assessed, as well as whether radon testing increased in the areas known to have the highest radon levels. On average, 22 test kits were distributed per trainee for a total of 903; 12% were deployed. Perceived barriers to distribution will be presented. There were 1,388 website hits to the map infographics. There was a marginal increase in trainees' perceived synergistic risk (radon + tobacco smoke) at post-training. Partnership with other organizations or combining radon and other educational topics were helpful in some instances. This approach engaged the community, increased radon testing, and may decrease barriers to radon education and home testing.

Supported by: Funding provided by the Kentucky State Radon Program

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Abstracts

Poster #13

Abstract Title: **Impact of Social Influence on Breast Cancer Education among Amish and Mennonite Women in Rural Ohio**

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Abstract: The importance of social influence on health-related behavior has been often studied among various population groups. However, less is known about the impact on cancer beliefs, especially among collectivistic societies such as Amish and Mennonite communities. Home to the world's largest Amish settlement, Ohio contains dozens of communities where access to cancer education is often limited. The purpose of the study was to explore if differences emerged between individual and group education sessions and whether certain keywords identified in focus groups impacted breast cancer beliefs. Amish and Mennonite women receiving breast health services through a community-led initiative called "Project Hoffnung" (Hope) between April 2011-February 2012 were recruited to participate in the study. A total of 463 women received a 20-minute breast cancer program, and then were asked to participate in a focus group. The same breast cancer questions were asked individually (T1) prior to the education session and again during the focus group (T2). A total of 147 focus groups were conducted at 22 separate events. Responses did vary between T1 and T2 depending on keywords mentioned during the focus groups. For example, the percent change in responses from T1 to T2 in the group that responded "Yes" to the question "Can touching, fondling, or squeezing the breasts lead to breast cancer?" was statistically significantly higher in those groups that identified scary as a word associated with cancer ($U = 1226.5$, $p = .016$). Such findings have implications on whether individual education sessions might increase knowledge of breast health messages.

Supported by:

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Abstracts

Poster #14

Abstract Title: **Examining the Relationship Between Modifiable Risk Factors and Levels of Functioning Among Appalachian Patients With Heart Failure**

Author(s): T.M. Petite, School of Nursing, West Virginia U

Abstract: Background: Heart failure is becoming more prevalent in United States due to our aging population. Over 10% of people over the age of 70 have heart failure. In West Virginia, the heart failure death rate is 32.6 per 100,000 population accounting for 3% of all deaths. The highest rates of hospitalization for heart failure in the nation are found in the Appalachia, yet a gap exists in the literature on how modifiable risk factors are related to the wellbeing of people living in this region. Methods: A cross-sectional, descriptive, correlational study using a convenience sample of 115 patients from a nursing home, 2 outpatient clinics and a tertiary care hospital was conducted to examine the relationship between modifiable risk factors and wellbeing as measured by the Minnesota Living With Heart Failure Questionnaire. Modifiable risk factors were measured using the American Heart Association Life's Simple 7 Questionnaire, BMI; the Duke Activity Status Index and the Global Adult Tobacco Survey. Results: Statistically significant findings included higher levels of physical activity being related to enhanced levels of physical, social and emotional well-being. Nutritional status was found to be significantly related to higher levels of social well-being. Conclusion: Knowledge of modifiable risk factors and their relationship to the well-being of those with heart failure in Appalachia is necessary to develop appropriate secondary prevention measures aimed at reducing or eliminating these risk factors. Physical activity programs may have the greatest impact on physical, social and emotional well-being in this study population.

Supported by: Research Support was provided through a grant from the West Virginia University's Office of Nursing Research Fund

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Abstracts

Poster #15

Abstract Title: **Health Professional Students' Perceptions of Poverty in Healthcare**

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Abstract: Providing health care to differing cultures has been a topic of study for quite some time. Multiple resources and studies exist on cultural competencies, patient centeredness and health literacy. Examples of these are available through The Commonwealth Fund, Agency for Healthcare Research and Quality (AHRQ), and the U.S. Department of Health and Human Services Office of Minority Health. Cultural competency is also becoming a detailed topic of academic curriculums. In July 2012, a joint expert panel was convened by the Association of Medical Colleges (AAMC) and the Association of Schools of Public Health (ASPH). This panel released a report identifying detailed competencies to prepare learners to be culturally competent practitioners. Using this information as a foundation of cultural competency, the focus of this study is to provide a glimpse for healthcare providers into the culture of persons in poverty. In this time of patient centered health care, studying poverty culture will aid in the care of persons living in that environment. In this study, 28 health professional students read and completed the activities in the book entitled, Bridges out of Poverty. We completed focus groups with the students who completed the book. We asked about their experience reading the book and how they might incorporate what they have learned into the future health professional career. Outcomes are forthcoming.

Supported by: Start up funds from Ohio University

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Abstracts

Poster #16

Abstract Title: **Walking for Local Produce in Rural Kentucky: A Qualitative Review**

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Abstract: Background: State-wide data indicate that rural Kentucky populations exhibit low produce intake and low physical activity. The Tanglewood Trail Walking Program addressed these issues by encouraging participants to walk 1 kilometer to their local Farmer's Market to receive \$10 to spend on fruits and vegetables. Research Outcome: This study examined qualitative data conducted with Walking Program participants after the Farmer's Market season. Methods: Eight random participants (11%) engaged in informal, semi-structured interviews. Questions targeted program feasibility, social cohesion, and attitude and behavior changes. Interviews were transcribed and coded, utilizing a combination of In Vivo and Initial coding followed by Focused coding. Results: Participants (n=8) were white (100%) and primarily female (87.5%), ages 28-65. Three key themes emerged. Participants: purchased a variety of produce that they used in diverse ways; employed additional strategies to obtain more produce; described the program (and Farmer's Market) as community spaces. One main barrier emerged: "picky eaters" (participant or family member) prevented the purchase of new foods. Conclusions: Study results complicate state-level data that suggest low fruit and vegetable intake in rural Kentucky. Participants of the Tanglewood Trail Walking Program self-reported a variety of produce consumption practices. This suggests that produce intake might have more to do with accessibility and affordability, rather than self-efficacy. The walking program and Farmer's Market served as more than economic spaces, but sites for community building and social cohesion. This study suggests the importance of structural and communal solutions to health issues.

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Abstracts

Poster #17

Abstract Title: **Exploratory study of a summer day camp cooking program for children**

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Abstract: Background: The number of meals a family eats together correlates with lower risk of obesity, though few studies have explored how to increase family meals at home. The overall objective of this study was to explore if partnering with a summer day camp could improve the nutritional competency of children, and if it extended to the home environment. Methods: Exploratory, cross-sectional study with children attending YMCA day camp, and their parents. Surveys addressed child self-efficacy in food preparation, nutrition knowledge, and food neophobia; parent surveys assessed family meals and perception of child habits. Qualitative interviews captured child experience in classes and parent perception of child experience. Results: Pre-post surveys were obtained on 83 children and 57 parents; 15 parents and children were interviewed. There were no significant pre-post differences in child food neophobia, comfort in the kitchen, and home family meals. Children showed improvement in knowledge of calcium, sugar content of yogurt, and salt content, and a trend in knowledge of fat content of nuts. There was a trend towards children having greater parent-reported efficacy in following a recipe and decrease in soda intake. Child interviews showed enthusiasm about the classes. Parent interviews showed children enjoyed the classes, were discussing them at home, and several families had cooked the camp recipes at home. Conclusions: In this pilot study, a summer day camp cooking program had minimal impact on nutritional habits and knowledge. However, the program was well received, with extension of the experience and recipes to the home environment.

Supported by: Funding was provided by the Northwest Area Health Education Center, and YMCA of Northwest North Carolina.

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Abstracts

Poster #18

Abstract Title: **Smoke-free Policies: Inside or Outside**

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Abstract: Secondhand smoke contains a mix of fine particles, and chemicals and gases. Exposure to secondhand smoke is a cause of heart disease, lung cancer, stroke, and premature death in nonsmokers. There is no safe level of exposure to secondhand smoke. Strong smoke-free laws which prohibit smoking in all enclosed public places and places of employment improve population health by lowering heart attacks and stroke, hospital visits for asthma and emphysema, and new cases lung cancer. Currently, 34.7% of Kentuckians are protected indoors by 100% smoke-free laws. Few of these laws are in Appalachian communities. Comprehensive smoke-free workplace laws are one of the most impactful public policies known to improve population health. Several Kentucky communities have recently adopted smoke-free outdoor policies covering parks and recreational areas. A survey of 52 counties revealed that 29% had a policy prohibiting smoking or the use of other tobacco products on park property and not all of them had 100% smoke-free workplace laws. Outdoor tobacco smoke exposure is harmful, but indoors, secondhand smoke lingers in the air longer. Elected officials may use their 'political capital' voting on outdoor smoke-free restrictions, and a community may risk not getting a more impactful smoke-free workplace law if they start with outdoor spaces. Smoke-free laws, including park policies, 'stick' meaning it is unlikely they will be strengthened once they are passed. When determining whether a community is ready for a smoke-free outdoor policy, public health professionals and residents need to first advocate for 100% smoke-free indoor workplace laws.

Supported by: Grant funding from the Kentucky Department for Public Health, Tobacco Use Prevention and Cessation Program as well as the Foundation for a Healthy Kentucky, Promoting Responsive Health Policy Initiative

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Abstracts

Poster #19

Abstract Title: **Tobacco-free Ambassador Partnership: Training Youth Advocates in Appalachia**

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Abstract: Purpose: We will describe the development and impact of a collaborative youth advocacy training program on attitudes and self-efficacy to promote tobacco control policies in a rural, underserved Appalachian Kentucky county. Methods: Two half-day advocacy trainings followed by monthly meetings were implemented with students (n= 17) from one high school in rural Appalachian Kentucky from September 2017 to April 2018. The interactive trainings provided information on tobacco use and consequences, tobacco industry tactics, conducting community assessments, and advocacy skills. The youth were surveyed before each of the trainings and 8 months post-intervention. Results: At baseline, three-fourths of the students agreed they could influence how adults in the community feel about tobacco. One-third of the youth did not think the group could reduce the amount of tobacco use in their community. Likewise, over one-third of students demonstrated low self-efficacy in advocating against tobacco use among teachers; only one of 17 students demonstrated strong self-efficacy in reducing teacher use. However 30% of students demonstrated high self-efficacy in advocating against peer tobacco use. Similarly, 77% reported advocating against peer and family tobacco use; 69% had not advocated against adult tobacco use in the community. We will present post-intervention findings. Conclusion: Youth in Appalachia demonstrated a desire to influence adult tobacco use and attitudes, but lacked the experience and the self-efficacy to do so. Findings reinforce the need for collaborative public health interventions to promote tobacco policy advocacy training and support for youth living in high risk communities.

Supported by: CVS Health Foundation Gift

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Abstracts

Poster #20

Abstract Title: **Building Community and Academic Partnerships Through Citizen Science in Appalachia**

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Abstract: Appalachian Kentucky residents express concerns about air and water quality. Citizen Science is a chance for residents to become involved in scientific research to learn more about air and water quality in their community. University of Kentucky Center for Appalachian Research in Environmental Science (UK-CARES) is an NIEHS Environmental Health Center focused on reducing environmental health issues in southeastern Kentucky. In partnership with the University of Cincinnati (UC), UK-CARES identified community partners to evaluate UC-developed citizen science toolkits and protocols to assess water (TDS and pH meter) and air quality (PM_{2.5}) using low cost Airbeam sensors. Perry County Central High School (Hazard, KY) students used the Airbeams to test the indoor and outdoor air resulting in a video, handout, and poster presentation at Appalachian Research Day. The Program Coordinator at Headwaters, Inc. helped to identify three citizens in Letcher County, KY who were interested in testing their tap water. All community partners provided feedback to be incorporated in the final version of the toolkits. UK-CARES provided a value added resource by providing equipment and training, and assistance with report back for air and water testing results with the students and communities members. The community-academic partnership provided a local connection to help address the community's environmental concerns and match UK researchers with communities to provide expertise and support. Engaging youth to be a part of the research process offers STEM opportunities and allows for more local data collection with communities' members being a collaborative partner in the research process.

Supported by: NIEHS award: P30ES026529-01A1

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Abstracts

Poster #21

Abstract Title: **Alkaline Phosphatase Isoenzymes: Novel Biomarkers for Sepsis Prognosis in the Ruby Hospital Emergency Department**

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Abstract: Background: Sepsis [S] is the US's 10th leading cause of death, with an annual financial burden ≥ \$22 billion. Biomarkers are needed for rapid diagnosis, prognostication, and therapeutics. We hypothesized that specific AP isoenzyme activities and levels would: 1) differentiate septic patients from controls, and 2) correlate with prognostic outcomes such as hospital length-of-stay (LOS). Methods: A prospective single-center study in a tertiary care academic ED from July 2016 - May 2017. Inclusion criteria were: (1) age ≥ 18 years, (2) ED [S] (≥ 2 SIRS + infection), (3) informed consent, (4) hospital admission. Controls were admitted non-septic ED patients. Serum APTotal and isoenzyme activity levels were quantified by gel electrophoresis and densitometry. Concentration (IU/L) and relative percentage were quantified for AP isoenzymes: APLiver1, APLiver2, APIntestinal, APBone, APPlacental. Results were stratified by [S] status and sex, and compared via Mann-Whitney U-test ($p < 0.05$ is significant). Results: 140 subjects were enrolled; [S] (males, $n=44$; females, $n=44$), controls (males, $n=16$; females, $n=13$), exclusions ($n=23$). In [S], APLiver2 was elevated ($p=0.01$) and APIntestinal decreased ($p=0.04$), but APTotal, APLiver1, APBone, and APPlacental concentrations did not differ significantly. When stratified by sex, APLiver2 ($p=0.0001$) and APIntestinal ($p=0.002$) isoenzyme differences persisted in male (but not female) [S] patients compared to same-sex controls. A positive correlation between serum APLiver2 levels and hospital LOS was noted among all subjects (Spearman's $\rho = 0.39$, $p < 0.0001$). Conclusion: AP total and isoenzyme levels may play a role in clinical sepsis response and outcomes, and APLiver2 and APIntestinal may mediate sex-specific sepsis outcomes.

Supported by: WVCTSI Pilot Grant NIH 2U54GM104942 and WVU Department of Emergency Medicine

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Abstracts

Poster #22

Abstract Title: **Utilizing Community Engaged Approaches in Program Development for Mobile Health**

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Abstract: The World Health Organization (WHO) calls for innovative strategies, such as mobile health clinics (MHC), to address medical and social determinants that contribute to health disparities. Research suggests that eliminating racial and ethnic disparities would reduce national medical costs by \$230 billion in direct costs, and >\$1 trillion of indirect costs over four years. Nationally, there are over 1,500 MHCs, serving over 6 million people annually. MHCs increase health care access for vulnerable populations, and as a sector incorporate many health care best practices from national groups (e.g., Institute of Medicine and the WHO). MHCs vary in types of services they provide, but most provide primary and preventive care. Community Based Participatory Research (CBPR) is defined by the Centers for Disease Control as "...the process for working collaboratively with and through groups of people...and is a powerful vehicle for bringing about environmental and behavioral changes that improve the health of a community." This presentation summarizes development and initial implementation efforts as well as lessons learned for a MHC program for a local community, a program guided by a CBPR approach. Data obtained via community conversations in the target communities highlighting community input related to health needs, access/barriers to care, and needed health services and the strategies for integrating this feedback into the development of this MHC strategy will be reviewed. CBPR approaches are necessary to build trust and report as academic centers strategize alongside with communities to improve health care in vulnerable communities. Ongoing partnership is important for program success.

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Abstracts

Poster #23

Abstract Title: **Fat-Free Mass and Fat Mass Indexes Provides Valuable Information to Identify At-Risk Appalachian Children.**

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Abstract: Body mass index percentiles (BMI%ile) are often used to identify children who are overweight or obese. Body composition measures (%Fat) may also be useful in identifying at-risk children, and to better measure the effectiveness of health improving strategies. However, BMI%ile and %Fat may provide insufficient information to identify children requiring intervention. Purpose: To demonstrate the usefulness of using normative fat-free mass indexes (FFMI) and fat mass indexes (FMI) to identify children in need of appropriate intervention strategies. Methods: 131 rural Appalachian children (44 boys and 87 girls) had body mass; height; and tetra-polar bioelectrical impedance analyses measures taken to determine body composition (FFM, FM and %Fat). Expected mean FFMI and FMI measures were based on reported age, sex and BMI%ile norms (Freedman et al. Int J Obes, 2005). Results: When the total group was examined by BMI%ile, 82% of the boys and 86% of the girls had lower, and 75% of the boys and 67% of the girls had higher than the previously reported mean FFMI and FMI, respectively. When the healthy weight (BMI%ile >5th< 85th) children (14 boys and 46 girls) were examined separately, 86% of the boys and 74% of the girls had lower than the mean reported FFMI BMI%ile. In contrast, less than 7% (3 boys and 1 girl) met or exceeded the reported mean FMI BMI%ile. Conclusion: The inclusion of FFMI and FMI measures may provide additional valuable information when identifying at-risk children, and designing appropriate intervention strategies to improve the health of rural Appalachian youth.

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Abstracts

Poster #24

Abstract Title: **Structural HIV and HCV Prevention Efforts Among People Who Inject Drugs (PWID) in Rural Appalachian Kentucky**

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Abstract: Background: Serious health consequences associated with injection drug use are at crisis levels in Kentucky, including rates of HCV infection among the highest in the nation. More than forty Syringe Exchange Programs (SEPs) are now operational throughout Kentucky; there is an urgent need to examine uptake of this evidence-based structural intervention among vulnerable rural PWID. Methods: This mixed methods study is enrolling a sample of 350 PWID (175 SEP users and 175 non-users) using Respondent-Driven Sampling. The research will also gather input from health departments, substance abuse treatment providers and other community stakeholders, to inform the continued refinement of SEP policies and practices. Eligible PWID participants are: current (past 30 days) drug injectors who are at least 18 years of age. Study enrollment is conducted at collaborating Health Departments in Clark, Knox and Owsley Counties, as well as community-based locations that serve the PWID population. Results: 99 PWID SEP participants have been enrolled with a median age of 36 years, 51.5% male, and 97.0% white. 36.3% are currently homeless. The most commonly injected drugs are crystal meth (37.4%), buprenorphine (32.3%), and heroin (23.3%). 58.6% report no barriers associated with using their community SEP; 14.1% reported lack of transportation as the primary barrier. Self-reported HCV prevalence is 43.4%; HIV prevalence is 2.0%. Conclusions: The significant public health impact of the study is indicated by the potential to enhance HIV/HCV prevention efforts among rural PWID by ameliorating critical disparities in SEP and harm reduction services for rural PWID.

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Abstracts

Poster #25

Abstract Title: **Geographic differences in Kentucky DUI offenders: A comparison of Appalachian and non-Appalachian impaired drivers**

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Abstract: Recent studies have highlighted increasing rates of drug abuse in rural Appalachia; however, substance-impaired driving in Appalachia remains understudied. To help fill this void, the current study uses a statewide sample to examine how Appalachian DUI offenders differ from non-Appalachian DUI offenders. Assessment records for 12,125 Kentucky DUI offenders who completed an education or treatment intervention in 2017 were examined. Individuals were classified into one of two groups based on whether they were convicted in an Appalachian or non-Appalachian county. Assessment records, including demographic characteristics, substance use screening information (AUDIT and DAST), DSM-5 substance use disorder criteria, and referral information were compared across groups using a series of t-tests and chi-square tests. Approximately 29% of the sample was convicted in an Appalachian county. Appalachian DUI offenders were significantly older, more likely to have a prior DUI conviction, and to have a drug-involved DUI. They had significantly higher DAST scores and were more likely to meet DSM-5 criteria for a drug use disorder. Appalachian DUI offenders were also slightly more likely to be referred to a higher level of care (IOP or residential) and to be compliant with treatment requirements. Results suggest that individuals from Appalachian Kentucky are not only more drug-involved, but also have more severe drug use problems and higher recidivism risk. Given the well-documented barriers to treatment in rural Appalachia, alternative intervention methods may be necessary with this population of DUI offenders. Additional implications for providers and directions for future research will be discussed.

Supported by: Supported by funding from the Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities, Division of Behavioral Health

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Abstracts

Poster #26

Abstract Title: **The Development and Pilot Testing of a Website to Improve the Safe Use of Prescription Opioids**

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Abstract: Background: Non-medical use of prescription opioids (NMUPO) can lead to an increased risk of overdose, diversion, and addiction. An estimated 26.5% of West Virginians may be engaging in NMUPO. Few patients receive education on the safe use of prescription opioids. The objective of this project was to develop and evaluate web-based education on the safe use, storage and disposal of prescription opioids. Methods: The website was on a WordPress platform and had a directional flow. The website was pilot tested with a convenience sample of surgery patients (n=43), being discharged with an opioid prescription from two WV hospitals. The POSE Study served as a basis for the website, but it was tailored specifically for WV. A REDCap database captured sociodemographic characteristics of participants; as well as information regarding the website content, design and usability. Results: The majority of participants underwent elective procedures (83.7%), 53.5% were female, and the mean age was 54.5 years (range: 18 to 70 years old). Less than half (41.9%) had received a prescription opioid in the past. Overall participants were aware of the risk of overdose and addiction; however, they attributed a higher risk to others compared to themselves. The majority of participants (83.7%) reported being extremely or very satisfied with the website overall and 88.4% reported that the website content improved their understanding of prescription opioids. Conclusions: The website was overall highly rated by hospitalized patients. The website is being used as part of a pharmacist-delivered intervention being tested in a multisite clinical trial.

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Abstracts

Poster #27

Abstract Title: **Exploring the Validity of Disease-Specific Masks as a Novel Non-Invasive Imaging Biomarker for Alzheimer's or Vascular Associated White Matter Hyperintensities**

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Abstract: Objectives: Hypertension (HTN) and Alzheimer's disease (AD) are associated with subcortical white matter (WM) injury, detected in the FLAIR sequence of the MRI as hyperintense signals (i.e. white matter hyperintensities; WMH). In older adults, AD and HTN often coexist together. Identifying disease-specific WMH associations will guide the selection of the most appropriate treatment strategies. Methods: 45 subjects with FLAIR images, HTN status, and cerebrospinal fluid levels of A β 1-42 (surrogate for AD) available were included. Systolic blood pressure (SBP) defined as > 139 mmHg. Standard ICBM frontal and occipital WM masks were created and registered to each subject native space. A periventricular mask generated for each subject. The masks were then multiplied by the WMH mask to obtain the WMH volume within the deep frontal (DF) and periventricular occipital (PVO) WM. Results: In this cohort, mean age was (75 \pm 7 years) and 53% were female. History of HTN and high SBP were associated with the DF WMH (p = 0.07 and 0.02, respectively) but not with the PVO WMH. However, A β 1-42 was associated with the PVO WMH (p = 0.04) but not with the DF WMH. Conclusion: Using disease-specific mask, we were able to define the WMH associated with AD or HTN. Further work to explore the microstructural changes within the disease-specific masks to predict the earliest changes in AD vs. HTN is needed to move the field forward.

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Abstracts

Poster #28

Abstract Title: **Perspectives on Religious and Spiritual Coping among Rural Appalachian Grandparent Caregivers**

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Abstract: Poverty and poor health disproportionately affect grandparents serving as primary caregivers to their grandchildren. Grandparent caregivers living in rural and underserved regions, including Appalachia, are especially vulnerable due to economic, educational and health disparities. However, many Appalachian cultural traditions, including religion and spirituality, offer grandparents support when facing these challenges. To improve understanding of the role religion and spirituality play in coping, twenty-six grandparent caregivers were recruited through community groups and snowball sampling and engaged in four interviews each. A coding team applied conventional content analysis to the transcripts, employing multiple approaches to ensure rigor and transferability. Findings suggest that religion and spirituality help grandparents cope by (1) providing a sense of purpose and perspective; (2) fostering peace and perseverance; (3) encouraging forgiveness; (4) asserting control over the caregiving experience. This study extends our knowledge of how cultural assets like religion and spirituality aid Appalachian grandparent caregivers in coping and may inform future interventions that support grandfamilies.

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Abstracts

Poster #29

Abstract Title: **Racial Identity and School Connectedness in Adolescents**

Author(s): J. Johnson, Public Health, West Virginia U

Abstract: The research study investigates the association between race and feelings of school connectedness in high school students. Adolescents who lack a sense of belonging in their school community can be at risk for negative psychological outcomes. It was hypothesized that black and mixed race adolescents will report lower outcomes than their peers on measures of school connectedness. A quantitative cross-sectional research design was employed. Participants (n= 7,285) were enrolled in West Virginia high schools. Adolescents in high schools (grades 9-12th), were between the ages of 14-19 (m=15.78). Boys made up 50.2% of the same and 81% of the participants identified as white race. The response rate was calculated to be 82.4% of sample included in this study. Data were analyzed using a One-Way ANOVA in order to identify potential differences in School Connectedness between adolescents identifying as White, Black, or White and Black. There was a significant effect of race on school connectedness [$F(2, 9444) = 44.21, p = .000, \eta^2 = .01$]. Post hoc comparisons using Bonferroni tests indicated that the mean scores for those identifying as White ($M = 3.5, SD = .92$), Black ($M = 3.26, SD = 0.95$), or White and Black ($M = 3.07, SD = 0.89$) were all significantly different from one another. As hypothesized, white identified students had the highest reported school connectedness, followed by Black, and then White and Black identified students. Taken together, these results suggest that racial identity contributes to the experience of school connectedness for young people. Being of a certain race can lead to increased incidents of racial discrimination, which adds stress to the already tumultuous adolescent experience. In turn, increased discrimination or not feeling connected at school may impact academic achievement, which may increase risk for students.

Supported by:

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Abstracts

Poster #30

Abstract Title: **An Assessment of Glycemic Control and Diabetes Distress Among Young Adults with Type 1 Diabetes**

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Abstract: BACKGROUND: Young adults (ages 18-25) are in a transition period between adolescence and adulthood where they may experience a shift in behaviors due to increased independence, autonomy, and responsibility. Young adults with type 1 diabetes may be at increased risk of diabetes distress (a measurement of condition-specific stress) and maladaptive behavior changes during this period. METHODS: Young adults with type 1 diabetes in the Southeastern Ohio region participated in the study. Participants completed a cross-sectional, anonymous survey assessing demographics, glycemic control (HbA1C), and diabetes distress (Type 1 Diabetes Distress Scale). RESULTS: 61 young adults with type 1 diabetes completed the study and 52 participants completed all measures. Mean HbA1C (%) was 8.01 ± 1.7 ; more than two-thirds (70.5%, $n = 43$) of participants reported not maintaining HbA1C within healthy recommendations ($\leq 7.0\%$). Participants showed high rates of diabetes distress with more than half (59.6%, $n = 31$) the sample being classified as having high (28.8%, $n = 15$) or moderate (30.8%, $n = 16$) total diabetes distress. High rates of distress were found in the sub-domains of powerlessness, management distress, eating distress, and distress associated with family and friends. CONCLUSIONS: Prevalence of diabetes distress was high among this population and diabetes control was suboptimal. Long term efforts should be focused on developing targeted interventions to lower diabetes distress and improve glycemic control among this unique population. This information may be helpful for health care providers, college administrators, and families working with young adults with type 1 diabetes.

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Abstracts

Poster #31

Abstract Title: **From Scan to Print: Enhanced Methods for CT Reconstruction to Optimize Volume Visualization Quality**

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Abstract: Introduction: The principle behind Volume Visualization is the simulated representation of a volume, and the projection of this volume in a virtual space where a user can then manipulate it. Furthermore, this volume can be converted into a tangible entity through the process of additive manufacturing. This workflow can be applied to the field of medical imaging as it can take the volume generated by a CT scan and further divide it into sub-structures representing individual organs or regions of interest. One can then recreate both the volumes and appearances of the regions as they would be in their native environment. Methods: The process through which a volume is generated begins with a Computed Tomography (CT) scan. The CT serves as the initial repository of data, effectively turning anything that passes through the gantry into a volume to be visualized. One drawback to this method for volume generation is the fact that many CT scanners are capable of generating extremely high-resolution images, the standardized format for saving imaging data is saved (DICOM) will reduce the resolution down to 512x512. This compaction optimizes the data storage; however, it can greatly diminish the ability generate high quality volume visualizations, leading to jagged boundaries and poor structural integrity for additive manufacturing. Through our methods of iterative reconstruction as well as interpolation between voxels, the resolution can be re-enhanced upon retrieval from the PACS system, leading to significantly improved volume quality. Conclusion: Once the data is enhanced to an optimal resolution, a segmentation algorithm can be applied, wherein voxels representing a certain range of Hounsfield units can be selected from the volume in order to visualize a specified anatomic substructure. This new volume can then be converted to the Standard Tessellation Language (STL) format and further refined using Computer-Aided Design (CAD) to optimize its use for digital transmission and/or additive manufacturing.

Supported by: University of Kentucky Gill Heart and Vascular Institute

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Abstracts

Poster #32

Abstract Title: Exposure to per- and polyfluoroalkyl Substances is Positively Associated with Serum Cholesterol in a Population Undergoing a Heart Healthy Intervention Trial and is Dependent on Effectiveness of Treatment

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Abstract: Exposure to certain per- and polyfluoroalkyl substances (PFAS) have been shown to positively associate with total and/or low density lipoprotein-associated (LDL) cholesterol in cross-sectional epidemiological studies. Examining how this association is modulated in individuals undergoing lipid lowering therapies may provide additional evidence for a role of PFAS as a risk factor for cardiovascular disease. We examined the association between 6 PFAS and circulating total and LDL cholesterol levels in individuals undergoing a heart healthy intervention study. We developed high throughput plate-based extraction and LC-MS analysis methodologies to quantitate PFAS in 350 KY individuals that underwent a holistic heart health intervention study. Serum and demographic information was collected at recruitment and post study commencement. Bivariate statistics and logistic regression modelling were used to examine associations of circulating PFAS and cholesterol before and after intervention, and if effectiveness of treatment modulated the observed associations. Overall, total cholesterol and LDL cholesterol levels significantly decreased following the intervention. In parallel, PFOS, PFOA, PFHxS, and PFHpA, significantly decreased post intervention. Interestingly, PFOS as well as the combined sum of 6 compounds (Total PFAS), significantly positively associated with total cholesterol only in post-intervention samples (Pearson correlation coefficient 0.132; $p=0.0241$, 0.115; $p=0.0497$ respectfully). After adjustment for multiple covariates including gender, BMI, smoking, race, education level, and age; Total PFAS_{post} was still significantly positively associated with total cholesterol in post intervention samples. We also determined that individuals that responded to the treatment more favorably, were those that exhibited a significant positive association between Total PFAS and total cholesterol.

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Abstracts

Poster #33

Abstract Title: **The association of inflammation and genotype with depressive symptoms in adults at risk for cardiovascular disease**

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Abstract: Background: Associations between inflammation and depression may be influenced by inflammatory genotype. Single nucleotide polymorphisms (SNPs) on the C-reactive protein (CRP) gene are associated with serum CRP levels, but it is unknown if they moderate the association between inflammation and depression. The purpose of this study was to 1) examine the relationship between inflammation and depressive symptoms and 2) whether this association is moderated by CRP SNP, rs1205. Methods: This was a secondary analysis of baseline data from a study to investigate effects of genes on response to a cardiovascular disease (CVD) risk reduction intervention in adults in Appalachia Kentucky. A sample of 428 adults were genotyped and high sensitivity (hs) CRP and depressive symptoms were measured. We conducted a simple linear regression to examine the relationship between inflammation and depressive symptoms and a multiple linear regression to examine moderation of this relationship by rs1205 genotype. Results: There was a significant association between hsCRP and depressive symptoms ($p=.002$). The rs1205 SNP did not moderate this association ($p = .319$). There was a positive association between hsCRP and depressive symptoms for both CT /TT rs1205 genotypes ($b=0.734$, $SE=0.158$, $p<.001$) and the CC rs1205 genotype ($b=.359$, $SE=.187$, $p=.05$). Conclusion: There was positive association between hsCRP and depressive symptoms, but hsCRP genotype did not moderate this relationship. Future studies are needed to better understand the association between inflammation and depression.

Supported by: This study was supported by funding from the: Center for the Biologic Basis of Oral/Systemic Diseases, the Centers of Biomedical Research Excellence (COBRE), National Center for Research Resource, NIH/NCRR #5P20RR020145 Department of Health and Human Service, D1ARH20134

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Abstracts

Poster #34

Abstract Title: **A Qualitative Description of Facilitators and Barriers to Dial Diabetic Low Sodium Dietary Adherence in Patients and Caregivers Dyads**

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Abstract: Background: Diabetes mellitus (DM) affects nearly 10% of the U.S. adult population. Type 2 DM accounts for 95% of these diagnoses. DM is also a common comorbidity found with heart failure (HF), with up 44% of patients with HF having a comorbidity of DM. Current research does not address the motivators and barriers of adhering to a dual low sodium and diabetic diet for the patient with DM and HF and their family caregivers living in Appalachia and surrounding counties. The purpose of the ongoing qualitative study is to: (1) identify motivators and barriers of dietary adherence currently employed by patients with a diagnosis of HF and DM and their family caregivers; (2) identify current strategies used by family caregivers to promote dietary adherence; (3) identify formal nutrition education received regarding the dual diet. Methods: To-date, seven individuals with a comorbidity of HF and DM and their family caregivers participated in one interview lasting approximately 30 minutes. Participants were selected from an ongoing longitudinal HF study. Patient participants were required to have a comorbid diagnosis of DM to participate in this study. Results: Data analysis is being conducted using constant comparison coding and content analysis to identify themes. Common emerging barriers include eating out and lack of formal education. Discussion: The research findings will be used to identify needs in which interventions can be applied to future quantitative studies.

Supported by:

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Abstracts

Poster #35

Abstract Title: **A Farmers Market Voucher and Walking Program Increased Fruit and Vegetable Consumption among Adults in Rural Eastern Kentucky**

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Abstract: Those living in Eastern Kentucky experience higher rates of obesity and chronic disease, while consuming fewer fruits and vegetables (F/V), compared to national averages. To increase F/V consumption among Letcher County residents, this study evaluated a farmers market (FM) voucher/walking program. It was hypothesized that there would be an increase in variety and quantity of F/V consumed by all voucher recipients and that this effect would be greatest in the walking group. Participants were encouraged to walk to their FM to redeem a \$10 voucher (1.2 miles roundtrip). The 16-week program (June – September) included 121 participants; those that walked >3 times/week were designated as walkers (n= 61); <3 times/week were non-walkers (n= 60). Self-reported F/V consumption was assessed using the modified Harvard food frequency questionnaire (FFQ) at pre- and post-time points. Change in F/V consumption was compared among all participants pre- to post-intervention, within each group, and between walkers and non-walkers. A total of 62 participants, 25 non-walkers and 37 walkers completed both pre- and post-questionnaires. Average age was 50.2±15.0 years, 95% were white, and 76% were female. Statistically significant increases in F/V intake were observed among all participants (1.85±3.5 svg/day, p<0.05), with walkers having a greater increase (2.40±2.7 svg/day) than non-walkers (1.0±4.2, p=0.01). As well, walkers demonstrated significant increases in consumption of all five F/V color categories (p<0.05). Provision of weekly \$10 FM vouchers was associated with increased quantity and variety of F/V consumed by program participants with walkers consuming a greater amount and variety as compared to non-walkers.

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Abstracts

Poster #36

Abstract Title: **Characterization of Carotenoid Status and BMI among Rural Appalachian Youth Participating in a Farm and Nutrition Education Camp in Eastern Kentucky**

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Abstract: Despite the well-known benefits of consuming fruits and vegetables (F/V), the majority of Americans, including children, do not meet the national Dietary Guidelines for Americans pertaining to F/V intake. Moreover, the prevalence of childhood obesity remains high, with obesity rates and low F/V intake among rural adolescents being greater than urban youth. Twenty-seven children ranging in age of 5 – 13 years participated in a week long farm and nutrition education day camp in Eastern Kentucky. Each day a particular vegetable was featured and incorporated into a cooking lesson; nutrition lessons were offered that highlighted the role of F/V in protecting health; and farm lessons pertaining to growing food were also delivered. Measurements of height, weight and skin carotenoids were taken the first day of camp. Children completed pre- and post-questionnaires that included nutrition knowledge questions, self-reported F/V consumption, physical activity levels and screen time. Average age of participants was 7.7 + 2.2 years, 80.8 BMI percentile and skin carotenoids of 180 O.D. Only 33% of children were able to correctly identify the number of F/V that should be consumed daily, and 53% could correctly identify how many minutes of physical activity they should obtain daily. Skin carotenoid measurements revealed that F/V intake was low among this sample of rural Appalachian children as was knowledge pertaining to nutrition and physical activity. Participation in a farm and nutrition education camp increased nutrition knowledge and participants reported trying new vegetables and learning new cooking skills during their week long camp experience.

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Abstracts

Poster #37

Abstract Title: **Food Insecurity Impact on Birth Weight among High-risk Pregnant Women**

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Abstract: Context: Studies have analyzed the effects of nutrition on birth weight, but not the effects of food insecurity, specifically. This study explores the correlation between food insecurity and low birth weight (LBW) among patients in the Community Health Programs' (CHP) Family Navigator program, which provides services to pregnant women at risk of having poor birth outcomes. The findings will enhance the care provided by the Family Navigators and provide a foundation for future interventions for both pregnant women and physicians to address potential insecurities. Objectives: To assess the prevalence of pregnant women's food insecurity served by the family navigator program in Southeastern Ohio and determine if there is a correlation between household food insecurity and LBW. Human Subjects Review: Expedited IRB Review Design: Retrospective chart review of patient demographics, social health determinants (substance use/abuse, financial and psychological) and post-pregnancy information. Inclusion criteria are pregnant women with single birth outcomes, initial intake and birth outcomes during January 2015 and September 2017. Setting: Southeastern Ohio, rural, medically underserved community with a midsized university centrally located. All 105 charts were reviewed in the CHP Family Navigator office. Anticipated Results: Anticipate food insecurity prevalence in this population, with a correlation between food insecurity, other self-reported social health determinants and LBW. Conclusions: If food insecurity poses a possible contributor to LBW and inadequate weight gain, the family navigators can adopt programs to remove barriers related to food access. Findings can also be shared with physicians to reinforce the importance of addressing food insecurities during pregnancy.

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Abstracts

Poster #38

Abstract Title: **Impact of Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers On Acute Kidney Injury Recovery. A Multicenter Prospective Study.**

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Abstract: Background: Acute kidney injury (AKI) is associated with high morbidity and mortality. While multiple factors contribute to AKI recovery, the role of angiotensin-converting enzyme inhibitors/angiotensin receptor blockers (ACEi/ARB) in AKI remains controversial. Multiple studies have evaluated the risk of developing AKI with the use of an ACEi/ARB, but no studies have evaluated the effect of these drugs on renal recovery. In this study, we examined if chronic exposure to ACEi/ARB therapy affects renal recovery after an AKI episode. Methods: We conducted a multicenter prospective cohort study of patients that suffered from AKI in the hospital and were followed in a dedicated AKI Clinic between 2016 – 2018 (University of Kentucky) and 2013 – 2017 (University of Toronto). Patient's chronic exposure to an ACEi/ARB was determined if they were taking it at the time hospital admission. Renal recovery was examined at the time of first clinic visit and defined as eGFR within 25% of baseline. Multivariate logistic regression and interaction analyses were conducted. Results: A total of 365 patients were included in the study according to inclusion/exclusion criteria. Forty-eight percent of patients had chronic exposure to an ACEi/ARB. Further results were pending at the time of this abstract. Conclusions: Almost half of the patients in this study had chronic exposure to ACEi/ARBs before admission to the hospital. This is reflective of the widespread use of these medications in patients admitted to the hospital at high risk of AKI.

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Abstracts

Poster #39

Abstract Title: **Community Characteristics Associated With Premature Mortality in the Appalachian Region**

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Abstract: BACKGROUND: A key component of population health status is premature mortality, defined as a death occurring before the age of 75 years. Of particular concern is premature mortality (PM) among vulnerable populations of the Appalachia. However, it remains unclear what specific community characteristics are the leading predictors of PM in the Appalachian population to be considered when developing high-priority interventions to improve PM. HYPOTHESIS: We hypothesized that a limited number of community characteristics would account for most of premature deaths in the Appalachian population. METHODS: County Health Rankings and Roadmaps data were used to investigate the PM, measured as the number of years of potential life lost (YPLL) before 75 years per 100,000 population (age-adjusted), and associated community characteristics in the 13 Appalachian states. Multivariable statistical analysis with general linear modeling (GLM) was conducted using SPSS. RESULTS: PM rates (YPLL) in the 420 Appalachian counties were statistically significantly higher than in their counterparts – the 679 non-Appalachian counties of the 13 Appalachian states: 9,299.7 vs. 8,425.4 per 100,000 ($p < 0.001$). Within the Appalachian counties, PM rates (YPLL) were statistically significantly higher in rural areas (urban population of less than 20,000) than in urban areas: 10,010.9 vs. 8,546.6 per 100,000 ($p < 0.001$). GLM analysis identified a limited number of key factors predicting PM in the Appalachian population that can be grouped into three major categories: social and environmental; health behavior; health care. CONCLUSIONS: This study furthers the body of knowledge necessary to develop targeted interventions to improve PM in the Appalachia.

Supported by:

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Abstracts

Poster #40

Abstract Title: **Manganese Exposure and Academic Achievement in a Cohort of School-aged Children Living in Rural Appalachian Ohio**

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Abstract: PURPOSE: Manganese (Mn) is an essential micronutrient which may be neurotoxic when absorbed in excess of nutritional requirements. Previous research suggests associations between increased Mn exposure and child neurodevelopmental deficits. This study tests the hypothesis that high Mn exposure, quantified through three biomarkers (hair, blood, and toenails), is associated with decreased academic achievement among school-aged children living in areas of eastern Ohio. METHODS: We utilized a cohort of school-aged children from the Communities Actively Researching Exposure Study (CARES) to quantify Mn in hair, blood, and toenails. Hair and blood indicate recent exposure while toenails, novel biomarkers, represent exposures spanning multiple months. Scholastic achievement scores, obtained from standardized test results, were dichotomized into proficient/above proficient and below proficient. Logistic regression models were used to evaluate the association between below proficient results and Mn measures. Covariates included child gender, parent IQ, blood lead, and serum cotinine. RESULTS: Academic achievement results were obtained from 203 participants. Of these, 29/189 (15%) scored below proficient in math and 29/202 (14%) scored below proficient in reading. Biological measures of Mn in blood (n=166), hair (n=198), and toenails (n=176) (geometric mean (geometric standard deviation)) were 9.8(1.3) µg/L, 391.7 (2.6) ng/g, and 0.7(2.9) µg/g respectively. Adjusted for child gender and parent IQ, higher toenail Mn was associated with below proficient reading (odds ratio (95% CI): 1.59 (1.05, 2.40). However, after adjusting for serum cotinine and blood lead, the association was no longer statistically significant. CONCLUSIONS: The results suggest that Mn exposure may be associated with child reading scores.

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Abstracts

Poster #41

Abstract Title: **Occupational Exposure to Airborne Particulate Matter and Its Effects on Chronic Pulmonary Disease in Kentucky**

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Abstract: Introduction: Chronic obstructive pulmonary disease (COPD) is the third leading cause of death in the United States. The greatest risk factor for the development of COPD is cigarette smoking. However, occupational exposure to vapors, gases, dusts, or fumes (VGDFs) significantly increases the risk of developing COPD. The literature suggests that the population attributable fraction (PAF) of occupational VGDF exposure for those with obstructive impairment of the lungs ranges from 0.15 for smokers to 0.53 for never smokers. Amongst agricultural workers, pesticide exposure has been found to cause significantly elevated rates of annual decline in lung function, approximately 6.9 mL/year in forced expiratory volume in one second (FEV₁). It is hypothesized that, when compared to the standard population, significantly elevated mortality rates of workers in “dusty” occupations exist. **Methodology:** Death certificate data for 2016 from Kentucky Office of Vital Statistics were used. A subcohort of workers in “dusty” (exposed) and “non-dusty” (control) industries was identified. A regression analysis was conducted and odds ratios calculated for the relationship between dying from COPD and the following covariates: living in Appalachia, age, gender, working in a dusty industry, and tobacco use. **Results:** Living in Appalachia, age, being employed in a dusty industry, and tobacco use were significant predictors of increased odds of dying from COPD. Significant interaction exists when tobacco use and occupational VGDF are jointly present. This interaction is corroborated by multiple studies in the literature that found effect modification between smoking and occupational VGDF exposure on the risk of COPD.

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Abstracts

Poster #42

Abstract Title: **Research Program for Family Caregivers of Patients with Advanced Lung Diseases**

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Abstract: This research program describes the development of home care interventions for underserved rural Appalachian family caregivers to manage both the patients' advanced lung disease symptoms and their own psychological and home care burdens. The evidence-based FamPALcare Coaching Model will be used to guide the development of this research program. Appalachia has the highest incidence of lung disease deaths in the nation. Over 8% of West Virginians live with and eventually die from advanced lung diseases (e.g., chronic obstructive pulmonary disease; pneumoconiosis from coal, dust, silica, etc.; pulmonary fibrosis; and lung cancer). Recently, medical costs in the United States for chronic lung diseases were estimated to be \$32 billion per year; these costs are projected to increase to \$49 billion by 2020. Patients with advanced lung diseases suffer from refractory breathlessness, unrecognized anxiety and depression, and poor quality of life resulting in negative impact such as persistent stress, fatigue, and financial burden on family caregivers. The American Thoracic Society guidelines emphasize the critical importance of involving family caregivers in advanced lung disease home care management. Studies show that when patients and family members are educated about symptoms of disease progression and in-home treatment options, patients have less depression and anxiety and are less likely to return to the hospital. A recent review of research studies and the National Caregiving Summit verified caregivers' extensive involvement in all aspects of home care. However, each of the caregiving studies are at an early stage of determining specific caregiver needs, with few interventions being tested.

Supported by: Faculty Development funds from West Virginia University.

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Abstracts

Poster #43

Abstract Title: **Voices of Hope: Extending Telephone Recovery Support to Rural Areas**

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Abstract: Background: Substance use disorders (SUDs) are chronic disorders that are often managed with crisis stabilization or short-term treatment. To improve rates of sustained remission from SUD, there is a need for long-term recovery support. However, many people in rural areas do not have access to treatment and recovery support services. Telephone recovery support (TRS) is an emerging modality of recovery support that can reduce barriers to recovery support services in rural areas. TRS consists of weekly calls from volunteers to people in early recovery to offer support and connect participants with resources. The aim of this study was to conduct an evaluation of a TRS program in Central Kentucky to determine acceptability and feasibility. Methods: Participants (n=186) were recruited for the program from halfway houses, a drug court program, a detention center, and a local clinic for mothers with perinatal opioid use disorder. For each call, data was recorded including participant status (e.g., experiencing psychosocial stressors, concerned about relapse) and call duration. Results: Of the 186 participants, 65 are from a rural location or from a clinic serving over 50% people from rural areas. Since the program's inception in November 2017, volunteers have made 1,687 calls and successfully completed 38% of those calls. Moreover, only about 2% of completed calls reported a relapse and about 2% reported being concerned about relapse. Conclusion: TRS holds promise as a resource to reduce barriers to recovery support services in rural areas. More community partnerships are needed to provide recovery resources to rural areas.

Supported by:

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Abstracts

Poster #44

Abstract Title: **A Profile of Diverted Buprenorphine Use Among Treatment-seeking Offenders: Implications for Appalachian Kentucky**

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Abstract: Background: In Kentucky, as rates of buprenorphine (Suboxone®/Subutex) prescribing continue to increase, so too does the potential for diversion and illicit use. Few investigations have examined the prevalence and correlates of diverted buprenorphine use among drug users with a history of criminal justice involvement. Because motivations for non-prescribed buprenorphine use may vary (e.g., preventing withdrawal symptoms, informal opioid replacement, intoxication), it is important to understand prevalence and correlates of diverted use across drug-using subpopulations. Methods: Bivariate and logistic regression were used to analyze 2016-2018 baseline data for adults with a history of substance misuse entering Kentucky Department of Corrections-based substance abuse treatment programs (N=12,007), collected as part of an ongoing state-funded evaluation. Results: Approximately 26% of individuals reported past 12-month diverted buprenorphine use. This group was more likely to be younger, white, male, and to have resided in a rural or Appalachian county compared to those not reporting past 12-month use. The diverted buprenorphine-using group also indicated more extensive and severe substance use (e.g., poly drug use) patterns and greater substance use treatment utilization. In the regression model, the strongest predictors included use of non-prescribed methadone, race (white), and residing in an Appalachian county. Discussion: Little is known about use of diverted buprenorphine in Kentucky, and in particular, Appalachia, where rates of buprenorphine prescribing have proliferated. Results suggest that despite increases in the use of medication-assisted treatment for opioid use disorder, extensive service gaps may remain. Future research is needed to examine motivations for diverted buprenorphine use in Appalachia.

Supported by: Kentucky Department of Corrections

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Abstracts

Poster #45

Abstract Title: **Dynamic measures link post-stroke movement impairment to mechanistic changes in neural control**

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Abstract: Kinematic assessments are the standard in patient care and research for investigating motor disability after stroke. These often use measures of velocity and accuracy of movement, which are useful for quantitatively scoring disability and standardizing comparisons between patients. However, we believe that a purely kinematic analysis of the data collected during these types of assessments offers a limited understanding of the underlying neuronal structure. This is problematic, as it is critical to the advancement of rehabilitative procedures that the link between underlying deficits and the resulting behavior is thoroughly understood. Our research question was whether dynamic torque measures derived from kinematics provides significantly different information about motor deficit than what can be derived from kinematics alone, and whether that information elucidates novel information about motor behavior. We developed a streamlined approach to transform kinematic data into torque components with comparisons to underlying muscle activity for a deeper understanding of motor control, neuronal injury, and neuronal plasticity. By using computer models and inverse dynamics to decompose kinematic data into components of joint torque, researchers and clinicians can more closely understand the signals that the limb receives, and therefore have a more linear representation the direct impairment caused by CNS damage. Our approach provides a means of quantifying motor disability after stroke by analyzing how well components of active muscle torques are represented in muscle activity, captured concurrently with EMG. This study provides strong evidence that kinematic-derived torque measures provide a better means of understanding aberrant neuronal activity than kinematic measures alone.

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Abstracts

Poster #46

Abstract Title: **Building Youth Capacity to Improve Environmental Health in Rural Kentucky: Mountain Air Project Photovoice**

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Abstract: The most recent strategic plan for the National Institute of Environmental Health Sciences (NIEHS) encourages academic-community partnerships to enhance our understanding of potentially missing information about environmental determinants of health inequities. Community-based participatory research (CBPR) offers a framework for such partnerships and has become increasingly popular over the last 15 years, particularly as an approach to address health inequities in marginalized populations. However, very few CBPR projects have included youth as leaders in the research process, and, to date, no such studies focused on environmental health have occurred in Appalachia. In order to expand understanding of the potential environmental determinants of respiratory illness in Eastern Kentucky, the Mountain Air Project (MAP) began in 2015, with funding from NIEHS (R01ES024771-01; MPI: Browning and Schoenberg). As part of MAP, investigators undertook a CBPR project called photovoice to establish rapport and appreciate the lived experiences of youth living in Letcher County. Photovoice is a method in which participants (youth, in this case) are asked to represent their perspectives through photographs and explanatory narrative. The approach can serve as a needs assessment and can empower participants to build capacity for action. The goal of MAP's photovoice is to improve our understanding of how youth living in rural, resource-poor Appalachian Kentucky perceive the influence of factors inside and immediately outside the home on respiratory health. In this presentation, we share initial findings from the MAP photovoice project.

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