

## College of Public Health Research Day

### Poster Presentation Abstracts

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**1** Abstract Title: **Improved methods for the marginal analysis of longitudinal data in the presence of time-dependent covariates**

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Author(s): I-C. Chen, Department of Biostatistics, U of Kentucky  
P. M. Westgate, Department of Biostatistics, U of Kentucky

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**Abstract:** Generalized estimating equations (GEE) are commonly utilized for the marginal analysis of longitudinal data. In order to obtain consistent regression parameter estimates, these estimating equations must be unbiased. However, when utilizing certain types of time-dependent covariates, these equations may not be unbiased unless the independence working correlation structure is utilized. Moreover, in this case regression parameter estimation can be very inefficient because not all valid moment conditions are incorporated within the corresponding estimating equations. Therefore, approaches utilizing the generalized method of moments or quadratic inference functions have been proposed in order to utilize all valid moment conditions. However, we have found that such methods will not always provide valid inference or can be improved upon in terms of finite-sample regression parameter estimation. Therefore, we propose a modified GEE approach and a method selection strategy that will ensure the validity of inference and improve regression parameter estimation. Existing and proposed methods are compared in a simulation study and application example.

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## College of Public Health Research Day

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**2** Abstract Title: **Examining Hippocampal Sclerosis of Aging Genes: ABCC9, GRN, KCNMB2 and TMEM106B**

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**Abstract:** Recent studies have implicated four risk genes for hippocampal sclerosis of aging (HS-aging): KCNMB2, TMEM106B, ABCC9 and GRN. To learn more about genetic association with HS-aging, we conducted gene-based association testing for those risk genes, and applied haplotype analysis to the identified intronic region of the ABCC9 gene. Genetic data were obtained from Alzheimer's Disease Genetics Consortium (ADGC) database, and neuropathological data were obtained from National Alzheimer's Coordinating Center (NACC) database. 3,730 subjects with genotype and autopsy information were available. To generate SNP-based association p-values, we used logistic regression analysis assuming an additive model of inheritance adjusted for age at death, sex and the top 3 principal components. Gene-based association analysis was subsequently conducted by combining the p-values of SNPs within each gene using the gene-based association test using extended Simes procedure (GATES). In the haplotype analysis on the ABCC9 gene, we performed haplotype score test adjusted for the same covariates. Of 3,253 subjects, 267 (8.2%) were HS-aging cases. The highest association signal came from a SNP on the ABCC9 gene (rs829080;  $p=2.86 \times 10^{-5}$ ). Three of the four genes had significant gene-based association with HS-aging (KCNMB2:  $p=0.005$ , TMEM106B:  $p=0.003$ , ABCC9:  $p=0.002$ ). The first CCAGCC and third TAGATT common haplotypes were significantly associated with HS-aging ( $p<0.001$ ). We found that the haplotype CCAGCCG had risk effect and TAGATTG had protective effect on HS-aging. In the future studies, we need to elucidate the biological roles of these genes and the region on the ABCC9 gene.

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## College of Public Health Research Day

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**3** Abstract Title: **A predictive probability design for phase II clinical trials with continuous endpoints**

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**Abstract:** Phase II clinical trials aim to potentially screen out ineffective and identify effective therapies to move forward to the randomized phase III setting. In phase II trials, the most common way of assessing tumor shrinkage is to dichotomize the patients by the response rate according to RECIST. However, besides loss of statistical efficiency, studies have shown that designs using response rate require much more patients than those using continuous tumor size shrinkage. Further, drugs can be still active even if they do not lead to high levels of tumor regression, as could be observed with molecular targeted therapies and immunotherapies. Thus, using continuous tumor size as primary outcomes have been suggested for these types of trials. However, there is a lack of interim strategies developed to monitor futility and/or efficacy for these types of continuous outcomes, especially in the single-arm setting. Therefore, our goal is to develop an efficient design that incorporates flexible interim strategies, allowing both early acceptance and rejection of the null hypothesis while maintaining desirable statistical properties. Lee and Liu (2008) have developed a predictive probability design for binary outcomes (response rate) in a single-arm phase II cancer clinical trial. We extend their design for continuous endpoints, with desirable design properties under both frequentist and Bayesian settings. Similar minimax criterion and search algorithms are implemented to determine the design parameters. The new design will control type I and type II error rates and allows continuous monitoring of the trial outcomes. Preliminary simulation results will be presented for continuous endpoints in terms of sample size, probability of early termination, type I and II errors.

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## College of Public Health Research Day

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**4** Abstract Title: **Colon Cancer Screening: Using Faith-based Community Linking Agents**  
 Author(s): C. H. Brunk, College of Public Health, U of Kentucky

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**Abstract:** Overview The pilot project targets at-home colon cancer screening of African American and Hispanic residents using the Diffusion of Innovations Theory applied in faith-based communities. The project will take place in urban (Lexington) Kentucky. “Colorectal cancer (CRC) is second only to lung cancer as a cause of cancer-related death in the U.S., but more than 33% of deaths ... could be avoided if people over 50 had regular screening tests.” Kentucky’s incidence rate of colon cancer is 50.8/100,000. With African American incidence of 57.2/100,000. “The American Cancer Society, the US Preventive Services Taskforce, and other organizations endorse the use of ... a fecal immunochemical test (FIT) for screening, within the context of a high-quality stool-based screening” for annual colon cancer screening in lieu of a colonoscopy. Therefore, participants can save the cost and inconvenience of a colonoscopy. As with all medical screenings, the challenge is convincing participants to complete the test. Prior studies report a discouraging rate of completed FIT kits, with a wide range of response percentages. The 2010 “Iowa Get Screened” project with over 400 participants yielded a range results from 72% down to only 3% based on the form of contact. Even with great FIT kit return rates, this study reported difficulty convincing patients with a positive FIT to obtain a colonoscopy. Methods This pilot project uses the Diffusion of Innovations Theory to increase participation, not only for the FIT kits, but throughout follow-up care as well. By placing the intervention in faith-based communities, and by recruiting and training lay experts to ‘diffuse’ information, this project hopes to make cancer screening a ‘norm’ in the community. The goal is to screen 400 Fayette County residents, targeting African American/Black or Hispanic participants. The intervention will be conducted in approximately six churches with a high percentage of African American/Black or Hispanic members. Lay experts in each church will be trained on screening/follow-up procedures, act as a local resource and complete their own FIT kit. Experts are similar to participants, which makes participation feel ‘normal’ in this community and increases desire to participate. Participants will be recruited from churches. Lay experts will call each participant to answer questions and encourage participation. All participants will receive a post-intervention survey to assess program satisfaction, barriers, and level of exposure to the program. Lay experts and KCL staff receive a post-intervention survey to assess program satisfaction, program implementation, training, and elicit feedback for future interventions. Data Analysis The project will extract secondary data, without any patient identifier, to compare control and intervention groups: Mean Number of days to complete test, Sensitivity, and Dosage effect of the intervention.

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## College of Public Health Research Day

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**5** Abstract Title: **Levels and Determinants of Access to Primary Healthcare Services among Women of Reproductive Age in Zone 3 of Dhaka City, Bangladesh**

Author(s): X. Zhang, College of Public Health, U of Kentucky

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**Abstract:** Objective To compare the differences between access to Community Health Worker (CHW) and clinic services for women of reproductive age (15-49 years old) in Zone 3 of Dhaka City and to analyze the association between primary healthcare service and its socioeconomic determinants. Determinants Physical household characteristics, as assessed using the physical assets wealth index; mothers' educational level, and monthly household income. Main outcomes CHW and clinic service coverage including family planning, maternal and child health services, as measured using odds ratios from logistic regressions. Design A cross-sectional household study in which 5,352 women of reproductive age were interviewed during the first three months of 1995 in Zone 3 of Dhaka city in Bangladesh. Methods The physical assets wealth index was constructed using Principle Components Analysis based on physical household characteristics. Logistic regressions were conducted to compare coverage of the three health services. Results and Conclusions The CHW program in the study area was equally effective in reaching all socioeconomic groups with a high coverage of 90.6% (OR=1.2, p>0.05). CHW services focused more on family planning (71.3%), with a smaller emphasis on maternal and child health services. In contrast to CHW, there was only a 22.4% coverage of clinic visits among women interviewed. The percentage of women visiting clinics for any service increased with wealth quintiles (p <0.001). Clinic service utilization was concentrated on maternal (37.5%) and child health service (38.3%). Higher wealth index groups were more likely to have clinic visits for maternal and child health services (OR=2.1, p<0.05).

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## College of Public Health Research Day

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<b>6</b> Abstract Title:	<b>Sleep apnea and dementia risk: Findings from the PREADViSE Alzheimer's disease prevention trial</b>
Author(s):	X. Ding , College of Public Health, U of Kentucky R. Kryscio, Sanders-Brown Center on Aging, U of Kentucky J. Turner, Department of Counseling Psychology, New Mexico State U G. Jicha , Department of Neurology, U of Kentucky G. Cooper, Neurology, Baptist Health Medical Group A. Caban-Holt, Sanders-Brown Center on Aging, U of Kentucky F. Schmitt, Sanders-Brown Center on Aging, U of Kentucky E. Abner, Department of Epidemiology, U of Kentucky

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**Abstract:** Background: Sleep apnea is a common condition and has a direct impact on cognitive function. The impact of sleep apnea, and its interplay with other established risk factors, on the risk of incident dementia warrants exploration. Objective: To investigate the association between baseline sleep apnea and risk of incident dementia in the Prevention of Alzheimer's Disease with Vitamin E and Selenium (PREADViSE) study and explore whether the association depends on APOE  $\epsilon$ 4 allele status. Design: Randomized controlled dementia prevention trial followed by exposure study with over 11 years of follow up. Setting: Participants were assessed at 128 local clinical study sites during the clinical trial phase and later were followed by telephone from a centralized location. Participants: 7,547 male subjects were enrolled in PREADViSE, and 4,271 of them consented to participate in the exposure study. Measurements: Participants were interviewed at baseline for sleep apnea. The Memory Impairment Screen (MIS) was administered to each participant annually. Subjects who failed to this initial screen were tested with secondary screening tests. Additional measures collected include medical history, medication use, and the AD8 dementia screening instrument. Results: The effect of self-reported sleep apnea on dementia risk depends on APOE  $\epsilon$ 4 status. When the allele was absent, baseline self-reported sleep apnea was associated with a 66% higher risk of developing dementia (95% CI 2%-170%), while self-reported sleep apnea conferred no additional risk for participants with an  $\epsilon$ 4 allele. Conclusions: Sleep apnea may increase risk of dementia in the absence of APOE- $\epsilon$ . This may help inform prevention strategies for dementia or AD in older men with sleep apnea.

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## College of Public Health Research Day

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**7** Abstract      **Development of Multiple Primary Cancers in Lung Cancer Patients: Appalachian vs. Non-Appalachian Populations of Kentucky**

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 B. Huang, Kentucky Cancer Registry; Dept. of Biostatistics, U of Kentucky  
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**Abstract:** OBJECTIVE: This study examined whether there were differences in the development of multiple primary cancers (PCs) in lung cancer patients residing in the Appalachian versus NonAppalachian regions of Kentucky. The study also identified other factors associated with the development of another primary cancer in lung cancer patients. HYPOTHESIS: Lung cancer patients residing in Appalachian Kentucky are more likely to develop multiple primary cancers compared to patients residing in Non-Appalachian Kentucky. METHODS: This was a retrospective, population-based cohort study of Kentucky patients (N=26456) aged >20, diagnosed with primary lung cancer between 2000 and 2013. The study population was drawn from the Kentucky Cancer Registry. Subjects were followed to determine if they developed subsequent PCs. The Cox Proportional Hazards model was used to control for the time from diagnosis to death or a second PC. RESULTS: Adjusted multivariable hazards model indicated that there were no statistically significant differences between Kentucky Appalachian and Non-Appalachian lung cancer populations with respect to the hazards of developing subsequent PC (HR: 1.002, p=.9713). The adjusted analysis revealed that increasing age at diagnosis, male gender, and patients having surgery increased the hazards of developing another PC (HR: 1.015, p=.0001; 1.169, p=.012; 1.446, p=.0003). Having a stage IV tumor decreased the hazards of the outcome by 31.6% comparing to the patients with stage II tumors (HR=0.684, p=.0015). CONCLUSION: No differences were found between Appalachian and Non-Appalachian lung cancer patients. Surgery was very likely associated with getting a second primary because patients who had surgery were likely to live longer, and thus, had a greater opportunity to develop a second primary. In contrast, patients who were diagnosed with stage IV lung cancer had very short survival times and were, thus, less likely to develop a second primary cancer.

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## College of Public Health Research Day

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<b>8</b> Abstract Title:	<b>An Examination of Traumatic Brain Injury as a Risk Factor for Psychiatric Symptoms in Alzheimer's Patients</b>
Author(s):	J. F. Walch, Department of Epidemiology, College of Public Health, U of Kentucky E. L. Abner, Department of Epidemiology, College of Public Health, U of Kentucky W. T. Sanderson, Department of Epidemiology, College of Public Health, U of Kentucky

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**Abstract:** Introduction: Dementia is a major issue both in the United States and worldwide. Alzheimer's disease (AD) is widely considered to be the most prevalent type. Traditionally, the hallmark AD symptom is profound memory loss. Patients also commonly experience changes in personality and behavior. These changes usually involve depression, anxiety, social withdrawal, mood swings, irritability and aggression, changes in sleeping habits, and delusions. Background: Several studies have established a mechanistic link between traumatic brain injury (TBI) and the development of AD. However, it is unknown whether TBI contributes to personality/behavior changes observed in many AD patients. In the current study, we evaluated the association between TBI and psychiatric conditions in patients who present with clinically diagnosed dementia due to Alzheimer's disease. Methods: Participants in the current study were drawn from the National Alzheimer's Coordinating Center. Only participants who had AD at the time of last assessment were included in the study (N=10,511). Logistic regression was used to analyze the association between TBI and adverse psychiatric outcomes, defined as presence of psychosis or agitation/aggression, in patients with AD. Confounding variables, including age, gender, and cognitive reserve, were included in final regression models. Results: Preliminary results find that there is likely no statistically significant association between a history of TBI and psychosis (OR: 1.07,  $p>0.05$ ), or agitation/aggression (OR: 1.10,  $p>0.05$ ). Conclusion: In conclusion, traumatic brain injuries do not appear to be a risk factor for the development of psychiatric symptoms, like agitation/aggression or psychosis, in patients who have been diagnosed with Alzheimer's disease.

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## College of Public Health Research Day

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**9** Abstract Title: **The Fallen but Never Forgotten: A Spatial Consideration of Suicide Decedents with Military Service**

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Author(s): J.M. Seals, College of Public Health, U of Kentucky  
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**Abstract:** Introduction: Veterans in the United States have higher rates of suicide than the general population. Due to the intake process of the U.S. Department of Veteran's Affairs (VA) healthcare, veterans have varying access to care; both regulatory and geographically. For this ecological study we therefore examine if and then how distance from a VA facility impacts risk of suicide. Methods: We used data from the Kentucky Violent Death Reporting System. We created a subset to include suicide decedents 18 and older who died in Kentucky from 2005 to 2013 (n=5,313) and examined the spatial relationship between those who died by suicide with military service and access to VA health care facilities. Poisson regression was used to examine the impact of distance and to determine clusters of suicides with military service. Results: 628 Kentucky zip codes had at least one resident die by suicide, 533 had one resident with military service die by suicide. After adjusting for suicide decedents 18-30, diagnosed depression, and approximate distance from residence to closest VA health care facility, decedents who resided 10-20 kilometers from the nearest VA facility were 71% less likely to die by suicide. Six clusters of high rates of suicides were also found. Discussion: Since there were clusters of high rates of suicides with military service and distance found to be protective we conclude there is a spatial relationship with between VA facilities and suicide. Due to the design further studies on an individual level may be necessary to examine the spatial relationship.

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## College of Public Health Research Day

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**10** Abstract Title: **Crash Density Analysis of Motor Vehicles, in Fayette County, Kentucky**

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**Abstract:** Introduction: According to the WHO, the first step in reducing traffic collisions is analyzing the magnitude and characteristics of the area's traffic collision problem. In 2014, Kentucky had a total of 151,489 collisions. From these collisions, 24,139 had an associated injury, and 634 experienced a fatality. Kentucky's traffic collisions with an associated injury are much higher than that of the rate of the United States. This infers that Kentucky has a traffic collision problem that should be addressed. Background: Home to Lexington, Kentucky (population 308,000 residents), Fayette County is a highly traveled location. For the purpose of this project, a spatial analysis of Fayette County's traffic collision trends will be analyzed by looking for crash/collision patterns, to identify areas with a high density of traffic crashes. Methods: The data for this analysis was obtained from the Kentucky State Police Motor Vehicle Collision Reporting System. Using ArcGIS, crash locations were mapped and spatially joined to a corresponding roadway segment. The severity of crashes was then analyzed using a hotspot analysis tool. The severity of crashes was also analyzed, using morbidity and mortality as a proxy. Results: Several high crash count roads were identified as a result of this analysis: South New Circle Road East Main Street, Mall Road, South I-75, the intersection of Upper St. and Limestone, Palumbo Road, Clays Mill Road, and West Loudon Way and North Broadway. Conclusion: Undertaking a spatial analysis of crash locations aids in identifying areas with a high density of crashes.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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**11** Abstract Title: **Opioid utilizations in patients with diabetes**

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**Abstract:** As patients with diabetes (DM) suffer from nociceptive and neuropathic pain, they rely on painkillers to reduce symptoms. Since non-opioid medications often fail to manage pain, these patients can be prescribed opioid medications. Given the potential for addiction and negative outcomes, it is important to understand the magnitude of opioid utilization in this population. The 2-year longitudinal data of the Medical Expenditures Panel Survey (MEPS) (Panel 17, 2012-2013) were linked to the medical condition and the prescribed medicines data. Using a cross-sectional design, 18-years or older diabetic patients were compared with a non-diabetic control group to examine their opioids utilization. The control group was selected through 1:1 matching on age, gender, and MEPS data collection round. In addition, to evaluate opioid initiation/use in newly diagnosed diabetic patients, we restricted the analyses to those first reporting DM during rounds 2nd, 3rd, or 4th and their controls and investigated opioid use at the following round. Analyses were conducted using conditional logistic regression adjusted for demographics and comorbidities. Among the 1354 diabetic patients (weighted estimate: 11.24 % US population), 49 (weighted %: 4.38) filled a prescription for opioids. In the control group, 36 participants (weighted %: 0.41) reported opioids. The odds ratio (OR) with 95% confidence interval (CI) was 1.37 (0.89-2.12) (unadjusted) and 1.21(0.70-2.08) (adjusted). When looking at newly diagnosed diabetic patients (N=184), 11 (weighted %: 7.27) filled a prescription for opioids on the following round, as compared to seven (weighted %: 5.62) in the control group; unadjusted OR of 1.57 (0.61-4.05) and the adjusted OR of 29.01 (0.64->999.99). Our study suggests that patients with DM were more likely to fill a prescription for opioids. Given that our estimates were not statistically significant, further studies are need to evaluate the magnitude of using opioids in diabetic patients.

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## College of Public Health Research Day

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**12** Abstract Title: **Equine Leptospirosis Seroprevalence in the Central and Bluegrass Regions of Kentucky from 1993- 2015.**

Author(s): C.R. Siza, Department of Epidemiology, U of Kentucky

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**Abstract:** BACKGROUND Leptospirosis is a worldwide zoonotic bacterial disease of significant importance for both public and veterinary health. There is a known occupational hazard for leptospirosis, especially in occupations that work directly with animals or animal products. This study examined the prevalence over time and geographical distribution of equine leptospirosis in Kentucky. METHODS Data was obtained from the University of Kentucky Veterinary Diagnostic Laboratory on equine leptospirosis from 1993 to 2015. Analysis of prevalence by serovar, month, year and season was performed. Geographical distribution of prevalence was explored as well as relationship with environmental factors. RESULTS The seroprevalence of equine leptospirosis in the central and bluegrass regions of Kentucky was 12.23%. *Leptospira interrogans* serovar Grippotyphosa was the most common serovar in these data, followed by serovar Pomona. Positive tests were most common in the winter months of December and January. Fall had the greatest of odds of having a positive test (OR 3.88 [95% CI: 3.54, 4.25]). The highest prevalence of seropositive results in 23 years occurred in 2012. Positive prevalence was geographically limited to five counties, with Woodford County having the highest prevalence. Six of nine farms with positive results were close in proximity and in the same hydrologic unit. CONCLUSION The prevalence of positive leptospirosis has increased over the last 23 years in Kentucky and there is a significant correlation with season. Geographical distribution is focused on four bordering counties. Further research should be done exploring the effect of management practices and environmental exposure on leptospirosis seroprevalence in the equine population in Kentucky.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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<b>13</b> Abstract Title:	<b>Does Site of Intravenous Access for Contrast Administration for Thoracic Computed Tomographic Angiography Influence Quality?</b>
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**Abstract:** Introduction: There have been a number of studies of the effect of injection site on the quality of Computed Tomographic Angiography (CTA). However, these studies have had conflicting results, in part because they have been underpowered. The goal of this study was to determine how quality of CTA was affected by injection site. Methods: All adult thoracic CTA scans performed at a university medical center between January 1, 2013 and August 15, 2015 were retrospectively reviewed to identify all cases that were performed via intravenous access (IVA) sites other than the antecubital fossa. An equal number of CTA examinations performed using antecubital (AC) IVA were identified to use as controls. Scatterplots and correlation coefficients were used to determine if there was a linear association between attenuation and covariates with particular attention to the covariate of site of injection. Results: 1,420 cases were performed using an IVA site other than the antecubital fossa. There was no significant difference between attenuation when contrast was injected via wrist/hand, arm and AC sites. Compared to AC contrast injection, forearm and central venous catheter sites were significantly associated with an attenuation increase of 11.45 HU and 18.96 HU, respectively. Additionally, right sided injections had a significant elevation in attenuation of 11.39 HU compared to left sided injections. Conclusions: Right sided injections produce higher quality CTA images than left sided injections however; the resultant improvements are quite small. There is no significant difference in image quality between antecubital, hand/wrist or arm injections. Thus, IV site selection will be better governed by expediency than tradition.

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## College of Public Health Research Day

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**14** Abstract Title: **Spatial distribution of partner-seeking men who have sex with men (MSM): An epidemiologic study using MSM geosocial networking applications**

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**Abstract:** Background: Developments in geosocial networking applications (i.e., "apps") have made finding sexual partners easier, raising challenges for HIV prevention, but also opportunities for research and intervention. Objective: This study explores temporal differences in the spatial distribution of partner-seeking MSM in a mid-sized city and a rural area in the South using three MSM dating apps. Methods: Data collection points (n=62 and 52, respectively) were spaced in two-mile increments along each of nine routes (112 miles) covering an urban county and ten routes (103 miles) in a rural county. Staff visited each point twice: once on weekdays (8:00AM--4:00PM) and once on weekend evenings (Friday/Saturday, 8:00PM--12:00AM). At each point, staff logged into three smartphone apps and recorded the number of users within one mile. Wilcoxon signed rank sum tests were used to examine differences between the three apps and between time frames of data collection. Results: The median number of app users at each urban data collection point during weekdays varied by app (3.0, 1.0, and 0.0); the difference between the latter app and the former two was significant,  $p < 0.0001$ ; a similar pattern was observed in weekend usage (1.0, 0.0, and 1.0). Differences in the number of users in weekends vs. weekdays by app were not statistically significant. Similar comparisons will be presented for rural data collection, which is ongoing. Conclusion: The absence of temporal differences was surprising and suggests that future geo-targeted HIV interventions in MSM may not necessarily center around nightlife.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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**15** Abstract Title: **A Descriptive Analysis of Firearm Legislation and Law Enforcement Suicides in NVDRS Funded States**

Author(s): M.L. Hurst, College of Public Health, U of Kentucky

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**Abstract:** BACKGROUND: The purpose of this study was to evaluate firearm related suicides among law enforcement members and identify potential differences between decedents and firearm legislation grades from NVDRS states. METHODS: A descriptive analysis was conducted using suicide data from 820 decedents who worked within law enforcement at the time of death. Data was collected over a ten-year period (2003-2013) from the National Violent Death Reporting System. Multivariable logistic regression and Pearson's chi-square were used to identify if differences exist among firearm related suicides and other means suicides for variables such as: age, marital status, occupation, mental health, and firearm legislation scores. Backwards elimination was used to determine the best fitting model. RESULTS: Due to missing data among the sample, 40 cases were removed, yielding a final sample size of 820. Of reported suicides, 678 (83%) died by firearm while 142 (17%) were conducted using other means. Individuals aged 66 and older had more than 2.5 times the odds of dying by suicide with a firearm compared to those aged 36-50. Occupation, while not statistically significant, showed a protective effect among corrections officers and those listed as "other" compared to members in leadership positions. Mental health status displayed a protective effect among law enforcement suicides. The key variable of interest, firearm legislation scores, showed a statistical correlation between firearm suicides and the lowest score possible (OR=1.83, CI=1.12-3.00). CONCLUSIONS: Recommendations that could be made following analysis include: (1) review of current regulations among states with low firearm regulations to prevent firearm access, and (2) Increase or improve mental health services provided to law enforcement members, and (3) regulate reporting mechanisms for NVDRS data entry.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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<b>16</b> Abstract Title:	<b>Functional outcomes by age for inpatient cancer rehabilitation: A retrospective chart review</b>
Author(s):	E.G. Hunter, Graduate Center for Gerontology, College of Public Health, U of Kentucky

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**Abstract:** Cancer related impairments result in disabilities similar to those typically encountered in inpatient rehabilitation (Marciniak, 1996; Ganz, 2003). Many cancer survivors report declines in physical functioning including body mobility and engagement in work and leisure activities (Nomori, et al., 2004). However the use of rehabilitation services by cancer survivors is low (Vargo, 2008). The purpose of this retrospective chart review was to describe the characteristics and functional outcomes of people who did receive inpatient physical rehabilitation for a cancer diagnosis. In this study 215 charts were reviewed. Data collection included demographic information, number of comorbidities, length of stay, and functional status. After completion of the review it was clear that cancer rehabilitation was beneficial for improvement of functional status regardless of age. Length of stay and length of stay efficiency was not significantly different between patients under 65 years of age or over 65 years of age. There was no significant difference between the age groups related to comorbidities except for significantly more of the younger group having zero comorbidities. Coming from the results of the retrospective review it can be hypothesized that people who receive inpatient cancer rehabilitation in this facility had multiple comorbidities and that people referred to inpatient rehabilitation were healthier older people and less healthy younger people. Chart review methodology is useful for generating future research questions. This review highlighted the importance of health status and comorbidities in cancer rehabilitation and raised a question related to the impact of age on referral to rehabilitation.

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Supported by:	NCI 1R03CA136444-01
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## College of Public Health Research Day

### Poster Presentation Abstracts

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**17** Abstract Title: **Dissemination of a Dementia Education Program for Caregivers and Practitioners: The Dementia Dialogues Program**

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Author(s): M.A. Guest, Graduate Center for Gerontology, U of Kentucky  
M.P. Smith, Office for the Study of Aging, U of South Carolina, Columbia, SC

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**Abstract:** The prevalence of Alzheimer's and related disorders (ARD) continues to rise in the United States. Along with this continued increase in ARD there are associated increases in medical expenses and caregiver burden. Recognizing the growing demand for information and skills related to ARD management and care early on, the Dementia Dialogues program was created through a university-community-government partnership model among the University of South Carolina, the Department of Health and Human Services, and the Long-Term Care Community in South Carolina. The Dementia Dialogues program is a free five-session educational program focused on specific ARD information, skills, and resources that seek to improve the knowledge of participants. Initially developed for Certified Nursing Assistants in Long-Term Care Facilities, the program was quickly adapted to community and family caregivers for delivery in a range of community-based settings. Since its inception, the program has trained more than 22,200 individuals representing a range of professions, interest, and caregiver statuses. Nearly half of participants (11,010) have completed all five sessions of Dementia Dialogues and received Dementia Specialist certificates. A further 247 have undergone additional training following a train-the-trainer model to deliver the program throughout the Southeast. The Dementia Dialogues program has further expanded its state presence through unique non-profit partnerships and has developed an online video series known as Dementia T.I.P.S. in order to continue to provide up-to-date information regarding ARDS. The Dementia Dialogues program provides a glimpse at a model of dissemination and implementation in providing ARD education to a wide range of participants.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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**18** Abstract Title: **A Lifecourse Examination of Divorce Using a New Population Based Dataset**

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Author(s): M. Schuier, Graduate Center for Gerontology, U of Kentucky  
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**Abstract:** Over the past few years researchers at the University of Kentucky have been collecting data on the divorce. Using publically accessible court documents researchers were able to examine aspects of divorce that are not available through current datasets. This dataset covers the population of Lexington-Fayette and every divorce that was recorded during the collected years has been included in the dataset. This presentation will highlight the available aspects that pertain to divorce and individuals that are available through this dataset as well as explore how this dataset may be used in research. The diverse nature of the dataset allows for multiple areas of research exploration. An introduction of a new dataset will help researchers explore new areas of interest and possible research concepts. This presentation will cover an examination of divorce data and the affect on distance between spouses with children post divorce. Findings include distance between spouses as well as examination of how income, employment type, and number of children affect distance post divorce. In Lexington-Fayette post divorce separation is extremely variable, data shows that many individuals' employment, number of children, age, and time spent in Kentucky affect distance post divorce. Finally, discussion of the affects towards divorce children and the divorced individuals will be covered.

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## College of Public Health Research Day

### Poster Presentation Abstracts

**19 Abstract**      **Evaluating the Relationship of Inhalable Particulate Exposures by Occupational Categories, in Relation to Lung Function, Among Kentucky State Fair Patrons**

**Title:** D. Collins, Dept. of Epidemiology & Preventative medicine, and Environmental Health, U of Kentucky  
**Author(s):** C. Holsinger, Department of Epidemiology, U of Kentucky  
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**Abstract:** Background/Aim of Study: The main purpose of this study was to evaluate the relationship between occupational inhalable exposures and the presence of respiratory impairment, and identify higher risk occupational categories. Methods: In, August 2015, data on 627 Kentucky State Fair patrons was collected via self-reported survey, and lung function test using the Vitalograph COPD-6®. Verbal consent was obtained from participants who answered questions on demographics, occupational history and exposures, use of personal protective equipment, medical and smoking history. Results: Analysis shows that 62.6% of the participants were female, with a mean age of 52.0 years. 50.2% of participants reported being currently employed, followed by 33.1% retired, and 5.0% unemployed. 87.2% of participants are estimated to have completed accurate screening tests. Approximately 5.8% of all participants self-reported physician-diagnosed COPD. 18.0% reported ever wearing some method of respiratory PPE. An estimated 40.9% of participants reported smoking at least 100 cigarettes in their lifetime. Approximately 34.8% of all participants reported particulate exposure in their longest-held primary occupation, among those reporting particulate exposure, an estimated 33.3%, and 5.1%, were classified as having respiratory impairment (FEV1 < 80%) or COPD (FEV1/FVC < 70%), respectively. Conclusion: Preliminary findings suggest that occupationally-related particulate exposure could be contributing to lower lung function. These numbers are not final, and are only preliminary estimate and need further analysis in order to determine statistical significance.

**Supported by:** Funding Source: The Central Appalachian Regional Education and Research Center (CARERC) pilot funding project. This study has been approved by the University of Kentucky Institutional Review Board.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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**20** Abstract Title: **Missed Work Time Due to Occupational Illness among Hispanic Animal Production Farmworkers**

Author(s): A.M. Bush, College of Public Health, U of Kentucky

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**Abstract:** Work-related illnesses are inadequately and underreported in the agricultural industry—home to a vulnerable Hispanic worker population, and high fatal and nonfatal injury rates. Work-related illnesses can contribute to missed work time, caused by a culmination of personal and work factors, which costs the individual, employer and society. In an effort to gain further understanding of agricultural work-related illnesses this study will: 1. Describe the prevalence of missed work due to work-related illnesses among Hispanic animal production farmworkers. 2. Examine work-related and personal factors associated with missed work due to work-related illnesses. 3. Identify health symptoms and work-related characteristics potentially associated with work-related illness. Descriptive statistics, bivariate associations, and log binomial regression models were executed using SAS 9.3. Key findings reveal that having at least one child, having poor self-reported general health, experiencing stress during a typical workday, or spending less time with horses are significant predictors of missed work. Interventions can be designed to help identify workers most susceptible to missing work time and provide resources to help reduce missed work time. Future research should examine work-related illness in agricultural animal production, including personal and work-related factors, in order to help diminish occupational health disparities among Hispanic workers, who are more likely to be employed in hazardous work.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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**21** Abstract Title: **Blood Transfusions and Cardiac Suregry: Determining Who Gets What and How Much**

Author(s): M. Wallace, Department of Health Policy and Management, U of Kentucky

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**Abstract:** Blood transfusions are one of the most common procedures performed in American hospitals. It is readily accepted that the use of donated blood can save a life. However, contrary to popular belief, research has shown that blood transfusions lead to an increased risk of adverse effects for the patient. Cardiovascular disease is the leading cause of death in the United States, and 50% of all cardiac patients receive blood transfusions. Additionally, “only 15%-20% of patients having cardiac procedures consume more than 80% of all the blood products transfused at operation”. In this descriptive study, data from University of Kentucky hospitals will be analyzed to determine whether there are any baseline differences between cardiac patients who receive transfusions and those who do not. The chi-square test will be used to compare the categorical differences, while t-test will be used to compare the differences in the means of continuous variables. It is proposed that age will be a leading factor as to whether a patient received blood during their procedure as well as how much blood they receive. Other contributing factors include sex, smoker status, and insurance status (Medicare, Medicaid, private or uninsured). This research will aid in the analysis of health outcomes between the transfused and non-transfused groups.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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**22** Abstract Title: **Evaluating Physical Activity Policy Outcomes: A Systematic Review**  
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**Abstract:** Background: The importance of physical activity (PA) as it relates to the improvement of individuals' health and BMI has been made clear. However, as communities advocate for health policies in an effort to reach a large segment of the population, little is known about the evaluation and outcomes associated with PA policy. Purpose: The purpose of this systematic review was to synthesize PA policy outcomes in the areas of: built environment, community design, point-of-decision prompts, neighborhood availability, and street design. Methods: The search was conducted in five databases with varying terms to include PA policy outcomes in the previously mentioned areas. Inclusion criteria were: peer-reviewed publications between 1 January 2002 and 31 December 2015, indexed in select databases, published in the English language, and included outcomes related to PA policies. Results: A total of 292 articles were retrieved upon the initial search: built environment (n=199), community design (n=53), point-of-decision prompts (n=11), neighborhood availability (n=23), street design (n=6). Data were extracted from seven articles, which met inclusion criteria. Additional results are forthcoming. Discussion: The findings from this systematic review will help advance support for adoption of PA policies. The long-term goals are to develop and distribute a framework for implementing PA policy to reduce obesity and promote personalized health at the population level. Future research should further examine the outcomes of PA policy and the potential implications for population health.

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## College of Public Health Research Day

### Poster Presentation Abstracts

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**23** Abstract Title: **Differences Between ZZ and SZ patients on the AlphaNet Program**

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**Abstract:** Background: The aim of this observational study was to analyze the difference in demographic and other baseline characteristics between ZZ and SZ phenotypes of Alpha-1 antitrypsin (AAT) deficient patients within AlphaNet program. Methods: We analyzed data collected from a sample of 2877 patients with AATD (all members of AlphaNet) including 2544 (88.8%) patients with ZZ phenotype, and 323 (11.2%) with SZ. Main baseline data was compared between the respondents with ZZ and SZ variants using SAS v9.4. The results for categorical variables were reported by frequencies and proportions, and for continuous variables as mean+ SD (min, max). Values between the groups were compared using t-test and ANOVA, and Chi-squared test respectively. Results: The average age of the total cohort was 56.5+11.4 years, with a mean age of SZs being higher than ZZs at 58.5 years ( $p=0.001$ ). Over a quarter of ZZs reported that early onset of lung disease (before age 53) prompted the AATD diagnosis, which was significantly higher than among SZs. However, over a third of SZs mentioned that COPD prompted the initial diagnosis of AATD compared to 19.8% among ZZs ( $p<0.001$ ). Interestingly, higher proportion of SZs had been diagnosed with diabetes, high blood pressure, congestive heart failure compared to ZZs. Also, among SZs there was higher predominance of ever and current smokers ( $p<0.001$ ). Finally, ZZs were more likely to participate in the Alpha-1 Disease Management and Prevention Program (ADMAP). Conclusion: Data from the registry suggest that AATD patients with ZZ phenotype differ from those with SZ, particularly with regard to risk factors, comorbidities, and treatment.

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