

College of Public Health Research Day

Oral Presentation

Abstract Title: **The Impact of Early Adversary on Lifetime Learning: An Evaluation of Adverse Childhood Experiences (ACEs) and Their Correlation with Risk of Childhood Developmental, Social, or Behavioral Delays in Children Ages 1-5 in the U.S.**

Author(s): R. Brase, College of Public Health, U of Kentucky
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Abstract: Background: The negative health outcomes associated with Adverse Childhood Experiences (ACE) are numerous and well documented. So too is the importance of the first five years on a child's brain development, and subsequent life. However, there is a paucity of literature assessing the relationship between a child's overall ACE score and that child's risk for early delay. Objective: Evaluate the association between overall ACE Score and the risk of developmental, social, or behavioral delay in a nationally representative sample of children ages 1-5 years in the US. Methods: This study evaluates cross-sectional data on children's overall ACE score and the child's risk of being developmentally, socially, and behaviorally delay from the National Survey of Child's Health 2011/2012. Analysis (chi-square and multiple logistic regression) was completed in SPSS. Results: The three most common ACEs reported were racial injustice (44.3%), parental death (43.8%), and neighborhood violence (41.9%). The presence of any ACE was found to be associated with a 30.4% increased risk of delay for children. A dose response relationship was also found between number of ACEs and risk of delay with children who experienced no ACEs reporting a 24.4% risk compared to those who experienced four or more ACEs reporting a 42.2% risk of delay. Conclusion/Implications: There is a strong positive relationship between ACEs and the risk of delay in children. These results suggest assessing and addressing ACEs in early childhood could have a positive impact on reducing the long-term negative health effects of early developmental, social, and behavioral delays.

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Oral Presentation

Abstract Title: **Pseudomonas Aeruginosa Impact on Severity of Bronchiectasis**

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Abstract: Background: Bronchiectasis is a disease characterized by dilated bronchi leading to mucus collection and recurrent infections of the airways. Pseudomonas Aeruginosa (PA) is one of the most frequently isolated pathogens in sputum of patients with bronchiectasis and some other chronic pulmonary diseases. Objective: The objectives of this study were to estimate the prevalence of PA in non-CF bronchiectasis patients and to determine the independent impact of PA on hospital admissions, exacerbations, lung function and severity of bronchiectasis. Methods: This study used baseline data from the Bronchiectasis and NTM Research Registry (BRR). Modified Bronchiectasis Severity Score (BSI) and modified FACED were used to categorize the severity of bronchiectasis. Values between the groups were compared using t-test/ANOVA or Wilcoxon-Mann-Whitney for continuous variables and Chi-square for categorical variables. Statistical analyses were carried out using SAS 9.4. Results: Almost a quarter of the patients (24.1%) had one or more bacterial cultures positive for PA. A higher proportion of patients with PA reported having pulmonary exacerbations and had a greater average number of hospital admissions in the past two years compared to PA-negative patients ($p < .0001$). There was significant impact of PA on lung function in patients with bronchiectasis. PA-positive patients had significantly greater proportion of high BSI scores (60.0%) compared to PA-negatives (29.5%) ($p < .0001$), and had severe bronchiectasis on FACED. Conclusions: Our study found estimated prevalence of PA in non-CF bronchiectasis patients of 24.1% in the BRR. PA-positive patients had significantly greater average number of exacerbations and hospitalizations, and higher modified BSI and FACED scores. Further research is recommended to better understand the impact of PA on outcomes in patients with bronchiectasis.

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Oral Presentation

Abstract Title: **Feasibility and Acceptability of the Family Check-Up for Parents of Deaf and Hard of Hearing Children**

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Abstract: Approximately 20% of preschool-aged children exhibit clinically significant disruptive behaviors, but among deaf or hard of hearing (DHH) children, the prevalence increases to nearly 50%. Disruptive behaviors in young children can develop into more serious delinquent behaviors such as bullying, physical aggression, truancy, and substance abuse if left untreated. The purpose of this study was to examine the feasibility, acceptability, and initial outcomes of an off-the-shelf parent training program when delivered to parents of DHH preschoolers. In this pilot randomized controlled trial, parents randomized to the intervention group met with a trained interventionist who delivered 3 sessions of the Family Check-Up. Those randomized to the wait-list control group received 3 sessions of a didactic general wellness curriculum. Of 12 enrolled families, 11 completed all study procedures. The intervention parents were highly satisfied with the Family Check-Up (mean satisfaction score = 4.4 of 5). From baseline to post-intervention, 4 of the 6 intervention parents reported decreases in depressive symptoms. Similarly, 4 of 6 intervention parents showed increases in parenting satisfaction, parenting self-efficacy, and perceived impact on the family of child behaviors, which are all associated with positive parenting behaviors. In contrast, most wait-list control parents' scores on these variables remained stable or worsened. As a proof-of-concept demonstration, this study suggests that moderately positive outcomes may be achieved with an intervention using as few as 3 visits. These outcomes are encouraging but demonstrate the need for adaptations to make the Family Check-Up more relevant for parents of DHH young children.

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Oral Presentation

Abstract Title: **Exploring the Spatial Relationship Between Hospital Readmissions and Obesity in Kentucky Counties.**

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Abstract: Background and Purpose: In 2015, approximately one-third of adults in Kentucky were obese, which is similar to the proportion of obese adults nationwide. People who are obese have an increased risk of other serious health conditions that often result in lengthy and frequent hospital stays. Readmissions to hospitals soon after discharge are recognized as an expensive, largely preventable source of Medicare expenditures. This study's objective was to determine if high hospital readmission rates amongst Medicare beneficiaries occurred in the same areas of Kentucky as high obesity rates. Methods: Geographic information system (GIS) and SatScan software was used to explore spatial patterns of hospital readmissions in Kentucky. Spatial scan analysis was conducted using a discrete Poisson model with the total number of hospitalizations for Medicare beneficiaries serving as the population and the number of Medicare beneficiaries readmitted to the hospital shortly after discharge serving as the cases. Results of this analysis were then compared to a map of county-level obesity rates. Results: Significant, nonrandom clustering of high hospital readmission rates were observed in counties in the eastern (RR=1.71), northern (RR=1.35) and western (RR=1.13) parts of Kentucky. The cluster in the eastern region was also found in a cluster of counties with the highest rates of obesity in Kentucky. Conclusions: Certain regions in Kentucky have higher obesity and hospital readmission rates than others. This study did not attempt to elucidate the mechanisms underlying this relationship, and future research should employ techniques like multiple regression analysis that account for other possible covariates.

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Abstract Title: **Preliminary Analysis of Male Attitudes Towards Reproductive Coercion**

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Abstract: Reproductive coercion (RC) can be defined as actions relating to reproductive health taken by a partner in order to maintain power and control in a relationship. While multiple studies have looked at reproductive coercion's role in unintended pregnancies and the correlation with interpersonal violence, this research has only examined the experiences of women. Further, the definition of RC has not addressed the experiences of reproductive coercion among men, though the anecdotal phenomenon of women getting pregnant to trap men is often discussed. This presentation will address the gap between collected RC data for men and women. Specifically, it will look at the questions: 1) What are the most common forms of reproductive coercion experienced by men? 2) How does previous pregnancy impact males attitudes? In a cross-sectional survey of college students from two large, public universities in 2015 (n=4,063), both men and women responded to questions relating to condom use, birth control sabotage and pregnancy discussions. During past surveys, men were either excluded or not looked at individually. Including men's experiences in the conversation about pregnancy prevention programs as well as interpersonal violence (IPV) prevention programs will help us analyze factors contributing to unintended pregnancies and IPV. As well, decreasing reporting inequalities between male and female RC experiences will open doors to a broader discussion about healthy relationships and family planning.

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Oral Presentation

Abstract Title: **Behaviors Characteristic of Autism Spectrum Disorder in a Geriatric Cohort with Mild Cognitive Impairment or Early Dementia**

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Abstract: Autism spectrum disorder (ASD) represents a heterogeneous cluster of clinical phenotypes that are classically diagnosed by the time of adolescence. Recent studies have suggested that late-life onset of behaviors characteristic of ASD can develop in frontotemporal dementia, but have not been linked to Alzheimer's disease (AD) or mild cognitive impairment (MCI). To explore the possibility of late-life emergence of behaviors characteristic of ASD in MCI and AD, we surveyed caregivers of 76 older persons with cognitive impairment from the University of Kentucky Alzheimer's Disease Center Longitudinal Cohort using the Gilliam Autism Rating Scale-2. Participants with high autism index ratings (Autism 'Possible/Very Likely', n=17) reported significantly (statistically and clinically) younger age at onset of cognitive impairment than those in the Autism 'Unlikely' range (n=59): 68.8±11.5 vs 76.1±8.0 (p < 0.005). Additionally, those in Autism 'Possible/Very Likely' group demonstrated advanced severity of cognitive impairment, indicated by Clinical Dementia Rating Scale Sum of Boxes scores. A three-year follow up of this longitudinal cohort added insights to the progression of behaviors characteristic of ASD in degenerative cognitive impairment. Advanced cognitive severity was confirmed of the 'Possible/Very Likely' group, as 11 of the 17 participants expired. Twenty-five participants not classified as Autism likely expired, 22 repeated the cross-sectional survey, and six dropped out. Results demonstrate that ASD behaviors are more prevalent in early onset dementia and advanced severity of cognitive impairment. Further work could shed light on areas of shared neuroanatomy and provide insights that might hasten development of therapeutic strategies for both conditions.

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Poster Presentation #247

Abstract Title: **Adaptation and Implementation of the Family Check-Up for Deaf and Hard of Hearing Children: Preferences**

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Abstract: Background: Deaf and hard of hearing (DHH) children are at an increased risk for disruptive behavior problems but are less likely to receive behavioral interventions to address these problems. While behavioral parent-training (BPT) has consistently demonstrated a reduction of behavioral problems in normal hearing children, no prior research has examined the effectiveness of BPT with DHH children. We will use the ADAPT-ITT model to assess parent preferences for adapting the Family Check-Up, an evidence-based BPT intervention, to better serve families with DHH children. Methods: Through the direction of our Community Advisory Board, we conducted and analyzed semi-structured key informant interviews with 16 parents of DHH children. In these interviews we explored perceptions of behavioral problems related to hearing loss in young children and parent preferences regarding interventionist, location, and frequency of intervention delivery. Findings: Parent participants conveyed a lack of social support in parenting DHH children and the need for social support groups. Parents preferred interventionists with sufficient experience with DHH children, including other parents of DHH children, over social or mental health workers. Most participants recommended no more than 6 sessions, delivered once every 1 - 2 weeks. Preferences regarding the location of services varied. Consideration of these parent preferences will result in flexibility in location of intervention delivery.

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College of Public Health Research Day

Poster Presentation #248

Abstract Title: **Theta EEG Waves of Aging Professional Musicians as an Indicator of Working Memory and Cognitive Function**

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Abstract: Context: A large population of aging US adults have cognitive impairment. Cognitive function is highly variable, but studies have identified multiple lifestyle factors that influence cognitive performance at old age. This study focuses on cognitive challenge using music as an outlet. Playing instruments has shown to activate cognitive functions, motor functions, and sensory systems simultaneously. Literature suggests a strong correlation between cognitive function and musical ability. In the past, the introduction of music to an aging person has been used as an intervention technique for cognitive decline and impairment. This study aims to measure music as a protective mechanism against cognitive impairment. Methods: This study surveys and examines 29 older adult professional orchestral musicians. Cognitive and neuropsychological profiles were taken of participants through neuropsychological testing and EEG recordings. Results: Musician's scores were compared with normative scores of like-aged non-musicians. Current musicians scored both significantly faster and more accurate on four of the five neuropsychological exams administered. Regression and ANCOVA analysis was done between theta EEG signatures in the frontal, parietal, and occipital lobes during the Bluegrass Working Memory Task. Two variables exhibited strong positive correlations: the number of years of private music lessons and the number of hours spent practicing music weekly.

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Poster Presentation #249

Abstract Title: **Trends of Cancer Related Suicide in Kentucky from 2005-2015**

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Abstract: Background: Studies from around the world have shown that there is an increased risk of suicide in individuals with cancer. A cancer diagnosis can take a large toll on a person physically and emotionally. Depression has been found to be more common in those with cancer while the risk of suicide is twice that of the general population. However, few analyses have been conducted in the United States and no previous analysis has been conducted in Kentucky, where suicide and cancer rates are higher than national averages. Objectives: This study aims to determine the suicide rates, patterns, and risk factors among cancer patients in Kentucky. Methods: In order to determine the risk of suicide, a cross-sectional study will be conducted. State specific data will be gathered by linking data from the Kentucky Cancer Registry (KCR) and the Kentucky Violent Death Reporting System (KY-VDRS). Information gathered from the KCR will include data regarding the site of cancer, stage, age, sex, and date of diagnosis. Data from the KY-VDRS will confirm KCR patients' manner of death as suicide. Suicide rates will be based on the number of suicides deaths by cancer patients in the state of Kentucky from the years 2005-2015. Standardized mortality ratios will be calculated while risk factors will be evaluated using a chi-squared test. Location of death will also be examined to evaluate geographic trends. Importance: The high rates of both suicide and cancer make this a public health issue. While cancer is not 100% preventable, suicide is. Physicians in Kentucky should be aware of the risks their patients face throughout the course of treatment in order to identify them early on and prevent suicide before, during, and after treatment.

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Poster Presentation #250

Abstract Title: **Adaptations to the Family Check-Up for Deaf and Hard of Hearing Children: A Qualitative Analysis**

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Abstract: Background: Deaf and hard of hearing (DHH) children are more likely to exhibit behavior problems and less likely to receive behavioral interventions than their normal hearing counterparts. The Family Check-Up (FCU) is an evidence-based parent intervention that has not been used with the DHH population. This study aimed to assess the perspectives of parents with DHH children to inform systematic adaptations to the FCU. Methods: One-hour semi-structured key informant interviews with parents (n=16) of DHH children aged 3-7 were audio-recorded and transcribed. Five researchers reviewed transcripts and developed an iteratively refined codebook to identify recurring themes that could be incorporated into adaptations to the FCU. Results: Most participants were non-Hispanic (100%) and white (87%) with a college degree or higher (57%). All were biological mothers of children with hearing loss, 44% of whom used a cochlear implant(s). Annual household income ranged from \$10k to >\$90k. The children were preschool-ages (M=4.8) and over half were male (62%). Identified themes included parent-child communication strategies as well as common behavioral challenges among DHH children, including adherence with wearing devices. The need for additional informational and emotional support related to parenting a DHH child were recurrent themes. Many parents described advocating for their DHH child across settings, as well attempting to reduce perceived stigma associated with hearing aids and cochlear implants. Conclusions: Themes from key informant interviews have been incorporated into an adapted FCU targeting parents of young DHH children. Its effects will be assessed in an upcoming trial.

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Poster Presentation #251

Abstract Title: **Trading pills for needles: The impact of House Bill 1 on upper extremity soft tissue infections in IV drug users in Kentucky**

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Abstract: Background: House Bill 1 (HB1), passed in 2012, was introduced to address the growing problem of prescription opioid abuse in Kentucky. The restrictions enacted in HB1 may have shifted the rate of addiction away from prescription opioid pills towards the less regulated, and less expensive abuse of IV drugs, resulting in increased risk of upper extremity soft tissue infections (UESTIs). The intent of this study was to assess the impact of HB1 on the rate of UESTIs among intravenous drug users (IVDU) at the authors' institution. Methods: A retrospective cohort study was conducted from 2006-2015. Adult patients aged 18-75 with UESTIs, including those with suspected IVDU, were included. The EPSi database was queried using a combination of ICD and CPT codes associated with management. A total of 3,277 (non-IVDU n=2,913, IVDU n=364) ED visits for 2,744 unique patients were identified. Data were analyzed using Chi-square, Fisher's exact, t-tests, Mann-Whitney U, and/or Pearson's correlation. Results: IV drug-related UESTIs increased significantly from 2006 to 2015 (17 to 73, 9.4% to 18.4% of all UESTIs) ($r=0.087$, $p<0.0001$). There were 1,285 UESTIs in the pre-HB1 years (2006-2011) and 1,628 post-HB1 (2012-2015). Of those, 117 (8.3%) and 247 (13.2%) respectively, were IV drug-related ($p<0.0001$). Conclusion: The total number of UESTIs increased between pre-HB1 and post HB1, as did the proportion of IV drug-related cases. This may indicate an unintended consequence of HB1. We submit that restrictions enacted by HB1 shifted patterns of drug abuse towards IVDU, resulting in an increase in UESTIs at our institution.

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Poster Presentation #252

Abstract Title: **Kentucky Healthcare: An Environmental Scan of Readiness for Quality Reporting**

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Abstract: In 2005 the Kentucky legislature passed SB 2 (KRS 216.261-269) authorizing the creation of the Kentucky e-Health Network and the Kentucky e-Health Network Board. In 2007, the Kentucky e-Health Network Board and the Cabinet for Health and Family Services (CHFS) adopted an e-Health plan for the Commonwealth of Kentucky that included several objectives related to moving Kentucky into an electronic health environment. One of the objectives in that plan is to facilitate statewide Health Information Exchange (HIE). A 2008 statewide e-Health inventory and needs assessment conducted by UK College of Public Health for the CHFS identified technology expectations and provider incentives to move towards an electronic environment. The 2011 and 2015 statewide e-Health surveys assessed the enabling effect of the HITECH incentives to move healthcare into an electronic environment. The purpose of the current research is to determine the readiness for quality reporting of a variety of provider types including: hospice, home care, mental and behavioral health facilities, local public health departments, inpatient rehabilitation, psychiatric hospitals, and long term care. Utilizing literature review, key informant interviews, and surveys, this environment scan revealed the current status and barriers with respect to information technology and quality reporting.

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Poster Presentation #253

Abstract Title: **The Power of Musical Exposure**

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Abstract: Background: The aging population is growing, encompassing a large proportion of older adults living with cognitive impairment. Increasingly, more people will live with cognitive deficits in the future. There is little evidence indicating highly effective interventions that prevent or slow onset of cognitive impairment. Music playing influences brain and cognitive function activating multiple brain areas; playing requires cognitive and motor function and multiple sensory systems, simultaneously. Methods: Twenty-nine professional orchestral musicians, both active and retired, were recruited to participate. Information regarding musical experience was collected, totaling to eight predictor variables. Neuropsychological tests were given to participants to exam their cognitive abilities. EEG scalp recordings were taken to identify neuro-cognitive signatures of musicians. The relationship between EEG signatures and predictor variables based on music experience was examined. Results: There is a strong correlation between EEG power and Number of Private Lessons, Average Hours of Practice Weekly and Instrument Type. This indicates an increase in EEG signature strength related to musical exposure.

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Poster Presentation #254

Abstract Title: **Differential Abundance Analysis with Empirical Bayes Shrinkage Estimation of Variance (DASEV) for Proteomic and Metabolomic Data**

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Abstract: Mass spectrometry (MS) is widely used for proteomic and metabolomic profiling of biological samples. Data obtained by MS are often zero-inflated. Those zero values are called point mass values (PMVs). Zero values can be further grouped into biological PMVs and technical PMVs. The former type is caused by absence of compounds and the later type is caused by detection limit. A left-inflated mixture likelihood ratio test (LIM) was developed to separate the two types of zeros apart and to perform differential abundant analysis comparing samples from different treatment groups. However, we notice that LIM may underestimate the variance and thus lead to false positive result when the number of non-zero values is small. We propose a new differential abundance analysis method, DASEV, which uses an empirical Bayes shrinkage method to more robustly estimate the variance and enhance the accuracy of differential abundance analysis. Simulation studies and real data analysis show the improvement of our proposed method compared to LIM.

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Poster Presentation #255

Abstract Title: **Body Image and Smoking Among Adolescents**

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Abstract: Body image, defined as how one perceives their size and shape compared to reality, and smoking are two concerns associated with adolescent health. Approximately 10% of adolescent girls smoke, and 39% of female students define themselves as overweight. However, there has not been extensive research looking at the effect body image may have on smoking, given that smoking is perceived as a weight loss or maintenance strategy. Previous studies have found an association between the two variables, though not in a population-based sample. We hypothesize that there will be a strong positive correlation between body image and the smoking, specifically that body image will affect initiation and continued cigarette smoking. The goal of completing the study is to gain a better understanding of the relationship between these two factors. We will use the 2015 Youth Risk Behavior Survey (YRBS), a national survey assessing categories of health behaviors among high school students, looking at questions targeting smoking behaviors, weight perceptions, age, and race. In the YRBS, body image is ascertained in two ways: 1) students are asked to gauge their weight (as underweight, normal, overweight, or obese), which will be compared to their actual BMI; 2) students are also asked if they attempting to change their weight. Smoking will be measured as age of initiation and number of cigarettes smoked in the past 30 days. Better understanding this relationship will assist with the development of interventions, with hopes of reducing rates of smoking through addressing poor body image among adolescents.

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Poster Presentation #256

Abstract Title: **Measures and Computational Tools for Opioid Analgesic Utilization to Inform Population Level Analysis**

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Abstract: Background: High-dose or long-term use of opioid analgesics (OA) is associated with increased risk of opioid addiction and overdose. Longitudinal analysis of OA prescribing and effect of recent policies require consensus measures for OA utilization and computational tools for uniform operationalization by researchers and agencies. Methodology: We developed computational tools for OA utilization measures based on prescription monitoring data. Using mortality and morbidity surveillance data we also developed proxy measures for prevalence of painful conditions justifying OA utilization, availability of medication assisted treatment, and availability of heroin in communities. A series of studies utilized OA measures as numerators (outcomes) in population-adjusted, denominators (offsets) in utilization-adjusted, or covariates in population-averaged statistical models to assess regional differences and trend changes in OA utilization in Kentucky. Results: Rate of high-dose and long-term OA utilization declined significantly from 2012 to 2016. Significant geographic variation remains even after adjusting for prevalence of late-stage cancer, chronic non-cancer pain, acute injuries, heroin availability, and other relevant time-varying demographic, health care utilization, and socio-economic covariates. Increased buprenorphine/naloxone prescribing was significantly associated with decline in high-dose OA utilization. Other risk and protective factors were identified to inform priority interventions. An operational definition inventory, SAS computational tools, and downloadable county-quarter measures for OA prescribing and relevant covariates will be shared to facilitate future research. Conclusions: The results from our studies can inform targeted interventions in the state. The developed computational tools could stimulate further research in the state and comparative studies in other states.

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Poster Presentation #257

Abstract Title: **Evaluating the Association Between Atrazine and Birth Defects in Kentucky, 2005-2014**

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Abstract: Objective/Background: Atrazine is one of the most widely used pesticides in the United States. Studies have shown that pesticides, particularly herbicides such as atrazine, may be associated with birth defects. The purpose of this study is to evaluate the association between potential environmental exposures to atrazine in water systems and prevalence rates of birth defects for the state of Kentucky. Methods: We conducted an ecological study using the Kentucky Birth Defects Registry Surveillance (KBRS) and the Kentucky Geological Survey databases from 2005 to 2014. Cases included all live-born infants with birth defects indicated by an ICD-9 code. Poisson regression was used to estimate crude and adjusted rate ratios of the association between agricultural exposure metrics and birth defects. Results: There were 16,070 cases identified from the KBRS. The overall prevalence of birth defects was 32.99 per 1,000 live births. Preliminary crude data analysis showed that high mean concentrations (greater than 0.4958 µg/L) had 2.34 times the rate of genital birth defects compared to counties with low mean concentrations (less than or equal to 0.0 µg/L) (p-value: 0.008). Conclusions: This research has the potential to provide important information on atrazine concentrations in water systems that affect birth defects prevalence. These results will contribute to the existing literature and expand our understanding of endocrine disruptors in agrichemical exposures and the role they have on birth defects. Based on the findings from this study, we will be able to design future studies to examine individual measures of risk and exposures for birth defects.

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Poster Presentation #258

Abstract Title: **Hepatitis C and Risk of Chronic Kidney Disease: A Systematic Review**

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Abstract: CONTEXT: The association between hepatitis C virus (HCV) and incidence of chronic kidney disease (CKD) has not been established. OBJECTIVE: To conduct a systematic literature review of population-based studies whose aim was to find associations between HCV and risk of early onset of CKD. METHODS: Only full-text journal articles written in English, published in or after 1989, describing observational or experimental studies with 50 participants or more were included. RESULTS: A total of 15 studies conducted in Japan (n=1), Taiwan (n=5), and in the U.S. (n=9) were included. We found seven cohort, six cross-sectional, and two studies with both cross-sectional and cohort designs. The number of participants ranged from 865 to 1,021,049. The prevalence of HCV ranged from 0.3% to 63.8%. Median follow-up time to observe development of CKD ranged from 2.1 to 11.4 years for the cohort studies. The percentage of observed CKD ranged from 0.6% to 31.8%. Ten studies: five cohort studies (one prospective cohort from Taiwan, two retrospective cohort studies from Taiwan and two retrospective cohort studies from the U.S.) as well as five cross-sectional (one from Japan, two from Taiwan, and two from the U.S.) studies showed that individuals infected with HCV were significantly more likely to present with CKD, whereas three cross-sectional and two retrospective cohort studies from the U.S. found either no associations or decreased odds of development of CKD. CONCLUSION: Further research is recommended to examine the risk of CKD in multiple exposure groups categorized based on HCV viral load and/or HCV genotype.

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Poster Presentation #259

Abstract Title: **Cost-Effectiveness of Mandatory Drug Overdose Decedent Toxicology Testing in Kentucky, 2010-2016**

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Abstract: Background: In 2012, Kentucky mandated toxicology testing of post-mortem examinations to increase the number of drug overdose death certificates that listed the specific drug(s) to improve drug overdose fatality surveillance. The study aim was to assess the cost-effectiveness of post-mortem toxicology testing by coroners/medical examiners in Kentucky from 2010-2016 through changes in incremental cost-effectiveness ratios (ICERs). Methods: The percentage of death certificates for drug overdose decedents that listed one or more specific drug(s) is dependent variable, % specificity. Drug overdose decedents whose deaths occurred from 2010 to 2016 (n=7,439) were included. Annual ICERs were calculated for the difference in costs for death investigations with testing and without testing and the difference in % specificity in cases with testing and without testing. Results: For 2010-2016, the average cost of drug overdose death investigations was \$16,609 per % specificity. Annual total cost per case declined from 2010 to 2016. ICERs of death investigations including toxicology testing declined from a high of \$8,488 per 1% specificity in 2010 to \$1,505 per 1% specificity in 2014. Conclusions: Results suggest that mandating toxicology testing has been cost-effective in decreasing the overall cost of drug overdose death investigations in Kentucky from 2010 to 2016 primarily due to increases in the proportion of cases where coroners performed toxicology testing over requesting a full autopsy. Request for autopsy can be reserved for cases where there are other possible contributing causes to the fatal drug overdose.

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Poster Presentation #260

Abstract Title: **Understanding the Silent Crisis: An Analysis Firearm-Related Suicide among Females in Kentucky**

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Abstract: Background: Suicide has been called the silent crisis. With rates increasing, it is the 10th leading cause of death in the United States. Females in Kentucky die by suicide most often through the use of firearms, differing from the national trend of poisoning. Additionally, a drastic increase in firearm suicides was observed beginning in 2010. The aim of this study is to investigate why females in Kentucky are using firearms to die by suicide compared to other methods, and compare those results to similar states to understand this trend. Methods: Suicides reported to the National Violent Death Reporting System from Kentucky, Ohio, and Virginia were eligible for this study. Multivariate logistic regression was performed to determine which variables (demographic, personal circumstance, and mental health) were related to a suicide via firearm. Results: Kentucky females who die by suicide are not receiving mental health treatment, only 36% were diagnosed and 24% in current treatment. Within comparison states, increased mental health diagnosis and treatment was associated with decreased firearm suicides. Kentucky females living in a rural county and with intimate partner problems are more likely to die by suicide via firearms. Conclusion: These results contribute to understanding female firearm suicide in Kentucky and guides efforts for future research and interventions to at-risk populations. This information highlights mental health care with recommendations to emphasize means reduction counseling and strategies eliminate barriers to this care. Addressing the lack of mental health care appears effective in combating the high rates of firearm suicide.

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Poster Presentation #261

Abstract Title: **Feasibility of Implementing CDC Recommendations on Opiate Management in an Academic Outpatient Clinic**

Author(s): A. R. Thomas, Department of Preventive Medicine and Environmental Health, U of Kentucky
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Abstract: As recently as 2016, Kentucky ranked fifth among states with the highest drug overdose deaths. Misuse of prescription opiate medications is a key component to this significant public health issue. Recent CDC guidelines on opiate use in chronic non-malignant pain recommend processes that should be employed to ensure appropriate use. An implementation project was initiated to determine the feasibility and impact of compliance with the CDC guidelines in an outpatient clinical setting. After interviewing key stakeholders and observing current workflow, we developed a process flow map. The care processes included: a) identify current chronic opiate users, b) administer validated pain and functional assessment tools, c) assess for opiate misuse with the Screener and Opioid Assessment for Patients with Pain - Revised (SOAPP-R) and d) review of the Kentucky All Schedule Prescription Electronic Reporting (KASPER) report. We revised the process flow map based on direct feedback from clinical staff, providers, and administrative personnel in an iterative manner. Quantitative outcomes will include the rates of brief behavioral counseling, changes in medication management, and referrals. The results of this feasibility study will help guide implementation of similar processes across multiple outpatient clinics.

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Poster Presentation #262

Abstract Title: **Occupational-Related Opioid Exposure in the State of Kentucky**

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Abstract: Background: Opioids are a class of drugs including the illegal drug heroin, legal prescription pain relievers (morphine) and synthetic opioids (fentanyl). Fentanyl is 100 times more potent than morphine. In 2015, opioid-related drug overdoses accounted for 33,067 U.S. deaths. As the number of overdoses increases, first responders (FR) are frequently exposed while administering Naloxone. This study aims to develop an understanding of potential health effects that Kentucky (KY) FR have experienced from opioid exposure, current knowledge and use of personal protective equipment, and level of concern of FR in regards to opioid exposure. Methods: Data from a self-administered, anonymous questionnaire was distributed via email to KY FR (EMS, police, and Fire). As of March 5, 2018, information from 1,769 responses were examined. Results: The majority were male (84%), firefighters (39%), serving urban areas (36%), and full-time (80%). Most (84%) hadn't been exposed to opioids. Among respondents, 28% reported no training requirements or not knowing if training was available for protection against opioids, 64% reported not being aware of the NIOSH/CDC recommendations for preventing occupational opiate exposures, and 63% were very or somewhat concerned about developing health effects from opioid exposure. Conclusions: The preliminary results suggest that FR training for opioid protection in KY is lacking. Although the majority of the current sample has not been exposed, most are concerned about potential exposure. With the number of opioid-related overdoses occurring, it's imperative that we gain an understanding of the safety training needs to protect this population and avert potential health effects.

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Poster Presentation #263

Abstract Title: **Appointment Scheduling at the UK Student Dental Clinic**

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Abstract: The UK Student Dental Clinic, a busy clinic located on the campus of the University of Kentucky, provides a full-range of patient care while meeting the training needs of both 3rd and 4th year dental students. The purpose of this project was to use quality improvement tools to better understand current workflow processes and identify potential areas for improvement. Data were collected using the walk-through method and observation. The walk-through focused on understanding the experiences of patients scheduling appointments. The results of the walk-through depicted wide variation in the current process and informed the design of standardized protocols. During the observation phase members of our team shadowed dental students as they provided patient care – from patient arrival to departure. Data collected were analyzed using process workflow maps, spaghetti diagrams and the waste-walk method. These results as well as insights from the process owners were used to identify ideas to reduce waste and standardize the scheduling process. The next phases of the project will involve collecting baseline metrics (e.g. no shows, cancellations, and incorrect appointment type) and prioritizing improvement ideas. Impact will be continually monitored through each small cycle of change with adjustment being made as needed.

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