

## 2016 TPHA Poster Session Selected Abstracts

### **#1 - *Descriptive Analysis of Drug Overdose Deaths in Northeast Tennessee in 2014***

Basil Alhassan, MD, MPH, Cynthia Thomas, DO, MPH, David Kirschke, MD, Northeast Regional Health Office, Tennessee Department of Health, Johnson City, TN

**Background:** From 1999-2014, deaths from drug overdose (OD) in Tennessee increased more than 300%.

**Objectives:** To establish baseline death rates from drug overdose for the Northeast Region of Tennessee (NER) and to explore patterns of prescription substance use in overdose deaths.

**Methods:** Data for all OD cases in NER was obtained from the Tennessee Controlled Substances Monitoring Database (CSMD), autopsy, death certificate and medical records from January 1 through December 31, 2014. Epi Info 7 was used to analyze data.

**Results:** There were 71 cases, with a mean age of 44.7 years, 97% White, and 70% male. Crude death rate in NER was 25 versus 16 per 100,000 for TN. Manner of death was determined to be accidental in 56 (82%), suicidal in 10 (15%) and undetermined in 2 (3%). Multi-drug overdose (91%) was the most common cause of death, with opioids involved in 55 (83%) cases. The most frequent combinations were an opioid and a benzodiazepine (58%), followed by an opioid and an antidepressant (33%). CSMD data was available for 54 (92%) cases, of whom 36 (68%) overdosed on the medications prescribed to them, 8 (15%) filled prescriptions from  $\geq 5$  pharmacies and 19 (36%) had prescriptions from  $\geq 5$  prescribers.

**Conclusion:** Crude drug-overdose death rate among adults in NER in 2014 was 59% higher than in Tennessee. Multidrug overdose involving prescription opioids was the most common cause of death, with diversion and doctor shopping a potential source of prescription substances.

### **#2 - *Correlates of HPV Vaccine Acceptance among College Women in East Tennessee***

Tosin Ariyo, MPH, Katie Baker, DrPH, MPH, Ruby Yadav, MPH, East Tennessee State University, Johnson City, TN

**Background:** Human papilloma virus (HPV) is the most common sexually transmitted infection in the U.S.; most people will be infected during their lifetime. The most common HPV-related disease is cervical cancer with an estimated incidence of 12,000 cases annually, a third of which lead to death. Cervical cancer disparately affects women of ethnic minority groups and geographically isolated regions, such as Appalachia. Many cases of HPV and cervical cancer can be prevented through vaccination. However, vaccination rates for females in Tennessee are below the national average.

**Objectives:** The study was designed to assess the correlates of HPV vaccine uptake among a sample of college-aged women in East Tennessee.

**Methods:** We surveyed female students between the ages of 18-22 years, from February to May 2016 and conducted descriptive and logistic regression analyses to test for associations.

**Results:** Analyses showed that 61% of the women [n=279, mean age = 19 years] had received the HPV vaccine [mean age= 15 years], over one-third of whom did so after their first sexual intercourse. Fear of vaccine side effects was not correlated with vaccine uptake. Awareness of HPV was associated with vaccine receipt ( $p < 0.01$ ), and participants who reported discussing cervical cancer prevention with their mothers were more likely to have heard about HPV ( $p < 0.05$ ).

**Conclusion:** These findings indicate that majority of girls in East Tennessee may not be protected from HPV by their first sexual intercourse, and suggest that efforts to increase vaccine uptake should educate mothers about their daughters' susceptibility to the virus.

### **#3 - *Interprofessional Problem Solving through Community Health: An Interdisciplinary Global Health Immersion Pilot***

Chelsea Biegler, BA, RN(c), Vanderbilt University, Nashville, TN

**Background:** The increasing globalization of healthcare has created a high demand for professionals trained in cultural competence and interdisciplinary decision-making. Nurses, who deliver 90% of healthcare worldwide, are well suited to address complex global health issues. However, few international educational opportunities exist for nursing students through which they may learn to navigate diverse cultural and professional landscapes.

**Objectives:** This pilot integrated community health nursing clinical experience with an existing business course to teach students to work abroad as part of an interdisciplinary team. The project aimed to increase awareness of the central role of nursing in global health and foster collaboration among members of the nursing school and several other university departments.

**Methods:** Students completed course work in social entrepreneurship and poverty alleviation and worked in teams to determine project deliverables. Students traveled to partner sites throughout Central America to implement planned interventions according to each organization's needs.

**Results:** Six nursing students successfully participated in the course and completed project deliverables. Students reported a greater understanding of the role professional nurses play in global health and a greater appreciation for the benefits of interdisciplinary teamwork.

**Conclusion:** By integrating global health experiences into the core nursing curriculum, universities can increase the number of graduate nurses who are equipped to care for patients in global communities. In order to advance the role of nursing in global health, it is critical to continue to develop opportunities for real world experiential learning.

### **#4 - *Predicting and Increasing Social Media Use in Public Health***

Kadi Bliss, PhD, CHES, Alanna Miller, BS, Austin Peay State University, Clarksville, TN

**Background:** The recent Health Education Specialist Practice Analysis found an increased need for health education specialists to use social media (NCHEC & SOPHE, 2014), as it is becoming a quick, effective way to spread health messages and reach a large, diverse audience. Benefits of social media include increasing timely dissemination of information, reaching a broad audience, personalizing messages, and engaging and empowering people (CDC, 2011).

**Objectives:** Participants will be able to: 1) identify significant predictors of social media use and most utilized social media tools. 2) evaluate their own work-related use of social media as compared to other public health professionals. 3) apply at least one new social media strategy to their own professional efforts.

**Methods:** A 22-item survey examined extent to which health professionals utilized social media in their professional roles. Sample included 1,398 Certified Health Education Specialists/Masters Certified Health Education Specialists. Logistical regression and odds ratios were used to determine significant predictors and likelihood of engaging in social media use.

**Results:** Descriptive analysis shows most health educators using social media are master's degree female professionals between the ages of 25-34, working in urban, government settings. Significant predictors of social media use are workplace setting, blocking of websites by employers, and years in the field. Only 33% enjoy and prefer using social media.

**Conclusion:** Differences exist in the amount and type(s) of social media used, and preference for using social media. To facilitate efficient use of social media, professional preparation programs/workplaces should consider social media training. Recommendations will be provided.

### **#5 - Design and Implementation of a Real-time Microcephaly Surveillance System**

Marie Bottomley Hartel, MPH, Angela M. Miller, PhD, MSPH, Morgan F. McDonald, MD, FAAP, FAACP, Michael D. Warren, MD, MPH, FAAP, Tennessee Department of Health, Nashville, TN

**Background:** Zika virus infection can cause microcephaly (<3 percentile head circumference) and other severe fetal brain defects. The Tennessee Department of Health (TDH) estimates birth defects incidence based on retrospective analyses of Hospital Discharge, Birth and Death Statistical Data Systems. This surveillance approach prevented TDH from detecting increases in microcephaly incidence associated with prenatal Zika virus infection.

**Objectives:** To design and implement a real-time microcephaly surveillance system based on provider report of infants diagnosed with congenital microcephaly.

**Methods:** Microcephaly was made a reportable condition on February 25, 2016. Integrating data elements from the National Birth Defects Prevention Network data collection tools and cross-divisional feedback, a REDCap survey was created. To minimize reporting burden, the survey captures maternal and infant demographics, newborn measurements and travel and Zika testing history; additional data elements are obtained through linkage to secondary data sources. The survey link was posted on the TDH website and disseminated to providers statewide via THAN alert. Comparison of microcephaly reports to a line list of pregnant women authorized for Zika testing is conducted to ensure that cases potentially associated with Zika virus infection are identified.

**Results:** As of 08/05/2016, 16 cases of microcephaly have been reported. This is comparable to the previous estimates of 45 annual cases of microcephaly. No cases have been reported with prenatal Zika infection, and none have had parental travel to Zika affected countries.

**Conclusion:** Real-time surveillance allows TDH to detect changes in incidence of congenital microcephaly. Using REDCap, TDH will expand real-time surveillance of other Zika associated CNS birth defects.

### **#6 - Qualitative Public Health & Health Services Research: By the “Numbers”**

Erik Carlton, DrPH, Hyunmin Kim, MA, University of Memphis, Sean Gilmore, MHA, University of Texas Southwestern Medical Center, Dallas, TX, Anand Saha, BS, University of Memphis, Memphis, TN

**Background:** Over the past five years, top public health and health services research journals have published more studies than ever. Given the rapidly evolving nature of public health and health systems and services, an increasing number of qualitative studies would be expected. However, there seems to be a relative dearth of published qualitative studies.

**Objectives:** The purpose of this study is to determine the prevalence of qualitative studies published in public health and health systems and services research journals.

**Methods:** A systematic literature review of twelve top public health and health systems and services research journals was conducted. Abstracts for original research articles published between January 1, 2011 and December 31, 2015 were reviewed to identify study methodology. Where necessary, articles were review to confirm the identified methods.

**Results:** Of 3,724 original research articles identified, 442 (12%) used mixed-methods and 149 (4%) used qualitative methods. The percent of published studies using quantitative methods increased from 84% in 2011 to 89% in 2015.

**Conclusion:** Qualitative and mixed-method studies comprise a fraction of the published public health and health systems and services research over the past five years. Whether this is a reflection of the types of studies submitted to the journals in this study and/or a scientific bias against qualitative studies are conclusions that cannot be drawn from this study. Regardless, the

results suggest efforts need to be taken to increase the prevalence and publication of rigorous qualitative and mixed-method studies.

#### ***#7 – TDH’s Community Based Organization HCV Testing Pilot***

Shannon De Pont, Lindsey Sizemore, MPH, CPH, Michael Rickles PhD, Carolyn Wester, MD, MPH, Tennessee Department of Health, Nashville, TN

**Background:** In response to an increase in acute HCV case rates in Appalachia, primarily among young, white, non-urban dwelling individuals, the Tennessee Department of Health (TDH) partnered with Community Based Organizations (CBOs) in Eastern TN to develop a community-based HCV Testing Program among at-risk individuals.

**Objectives:** TDH sought to partner with CBOs serving individuals at high-risk of acquiring HCV, and who were willing to provide clients with HCV counseling and rapid testing.

**Methods:** We identified seven CBOs in TN who: 1) served populations at-risk of acquiring HCV, 2) were interested in providing HCV testing and counseling, and 3) were willing to submit required monthly testing reports in exchange for receiving free rapid HCV test kits. Participating CBOs provided HCV antibody testing using OraSure HCV rapid test kits.

**Results:** From January 1 to May 31, 2016, seven CBOs conducted 1,101 rapid HCV tests throughout TN. Of individuals tested, 56% were male; 84% white; and the top self-reported patient risk factors included history of injection drug use (49%), history of tattoos or body piercing (24%), and history of intranasal drug use (22%). Of individuals tested, 432 (33%) tested HCV Ab positive.

**Conclusion:** The results of the HCV Testing Program demonstrate the feasibility of implementing a CBO-based HCV rapid testing program, as well as the need for targeted HCV counseling and testing in non-healthcare settings, as evidenced by high HCV positivity rates.

#### ***#8 – Policy and changing trends of opioid use in Tennessee***

Zoe Durand, MPH, Melissa McPheeters, PhD, MPH, Amanda Ingram, MPH, Liz Thomas, MPH, Tennessee Department of Health, Nashville, TN

**Background:** Tennessee is at the geographic locus of the current prescription opioid epidemic and is among the most heavily affected states. In the past few years, the Tennessee legislature has implemented numerous policies aimed at decreasing the incidence and impact of opioid misuse and abuse.

**Objectives:** This poster will examine changing trends of opioid use and prescribing in Tennessee through the lens of policy milestones.

**Methods:** Trends over time will be charted and compared to policy milestones for six key outcomes: drug overdose rates, neonatal abstinence syndrome rates, number of prescriptions per capita, mean daily MME, proportion of prescriptions for > 100 MME per day, and proportion of patients who meet the definition of a doctor shopper.

**Results:** Indicators of opioid use have recently shown some signs of beginning to decrease after years of increasing. Policies related to opioids tend to be focused on prescribing guidelines and the accessibility of controlled substances.

**Conclusion:** Tennessee has begun to address its opioid crisis with a multi-faceted policy approach, and some change is beginning to be seen in opioid indicators. Policies aimed at curbing overdose use may be showing early signs of impacting the state’s opioid epidemic.

### **#9 – Development of an Online Food Safety Training for Restaurant Workers**

Jamie Glover, BS, University of Tennessee, Knoxville, TN

**Background:** The Knox County Health Department (KCHD) currently offers one in-person food safety training class each month. The training aims to increase knowledge of the five major risk factors of foodborne illness, as well as additional areas of focus in the 2009 FDA Food Code. Annual training participation has been steadily declining. An online training option is seen as an opportunity to increase participation.

**Objectives:** Develop an online food safety training for restaurant operators and staff that is effective in changing knowledge as the current KCHD in-person training.

**Methods:** Existing in-person training materials were adapted for online delivery. Adult learning theory and the health belief model were incorporated to create an interactive experience relevant to participants, which also addresses perceptions and barriers related to proper food safety practices. Benchmark data were gathered with pre and posttests at the June 2016 in-person training; average percent increase in scores was 60 percent. Pilot participants from four area restaurants will complete the online training in July 2016. Change in knowledge will be evaluated with pre and posttests identical to those administered at the June in-person training. Average percent increase in online trainee scores will be calculated and compared to results from the June in-person training.

**Results:** Evaluation will occur in July 2016.

**Conclusion:** If results are favorable, KCHD will be able to provide effective food safety training to those not able to attend the once monthly, in-person trainings.

### **#10 – Improving Health Outcomes of Obese Individuals with Community Based Interprofessional Experiential Learning Activities**

Erin Guy, MPH(c), Laurie Meschke, DrPH, University of Tennessee, Knoxville, TN, Christine Benz Smith, PhD, FNP, University of Tennessee, Chattanooga, TN

**Background:** Rising obesity rates and the associated health risks are some of the most prominent public health challenges today. Obesity is a nationwide epidemic, but affects the Southeastern states, Tennessee in particular, as more than 68% of adults in TN are overweight and 30.8% are obese.

**Objectives:** Improve health knowledge and outcomes of individuals across the lifespan who have or are at risk for MCCs associated with obesity via community-based interprofessional experiential learning activities.

**Methods:** Parents and children engaged in 1-3 physical activity and nutritional education sessions in Spring 2016 as a part of the COMPASS sponsored Health Fair series in Chattanooga, Tennessee. The sessions focused on healthy eating and moderate exercise. Family Nurse Practitioner (FNP) and Physical, Activity and Health (PAH) graduate students presented information and facilitated activities that reinforced these concepts. Participants completed a pre- and post-test survey in relation to each session.

**Results:** Participants included 10-12 people in the three sessions. Post-test data revealed that 50% of respondents could correctly participate in meal planning, 100% could correctly identify opportunities for moderate exercise, and 67.7% could correctly identify components of a healthy diet following the sessions. These figures were higher than the pre-test figures.

**Conclusion:** Activities and nutritional education sessions facilitated by FNP and PAH graduate students appeared to have a positive effect on individuals at risk for multiple chronic conditions (MCC's) associated with obesity in the Chattanooga area by improving health knowledge via community-based interprofessional experiential learning activities.

### **#11 – *The Impact of Policy Monitoring Programs on Political Participation in Community Stakeholders***

Erin Guy, MPH(c), Kathy Brown, DrPH, Fiona McAnally, BS, University of Tennessee, Knoxville, TN

**Background:** Policy monitoring is becoming common practice in different areas of public health, to the point of being a standard for accreditation by organizations such as the Public Health Accreditation Board. With the push for policy monitoring programs by major public health entities, there is little research on the effects of such programs on political participation of community stakeholders.

**Objectives:** To identify benefits and outcomes of current policy monitoring programs at Knox County Public Health Department

**Methods:** Electronic surveys and personal interviews were used to collect data. Participants in the policy monitoring program were contacted and asked to complete a survey or participate in an interview. SPSS and nVivo were used to analyze the qualitative and quantitative data.

**Results:** Preliminary interviews with community stakeholders who participate in the policy monitoring program at KCHD reflected differences in the measures of political participation “contacting a representative”, “providing policy input”, and “political self-education”. Survey results reflect participation in the policy monitoring program by a range of public health professionals and community members.

**Conclusion:** Policy monitoring and associated political activities are becoming a crucial component of public health, with official policy monitoring programs becoming more and more common place in various public health professions. These programs elicit political activity from public health professionals and community stakeholders by encouraging political self education, engaging with representatives, and providing input on policies that surround public health issues.

### **#12 – *Decision Tree Analysis for Prescription Opioid Abuse***

Marquinta Harvey, PhD(c), Cynthia Bass-Thomas, PhD(c), Amber Dorsey, PhD(c), Norman Weatherby, PhD, Middle Tennessee State University, Murfreesboro, TN

**Background:** Prescription drug abuse is an enormous public health problem occurring in the United States, which consumes 75% of the world’s prescription medications. The demand for opioid and stimulant prescription drugs has drastically increased over the last few decades. The identification and the development of successful treatment of nonmedical prescription opioid abusers could present an opportunity to produce healthcare and criminal justice cost savings and improve patient outcomes.

**Objectives:** The present study aims to determine key variables that classify the nonmedical prescription opioid abusers.

**Methods:** The targeted group consisted of 1454 American prescription opioid abusers 12 years and older from the 2010 National Survey on Drug Use and Health. Demographic, risk profile, and health variables were used to characterize nonmedical prescription opioid abusers.

**Results:** In the CRT Decision Tree for Illicit Drug Use, the results indicated that the previous illicit drug use, marijuana, was the most important determining factor for nonmedical prescription opioid abuse, classification accuracy is 89.9% with risk estimate .101. The CHAID Decision Tree for Emotional Distress and Risk Behavior, the results of the analysis indicated race was the most important determining factor for nonmedical prescription opioid abuse, classification accuracy is 88.1% with risk estimate .119.

**Conclusion:** Our CRT and CHAID decision tree analyses produced highly predictive models that provide insight into the variables associated with the nonmedical use of prescription opioids.

This information can be used to target at risk individual with successful prescription drug interventions for both financial and societal gain.

### **#13 – Compliance to Recommended Cancer Treatment among Appalachian Colorectal Cancer Patients**

Jennifer Jabson, PhD, MPH, University of Tennessee, Knoxville, TN, R. Eric Heidel, PhD, University of Tennessee Cancer Institute, Knoxville, TN, Amanda Letheren, MPH, University of Tennessee, Knoxville, TN

**Background:** Colorectal cancer (CRC) is the second leading cause of cancer mortality in the United States. CRC mortality in Appalachia (17.6 per 100,000) is higher than the national average (15.5 per 100,000). Appalachian Tennessee bears an even greater CRC mortality rate. One explanation could be patient non-compliance to recommended treatment.

**Objectives:** To describe non-compliance rates for recommended CRC treatment among CRC patients in Appalachia. To identify demographic and clinical factors associated with non-compliance among CRC patients in Appalachia.

**Methods:** Data from the American College of Surgeons National Cancer Data Base were used to describe Appalachian CRC patient's non-compliance to three recommended treatments: surgery, radiation, and chemotherapy. Multiple logistic regression was used to test associations between non-compliance and CRC patient's demographic and clinical characteristics.

**Results:** Preliminary results show that 1,469 Appalachian CRC patients were non-compliant with recommendations for CRC surgical treatment. Unadjusted analyses indicate that multiple clinical and demographic characteristics were associated with non-compliance. Multiple variable analyses show that patients who were older (OR .20 95%CI .01, .12), stage 4 at diagnosis (OR .04, 95%CI .01, .12), had more days between diagnosis and treatment (OR .33, 95%CI .11, .99), and were African American/Black (OR .36, 95%CI .19, .68), were less likely to be compliant compared to referent categories.

**Conclusion:** We found that not all CRC patients comply with recommended CRC treatment. Clinical and demographic characteristics were significantly associated with non-compliance. Our findings are a first step in identifying CRC patients that may benefit from interventions designed to improve compliance.

### **#14 – Assessing the built environment for physical activity in four counties in West Tennessee**

Soghra Jarvandi, MD, MPH, PhD, Jennifer Alexander, MPH, University of Tennessee, Knoxville, TN

**Background:** The built environment may influence the high rate of obesity. This study used data from a Centers for Disease Control and Prevention (CDC) funded community-based obesity prevention grant in four rural counties in West Tennessee; Haywood, Humphreys, Lake, and Lauderdale.

**Objectives:** The purpose of this study was to assess physical activity environment, and to explore the barriers related to physical activity.

**Methods:** As a part of the situational analysis, the Physical Activity Resource Assessment (PARA) instrument was used to assess physical activity resources, and 13 focus groups were conducted with the counties' residents. The PARA focused on resource type, availability of features, and renovation needs. The grant's program assistant in each county prepared the list of venues, which then were examined by two members of the grant.

**Results:** Our results of the PARA showed that a total of 36 resources are available in these counties; 11 in Haywood, 12 in Lauderdale, 8 in Humphreys, and 5 in Lake. Most of the resources need renovation. Overall, 132 residents participated in the focus groups between fall

2014 and summer 2015. The focus groups revealed the main barriers to physical activity being affordability (Lauderdale, Humphreys, Haywood), and limited access to recreation (Lake). **Conclusion:** The results help to develop community-based physical activity programs to improve built environment. Possible strategies to improve physical activity will include outreach programs to encourage residents to take advantage of the available resources. In addition, funding needs to be identified to repair, update and expand physical activities.

#### **#15 – *Characteristics of the Uninsured in Tennessee, 2013-2014***

Martha Jones, PhD, Vanderbilt University, Nashville, TN

**Background:** The expansion of Medicaid eligibility to most individuals with incomes below 138 percent of the poverty threshold is a provision of the 2010 Affordable Care Act. In June 2012, a Supreme Court ruling essentially made Medicaid expansion optional for states. Among all states, Kentucky had the largest drop in the percent uninsured, from 14.3% in 2013 to 8.5% in 2014. The drop in Tennessee was only from 13.9% to 12.0%. Kentucky's results were due to an expansion of Medicaid as well as outreach efforts and a successful online registration system, Kynect.

**Objectives:** Using U.S. Census Bureau data from the American Community Survey (ACS) and the Small Area Health Insurance Estimates (SAHIE), this report describes the characteristics of the uninsured and changes in the percent uninsured in Tennessee.

**Methods:** SAHIE data and ACS one-year estimates of health insurance coverage (tables S2701 and C27016) were used in the analysis as well as in mapping. A difference-in-difference methodology was used to simulate what might have happened in Tennessee if the State had adopted policies similar to Kentucky's in 2014.

**Results:** The simulation showed that based on changes in Kentucky's percentage uninsured, an additional 258,700 persons could have been newly insured in 2014 in Tennessee; 133,100 were adults age 18 to 64 living at or below 138% of the poverty line. Groups with a high percentage of uninsured in Tennessee are identified as well as groups benefiting the most in the simulation.

**Conclusion:** State-level policies to reduce the number of uninsured can be effective if implemented.

#### **#16 – *Descriptive Analysis of Residential Structure Fire Fatalities Among Appalachian and Non-Appalachian Counties of Tennessee from 2005-2014***

Edward Leinaar, MPH(c), Mildred Maisonet, PhD, East Tennessee State University, Johnson City, TN

**Background:** Fire fatality rates have decreased nationally while increasing in Tennessee. Individual characteristics affect the likelihood of fatality. Identification of populations sustaining greater proportions of fire fatality within the State will better inform regional fire prevention activities.

**Objectives:** To compare individual characteristics of fatalities occurring in residential structure fires in Appalachian and Non-Appalachian counties of Tennessee.

**Methods:** Analyses of residential structure fire fatality in Tennessee from 2005 to 2014 were conducted using Tennessee Fire Incident Reporting System data, comparing Appalachian and Non-Appalachian county regions. Analyses were restricted to incidents occurring in non-institutionalized residential environments. Census data was used to identify county-level demographic characteristics. Direct adjustment for age effects between regions was performed.

**Results:** There was no difference in proportion of fatalities between Appalachian (37.28%) and Non-Appalachian (36.27%) counties. Distribution of gender was similar between regions. A greater proportion of fatalities were aged 65 and older, compared to other age groups. Age-

adjusted death rates were higher for Non-Appalachian (13.63/100,000) than Appalachian (11.18/100,000) counties. Age-specific death rates for persons younger than five years was greater in Appalachia (18.06/100,000 vs. 11.94/100,000), while age-specific death rates were greater among Non-Appalachian counties for persons aged 65 and older (37.23/100,000 vs. 19.75/100,000). A greater proportion of fire fatalities occurred in mobile homes in Appalachian counties (18.4%) than Non-Appalachian counties (11.3%).

**Conclusion:** Age-adjusted fire fatality rates were greater among Non-Appalachian counties of Tennessee. Age-specific death rates differ between regions. A greater proportion of fires occurring in mobile homes resulted in fatality in Appalachian counties than Non-Appalachian counties.

### **#17 – *Impact of Adverse Childhood Experiences (ACEs) on Adult Binge Drinking Behavior***

Elaine Loudermilk, BS, East Tennessee State University, Johnson City, TN, Kevin Loudermilk, DO, Brooke Army Medical Center, San Antonio, TX, Julie Obenauer, MHS, Megan Quinn, DrPH, East Tennessee State University, Johnson City, TN

**Background:** Roughly a quarter of adults binge drink (5 drinks in 2 hours) more than twice a month and report binge drinking (BD) within the past thirty days. Adults who experienced adverse childhood experiences (ACEs), such as abuse or household dysfunction, may be at higher risk of BD.

**Objectives:** Identify the association between ACEs and adult BD.

**Methods:** The 2011-2012 Behavioral Risk Factor Surveillance System data were analyzed. Abuse included sexual, verbal, and physical abuse. Household dysfunction included witnessing intimate partner violence alongside living with anyone mentally ill, an alcoholic, anyone who abused drugs, someone who was incarcerated or had parents who were divorced/separated. Descriptive analyses were completed for ACEs, BD, and sociodemographic factors. Logistic regression was used to determine associations between BD (yes/no in the last 30 days) and ACEs, controlling for sociodemographic factors.

**Results:** Participants with a history of any abuse had a 22% increased risk of BD compared to those with no abuse (OR 1.22, CI 1.16-1.29). Adults with an income  $\geq$ \$50,000 were found to have a 69% increased odds of BD (OR 1.69, CI 1.52-1.87) compared to those with an income of  $\leq$ \$15,000 a year. Males had 2.21 times higher odds of BD than females (CI 2.11-2.32). Those never married were at 48% increased odds of BD, compared to married individuals (OR 1.48, CI 1.37-1.59).

**Conclusion:** Results suggest that ACEs play a role in adult BD. Specifically, those adults who experienced abuse, are male, or have an annual income greater than \$50,000 are at higher risk.

### **#18 – *Tennessee Stroke Registry Report, 2015***

Casey Morrell, MPH, Meagan Quinn, DrPH, Amy Poole, MS, Andrew Joyner, PhD, Shimin Zheng, PhD, East Tennessee State University, Johnson City, TN

**Background:** Stroke is the fifth leading cause of death in Tennessee. The Tennessee Stroke Registry (TSR) Act requires East Tennessee State University's College of Public Health to maintain a stroke database of participating hospitals and produce an annual report. Currently, twelve hospitals submit data to the TSR.

**Objectives:** The TSR seeks to provide stroke information to Tennessee residents, policy makers, and health-care professionals. This presentation will highlight the key findings of the 2015 TSR report and will serve as an update to the 2014 report presented at the 2015 Tennessee Public Health Association conference.

**Methods:** Data for the TSR was collected via Quintiles, American Heart Association's online database. Microsoft Excel and ArcMap 10.3.x were used to conduct a descriptive analysis of stroke across Tennessee, observing characteristics of both stroke overall and of individual subtypes.

**Results:** Seventy-nine percent of strokes in Tennessee in 2015 were ischemic. Some subtypes showed significantly different proportions of males versus females. For instance, females made up 63% of subarachnoid hemorrhage patients. The average age of stroke patients in Tennessee was 67.1 years, but varied for subtypes, ranging from 58.2 to 69 years. The majority of stroke patients (75.1%) had a recorded history of hypertension. Counties with high stroke mortality rates tended to cluster in areas of few certified stroke centers.

**Conclusion:** Stroke subtypes exhibited different characteristics than stroke overall and geographic disparities were highlighted through the descriptive mapping. Identifying and understanding these differences and disparities can help in addressing ways to improve stroke care in Tennessee.

### ***#19 – Self-Care Behavior Interventions in an Addiction Recovery Population***

Hannah Nolte, BA, MSN(c), Anne Ward Arbegust, MSN(c), Naomi Bliss, MSN(c), Kristian Dambrino, MSN(c), Stephanie May, MSN(c), Lea Spencer, MSN(c), S. Cole Powers, DNP, FNP, Vanderbilt University School of Nursing, Nashville, TN

**Background:** Women in addiction recovery are at greater risk for unhealthy lifestyle behaviors including: smoking, lack of physical activity, and poor nutrition. Student nurses and a faculty member conducted self-care behavior interventions with participants enrolled in a residential alcohol and drug treatment center for women with children.

**Objectives:** Nursing students will empower residents of the treatment center to incorporate self-care behaviors into their daily lives to improve health outcomes.

**Methods:** A series of five, one-hour interventions included a brief activity introduction, fifteen-minutes of high intensity interval exercise (HIIE), and a debriefing. Additional interventions included: yoga instruction, healthy snack demonstration, non-pharmacologic methods to increase serotonin, and smoking reduction techniques. Participation was measured via observation and knowledge acquisition by teach-back method.

**Results:** Participant attendance varied from five to ten each session. HIIE and yoga had the highest participation at 100%. All participants verbalized  $\geq 1$  method to increase serotonin. Post-intervention, 50% of participants reported increased readiness to change regarding smoking reduction.

**Conclusion:** The participants as a group engaged in HIIE, yoga, and healthy snack making, as well as received information to reduce smoking and increase serotonin non-pharmacologically. Participants verbalized the benefits of these activities and self-reported novel ways to incorporate self-care behaviors into their daily lives. Future research on the integration of the treatment center staff could be done to assess the sustainability of the interventions.

### ***#20 – More Money, More Problems?: The Effect of Family-Based Psychoeducation on Depression and Anxiety in Affluent Adolescents***

Kendra Osborn, BA, MSN(c), Luyan Zhao, BA, MS, MSN(c), Vanderbilt University School of Nursing, Nashville, TN

**Background:** Early studies have demonstrated that affluent teenagers have anxiety, depression, and substance abuse rates similar to that of teenagers from low socioeconomic backgrounds. Current evidence has revealed that family-focused psychoeducation alleviates symptoms of

depression and anxiety in adolescents, but its efficacy has not yet been evaluated in affluent teens.

**Objectives:** This project sought to explore the efficacy of the use of family-based psychoeducation to improve mental health outcomes in affluent teens.

**Methods:** A literature search using the search engines PsychInfo, Google Scholar, PubMed for peer reviewed articles from 2012-2015. Key words used included: “adolescents, anxiety, depression, affluence, family-based psychoeducation.”

**Results:** The scholarly evidence revealed that adolescents from affluent families have high levels of depression anxiety, and stress. Affluence alone was not found to be a risk factor to mental illness but rather “competitive norms” and perceived parental pressure in affluent communities acts as a mediating factor that could lead to negative adolescent adjustment (Kaslow et al, 2012). One study demonstrated that this relationship could be buffered by organized activity involvement (Randall, Bohnert & Travers, 2015). Family-based interventions proved to be effective for depression and anxiety in the adolescent population (Bhasin, Sharma, and Saini, 2010).

**Conclusion:** Based on this review of evidence-based literature, it is hypothesized that family-focused psychoeducation can be used for prevention and early detection of mental illness in affluent adolescents by acting on the mediating factor, perceived parental pressure. Further studies are warranted to test this hypothesis. By using the current evidence to guide practice, mental health outcomes will improve and death by suicide will be prevented in this population often overlooked by healthcare providers.

## **#21 – *Meaningful Access to Healthcare through Community Partnerships***

Tracy Pate, BS, Project Access, Johnson City, TN

**Background:** Project Access worked diligently to form a partnership with health departments in order to provide outreach, education, and application assistance to the uninsured in Northeast Tennessee. As Navigators, the Project Access employees would be able to assist at the health departments with questions regarding the Affordable Care Act (ACA), the Health Insurance Marketplace, and the TennCare Application process as well.

**Objectives:** This partnership would provide a centralized location for consumers to seek information regarding the ACA, utilizing the training of Federal Navigators with the community seat of the local health department.

**Methods:** This partnership was built on the idea that, with enactment of the ACA, consumers would seek better understanding of what the ACA meant to them and their families at their local health department. The health department would provide a private meeting area for consumers and Navigators. Project Access would furnish internet access, computer, and printer needed to complete an application. The Navigators would also answer questions regarding the ACA and assist those receiving Presumptive TennCare continue their coverage.

**Results:** In 12 months, Project Access assisted 570 consumers with Health Insurance Marketplace applications ensuring that those households were able to continue to meet their healthcare needs.

**Conclusion:** After seeing the amount of consumers being assisted, all local health departments across the state now have Certified Application Counselors available to assist consumers with the Health Insurance Marketplace while still offering a space for the Project Access Navigators to assist those not seeking Presumptive TennCare eligibility.

## **#22 – A Community-Driven Intervention for Improving Bio-Specimen Donation in African Americans**

Kushal Patel, PhD, Wendelyn Inman, PhD, Owen Johnson, PhD, Elizabeth Brown, PhD, Tennessee State University, Nashville, TN, Margaret Hargreaves, PhD, Meharry Medical College, Nashville, TN

**Background:** Human bio-specimens are an invaluable resource for addressing cancers and other chronic diseases. Molecular and genetic studies of bio-specimens contained in biobanks can provide groundbreaking information about the etiology, diagnosis, and treatment of these disease entities.

**Objectives:** The purpose of this study was to assess the impact of an educational intervention on bio-specimen knowledge and attitudes.

**Methods:** The participants consisted of 112 African Americans, 18 years and older, who had not provided bio-specimens in the past for cancer research. A total of 55 participants received the educational brochure and 57 received the educational video. The main study outcomes of the study were knowledge and attitudes for bio-specimen donation. This information was collected pre-and-post intervention.

**Results:** The average knowledge scores increased ( $p < .05$ ) and the average attitude scores for bio-specimen donation improved ( $p < .05$ ) post intervention for both the video and brochure conditions. There was an interaction between the intervention condition and knowledge where the participants who received the educational video showed a greater increase in knowledge pre-to-post compared to those who received the educational brochure ( $p < .05$ ). There were no significant interactions between the two intervention conditions for attitudes towards bio-specimen donation.

**Conclusion:** The results of this study demonstrated the feasibility and efficacy of an academic institution collaborating with the African American community in developing educational tools for bio-specimen donation.

## **#23 – Public Health and Corrections: A Model of Program Collaboration and Service Integration (PCSI)**

Trudy Stein-Hart, MS, Jason Cummins, MPH, Tennessee Department of Health, Nashville, TN, Marie Wright, RN, CCHP, Tennessee Department of Corrections, Nashville, TN, Paula Gibbs, MT (ASCP), Jim Gibson, MPH, Richard Steece, PhD, D (ABMM), Carolyn Wester, MD, MPH, Tennessee Department of Health, Nashville, TN, Kenneth Williams, MD, PhD, Tennessee Department of Corrections, Nashville, TN, Jon Warkentin, MD, MPH, Tennessee Department of Health, Nashville, TN

**Background:** In 2009, CDC's National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention (NCHHSTP) introduced a service mechanism called "Program Collaboration and Service Integration" (PCSI). Public health programs provide categorical services to persons who have multiple related disease risks, but often miss significant opportunities. PCSI's strategic priority strengthens collaboration across disease program areas at the client level. Incarcerated populations have higher risk for HIV/AIDS, STDs and TB due to increased risk of disease transmission. Incarceration provides important opportunities for disease surveillance, diagnosis, treatment and prevention. In October 2015, the TB Elimination Program, HIV/STD & Viral Hepatitis Program, Information Technology Services Division, and Laboratory Services of Tennessee Department of Health (TDH) collaborated with the Tennessee Department of Correction (TDOC) to screen all new inmates for TB infection, HIV, syphilis, gonorrhea and chlamydia.

**Objectives:** Describe the collaborative efforts and results of TDH's and TDOC's implementation of intake screening for TB, HIV, and STDs for all inmates entering the TDOC system.

**Methods:** Multidisciplinary planning included feasibility, resource assessment, protocol development, intake flow analysis, information technology installation, staff training and data analysis.

**Results:** Following pilot testing at both facilities, from December 2015 through May 2016 a total of 16,166 tests for five diseases were obtained. The aggregate test positivity rates were: TB infection – 5.0%; HIV infection – 0.8%; syphilis – 1.0%; gonorrhea – 2.2%; and chlamydia – 0.2%; positivity rates differed by gender.

**Conclusion:** A unique multi-program and agency collaboration successfully implemented integrated prison intake screening for five (5) diseases of public health importance in Tennessee.

#### **#24 – *Indoor Tanning: Bringing the Sun Inside. A comparison of state regulation restrictions on indoor tanning for minors in USA***

Cori Sweet, Britney Hardwick, Taylor Opel, Chelsea Hagan, Paul Terry, Jiangang Chen, University of Tennessee, Knoxville, TN

**Background:** Indoor tanning use for minors is a significant public health issue. The dangers of excess ultraviolet exposures are well documented in the literature and both indoor and outdoor tanning are linked to non-melanoma and melanoma skin cancers. Exposure is preventable, but indoor tanning use during early life stages has yet to raise enough public awareness for significant political interventions.

**Objectives:** To compare and discuss the policies and regulations that have been implemented in the U.S. and other countries to mitigate the health risks due to indoor tanning, particularly in youth.

**Methods:** Regulations on indoor tanning restrictions for minors were collected from state legislature websites and compared. FDA's notice of proposed rulemaking on tanning bed safety and age restrictions was reviewed. Peer reviewed publications were researched to determine indoor tanning policies in other countries.

**Results:** Currently 13 states have banned use of tanning devices for minors, 14 have restricted use policies requiring parental supervision/consent, and remaining states have not implemented youth indoor tanning policies. Furthermore, U.S. federal reclassification of UV tanning beds has triggered additional safety requirements. At least 11 other countries have policies restricting indoor tanning to youth and additionally, 2 countries have banned it for all ages.

**Conclusion:** Enforcement of these measures are vital to protect the public health of our population and slow the growing health risks associated with excess indoor tanning exposure. In lieu of federal laws addressing minor use of tanning facilities, U.S. states should work to both strengthen and standardize state-wide tanning laws.

#### **#25 – *Use of Fitbit Online Activity Groups for Evaluation: Lessons Learned***

Cori Sweet, Karen Franck, PhD, University of Tennessee, Knoxville, TN

**Background:** Wearable activity trackers are becoming increasingly popular for health promotion and self-regulation of physical activity. These devices have the potential to be useful evaluation tools by providing an objective measure of daily activity that are cost-effective compared to tools like accelerometers.

**Objectives:** To discuss lessons learned from a community-based obesity prevention project in four rural Tennessee counties that used Fitbit pedometers and their online activity groups for evaluation purposes

**Methods:** 94 adult participants were provided a Fitbit and asked to join an online activity group. Four county specific activity groups were created on fitbit.com and invitations with instructions were sent directly from the Fitbit website to those participants that opted in. Data collection methods included documentation of 1. Daily steps and mileage for 30 active days and 2. Monthly averages for steps, mileage, and active minutes for 2 months.

**Results:** 85% (n=80) of participants requested an invitation to the online Fitbit group, 33% (n=31) actually joined the online group and 30% (n=24) were active in the group for at least 30 days. Meaningful objective data was captured for all 24 participants who joined and completed 30 days. Several challenges related to initial group invitations, privacy settings and information collection time frames may have contributed to lower participation and limited data collection capabilities.

**Conclusion:** The Fitbit activity tracker can be used as an evaluation tool, providing meaningful physical activity data by use of the online group application capability. However, successful data collection and participation is dependent on effective utilization of the application.

### ***#26 – Gestational Weight Gain and the Risk of Adverse Maternal Health Outcomes across Pre-Pregnancy Body Mass Index Groups***

Yuanchun Wang, MS, Generosa Kakoti, PhD, Tennessee Department of Health, Nashville, TN

**Background:** Research indicates that being overweight or obese affects maternal health. This study examines whether gestational weight gain (GWG) in relation to pre-pregnancy body mass index (BMI) affects maternal health.

**Objectives:** To determine whether the effects of GWG on maternal health differ based on pre-pregnancy BMI.

**Methods:** We analyzed 73,397 Tennessee live, singleton births during 2012 through 2014 to mothers aged 15-44 years. Pre-pregnancy BMI was categorized as normal, overweight or obese. GWG was categorized as inadequate, adequate or excessive according to published recommendations. Outcomes analyzed included gestational diabetes, gestational hypertension, and cesarean delivery. Multivariate logistic regression generated odd ratios (OR) and 95% confidence intervals (CI) to determine whether GWG was associated with studied outcomes.

**Results:** Across all pre-pregnancy BMI groups, excessive GWG was associated with increased risks of gestational hypertension (normal [OR:1.95, 95% CI:1.72-2.21], overweight [OR:1.67, 95% CI:1.41-1.97], obese [OR:1.30, 95% CI:1.14-1.49]) and cesarean delivery (normal [OR:1.47, 95% CI:1.38-1.56], overweight [OR:1.31, 95% CI:1.20-1.43], obese [OR:1.21, 95% CI:1.10-1.32]) . However, excessive GWG was associated with decreased risk of gestational diabetes (normal [OR: 0.86, 95% CI:0.73-1.00], overweight [OR:0.71, 95% CI:0.60-0.84], obese [OR: 0.72, 95% CI:0.62-0.83]) compared with adequate GWG. Inadequate GWG was associated with decreased risks of gestational hypertension (OR:0.64, 95% CI:0.47-0.87) and cesarean delivery (OR:0.80, 95% CI:0.70-0.93) among the overweight group.

**Conclusion:** The effect of excessive GWG is greater among women with normal pre-pregnancy BMI than among other pre-pregnancy BMI groups. Weight management during pregnancy is important in reducing adverse health outcomes irrespective of BMI.

### **#27 – HBV Vaccination Pilot Among Jail Inmates in Tennessee**

Carolyn Wester, MD, MPH, Cory Everett, BSN, RN, Kristen Pittman, Catherine Goff, MSN, RN, Michael Rickles, PhD, Lindsey Sizemore, MPH, CPH, Tennessee Department of Health, Nashville, TN

**Background:** The CDC estimates that 20,000 individuals are acutely infected with Hepatitis B (HBV) in the U.S. each year, and that 1.2 million are chronically infected. Tennessee ranks among states with the highest rates of acute HBV. Routine childhood HBV vaccination has been recommended since 1991 and is recommended for at-risk unvaccinated adults.

**Objectives:** 2012, the Tennessee Department of Health (TDH) launched an HBV vaccination pilot program focusing on at-risk adults.

**Methods:** Based on surveillance data, TDH partnered with health departments in four health regions in Eastern TN to provide viral hepatitis education and HBV vaccination to inmates in 20 county jails. Jail census data was matched with TDH databases to ensure HBV vaccine was delivered on-schedule to unvaccinated adults.

**Results:** From September 2012 through May 2016, 15,493 doses of HBV vaccine were administered. Recipients were predominantly male (71%, 10,147), 25 years or older (86%, 12,296), and non-Hispanic White (90%, 12,914). Of doses administered, 56% (8,632) were 1st doses, 27% (4,252) were 2nd, and 17% (2,609) were 3rd. From 2012 to 2015, rates of acute HBV increased by 7% (9.2 to 9.8) in the 4 participating regions, compared to 29% in the other regions (2.1 to 2.7).

**Conclusion:** This pilot demonstrates the feasibility of providing HBV vaccination to at-risk adults in county jails. Acute HBV case rates are leveling off in regions participating in this pilot. Plans are in place to expand to two more health regions and to provide case management ensuring that participants complete the 3-shot series.

### **#28 - Formal Sex Education and Age at First Intercourse, National Survey of Family Growth (NSFG) 2006-2010**

Ruby Yadav, MPH, Liang Wang, DrPH, East Tennessee State University, Johnson City, TN, Kimothy J. Warren, MS, MCHES, Tennessee Department of Health, Nashville, TN, Shimin Zheng, PhD, Katie Baker, DrPH, Mildred Maisonet, PhD, East Tennessee State University, Johnson City, TN

**Background:** Formal sex education plays an important role in delaying early sex and reducing teen pregnancy.

**Objectives:** This study examines whether the impact of individual formal instruction topics including saying no to sex and birth control on age at first sexual intercourse (FSI) varies by family income and maternal education, using right censored survival analysis.

**Methods:** Participants from a national sample (4375 females, 3420 males) were categorized according to receipt of formal instruction before FSI: only birth control, only saying no to sex, both instructions, and none. Two models were tested for interaction of instruction type with family income in relation to poverty level, and maternal education, separately for females and males. All models were adjusted for race/ethnicity, family income in relation to poverty level, maternal education, metropolitan-non-metropolitan residence, living with two parents at age 14, and frequency of religious attendance at age 14.

**Results:** Formal instruction increased age at FSI among males and females. The increase in mean age at FSI was similar in the tertiles of income category [for eg. female (no instruction: 1st tertile, 16.1; 2nd tertile, 15.7; 3rd tertile, 15.9) (both instruction: 1st tertile, 16.6; 2nd tertile, 16.7; 3rd tertile, 17.2)], and groups of maternal education [for eg. male (no instruction: less than

high school, 15.2; high school or more, 15.7) (both instruction: less than high school, 17.5; high school or more, 17.6)].

**Conclusion:** Formal instruction on either or both formal instruction topics as birth control and saying no to sex can help postpone age at FSI of males and females regardless of socioeconomic status as family income and maternal education.