Does Geographic Location Matter for Transportation Risk Behaviors among U.S. Public High School Students?

Learning Objectives
In this session, participants will:
Learn about the role of location (i.e., census region and urban/rural status of the school each student attended) for four teen transportation risk behaviors: not always wearing a seatbelt as a passenger (seatbelt nonuse); riding with a driver who had been drinking alcohol; driving when drinking alcohol; and texting or e-mailing while driving.
Understand the utility of using Youth Risk Behavior Survey (YRBS) data to assess teen risk behaviors related to unintentional injuries.
Describe how teen transportation risk behaviors and other location factors such as miles driven and driving environment can contribute to different teen driver crash rates and death rates by location.

Statement of Purpose
Teen driver fatal crash rates differ greatly by geographical location. Previous studies investigating these disparities by assessing teen transportation risk behaviors (TTRBs) by location have had inconclusive results. Therefore, we explored the potential role of location (i.e., census region and urban/rural status of the school each student attended) for four TTRBs: not always wearing a seatbelt as a passenger (seatbelt nonuse); riding with a driver who had been drinking alcohol; driving when drinking alcohol; and texting or e-mailing while driving.

Methods
Data from 29,168 U.S. public high school students aged ≥14 years from the 2015 and 2017 national Youth Risk Behavior Surveys were combined and analyzed to determine weighted prevalence estimates of driving and TTRBs by location. For drinking and driving and texting while driving, the sample was further restricted to students aged ≥16 years who drove a car or other vehicle during the 30 days before the survey. We considered 95% confidence intervals that did not overlap to be significant.

Results
National driving prevalence was 75%; a significantly higher proportion of students in the Midwest (85%) drove than in the Northeast (64%), South (78%), and West (70%). Driving prevalence among urban students was significantly lower (64%) than among all other settings (suburban, 74%; town, 82%; rural, 81%). National prevalences of TTRBs were 41% for seatbelt nonuse; 19% for riding with a driver who had been drinking alcohol; 7% for drinking and driving; and 47% for texting while driving. Students in the Northeast had a significantly higher prevalence of seatbelt nonuse (52%) than students in the Midwest (37%) and the West (33%), as did urban students (45%) compared with suburban students (37%). Urban students engaged in texting while driving at a significantly lower proportion (38%) than students in all other settings (suburban, 48%; town, 52%; rural, 49%). No significant differences by location were found for riding with a drinking driver or for drinking and driving.
Conclusions

Sizeable differences existed in driving prevalence by location, but differences in TTRBs by location were minimal. Factors such as miles driven and driving environment might contribute more to variation in teen driver fatal crash rates by location than differences in TTRBs.

Merissa A. Yellman, MPH
Division of Unintentional Injury Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (Contractor via Synergy America, Inc.)
Atlanta, GA
nzi5@cdc.gov

Merissa A. Yellman, MPH, is an Epidemiologist (contractor through Synergy America, Inc.) at the Centers for Disease Control and Prevention. She works at the National Center for Injury Prevention and Control in the Division of Unintentional Injury Prevention. She focuses on surveillance, study design/data analysis, and evaluation projects relating to domestic motor vehicle injury prevention, global road safety, drowning prevention, and other unintentional injury topics. Merissa has over 9 years of public health experience and over 6 years of experience in injury/violence prevention. She began her injury prevention career at the Injury Prevention Center of Greater Dallas (IPCGD), part of Parkland Health & Hospital System. Prior to working at IPCGD, she worked in community health as a Peace Corps volunteer in Nicaragua. Merissa holds a Master of Public Health degree from the Johns Hopkins Bloomberg School of Public Health and obtained a Certificate in Epidemiology for Public Health Professionals.
Epidemiology of Fall-related Traumatic Brain Injury Mortality in the United States, 2008-2017

Learning Objectives
1. Participants will learn about the role of falls in the incidence of traumatic brain injury (TBI) mortality in the United States.
2. Participants will learn about national and state-specific rate trends of TBI-related deaths attributable to falls

Statement of Purpose
During 2014, unintentional falls was one of the most common mechanisms of injury contributing to a traumatic brain injury (TBI)-related death and accounted for 29% of all TBI-related deaths in the U.S. Current information on national and state trends and decedent characteristics for this type of health event is lacking.

Methods
The national incidence of TBI-related deaths attributable to falls was determined by analyzing the multiple-cause-of-death files within the National Vital Statistics System. A death was determined to be TBI-related if any of the multiple-cause-of-death codes listed in the death record indicated a TBI-related diagnosis. TBI-related deaths attributed to unintentional falls were identified based on the single underlying-cause-of-death, specifically ICD-10 codes W00 to W19, listed in each death record. Annual incidence rates were calculated per 100,000 population and age-adjusted to the U.S. year 2000 standard age distribution. Data years 2008 to 2017 were selected to produce 10-year age-adjusted national and state-specific trends that were modeled using the National Cancer Institute Joinpoint Regression Program (version 4.6.0.0). Estimated rate trends are reported in the form of average annual percentage changes (AAPCs) accompanied by 95% confidence intervals. National rate trends of TBI-related deaths attributed to unintentional falls were analyzed by sex, age group, ethnicity/race, and level of urbanization.

Results
During 2017, there were 17,408 TBI-related deaths attributed to unintentional falls in the U.S. From 2008 to 2017, there was a 17% increase in the national rate of TBI-related deaths due to unintentional falls. Analysis of decedent characteristics revealed the fastest-growing rates of this specific health event were among older adults aged ≥75 years and persons living in non-core, non-metropolitan counties. State-specific rate trends are forthcoming.

Conclusions
The rising national rate of TBI-related deaths due to falls highlights an emerging priority area for prevention. Preliminary results indicate the need for targeted interventions to reduce incidence of this health event, especially among older adults and those living in non-metropolitan counties. Falls are
preventable and steps such as doing strength and balance exercises, vision assessments, and talking with your doctor to evaluate fall risk are key in prevention.

Dr. Alexis Peterson, Ph.D
Centers for Disease Control and Prevention (CDC)
GA
Apeterson4@cdc.gov

Alexis Peterson, PhD is a Health Scientist on the Traumatic Brain Injury Team in the National Center for Injury Prevention and Control at the Centers for Disease Control and Prevention (CDC). As an health scientist, her role on the TBI team is to promote the accurate reporting of TBI incidence and burden to inform the general public and stakeholders.
Pedestrian Fatalities among U.S. Children and Adolescents: Examining Trends, Patterns, and Costs

Learning Objectives
Identify trends and sociodemographic differences in pedestrian fatalities among children and adolescents ages 0-19, with and without motor vehicle involvement.
Identify environmental factors for pedestrian fatalities involving motor vehicles.

Statement of Purpose
Pedestrian injuries among children and adolescents are an increasing cause for concern in the United States. We examine sociodemographic characteristics and trends in pedestrian injury deaths, with motor vehicle traffic involvement and without (e.g., non-traffic collisions with pedal cycles, trains, cars, animal-drawn vehicles, etc.), among children and adolescents ages 0-19 from 2008 to 2017. We also estimated the costs of pedestrian deaths in this population in 2017.

Methods
We used the National Vital Statistics System’s Multiple Cause of Death data from 2008 to 2017 to compute motor vehicle traffic and non-motor vehicle traffic pedestrian death rates (per 100,000 population) across sociodemographic characteristics. We used the National Highway Traffic Safety Administration’s Fatality Analysis Reporting System (FARS) to further examine deaths involving motor vehicles on the road, including environmental characteristics describing where and when pedestrian fatalities occurred (e.g., urbanicity, pedestrian location, light condition, and time of day) and alcohol involvement for the driver and/or the pedestrian.

Results
During the 10-year study period, 7,091 (0.9 per 100,000 population) pedestrian children and adolescents were fatally injured (74.1% related to motor vehicle traffic). Rates were highest in age group 15-19 years (1.4) compared to other age groups (0-4 age group: 1.0; 5-9 age group: 0.5, and 10-14 age group: 0.5). Rates were higher for males than females (1.11 and 0.60, respectively). Across race/ethnicity, rates were highest for American Indian/Alaskan Natives (2.3), followed by Blacks (1.2), Hispanics (0.9), Whites (0.7), and Asians (0.5). The medical costs, work loss costs, and the value of quality of life loss due to pedestrian deaths among children and adolescents were approximately $6.0 billion in 2017. These findings will be supplemented with information about deaths involving motor vehicles available from FARS.

Conclusions
Trends and patterns in pedestrian deaths vary across sociodemographic characteristics. Our findings may provide direction for targeted prevention efforts, such as creating pedestrian safety zones and streets, enforcing speed limits, and reducing drunk and distracted driving. Cost estimates associated with pedestrian injury deaths are useful in setting priorities and estimating the likely return on investment associated with effective prevention.

Jennifer Leonardo, PhD
Education Development Center
WalthamMA
Dr. Jennifer Leonardo has expertise in program management, implementation, and quality improvement in international and domestic public health. Her work involves organizational development, strengthening health care systems, and building leadership, management, and quality improvement capacity within organizations. She is currently the Director of Children's Safety Network at Education Development Center. Dr. Leonardo received a bachelor's degree in Biology from Harvard University and master and doctorate degrees in macro social work from Boston College.