SESSION 3
Epidemiology of Suicides

1. Predictors of Self Injury Mortality (SIM)   vs. Traditional Suicide Mortality

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Statement of Purpose: Substantial overlap between the suicide and opioid mortality epidemics in the United States precipitated a new category of self-injury mortality (SIM) that transcended registered suicides. SM also incorporates drug-intoxication deaths heavily representative of missed suicides and also fatal nonsuicidal, self-harm behaviors implicating substance acquisition and misuse. Illustrating discrepant growth in suicide and SIM rates, the white male suicide rate increased 23.3% during 2008-2017 (from 24.3 to 29.9/100,000), whereas SIM increased by 54.5% (from 40.6 to 62.7/100,000) (Rockett et al., 2019). Unknown is the degree to which socio-economic factors predict SIM compared to suicide rates; a question addressed by this study. **Methods:** The data derive from the Centers for Disease Control's Multiple Cause of Death (MCOD) files for 2017 for males. SIM represents (a) suicides (International Classification of Diseases ICD-10, categories U03, X60-84, Y87.0) (b) accidental drug deaths (X40-44), and (c) undetermined drug deaths (Y10-14). The core dependent variable is dichotomized as 1=SIM, and 0=all other mortality. Socio-economic predictors include level of education, race (whites=1, blacks=0), age and marital status. **Results/Conclusions:** Multiple logistic regression analysis found both similarities and differences between SIM and suicide predictors. The model explained 34% of the variance in SIM versus only 21% of the variance in suicide. Overall, the socio-demographic factors predicted SIM better than traditional suicide. **Innovation and Significance to the Field:** We suggest that prevention efforts give more consideration to self-injury mortality (SIM), a construct which is more sensitive to some standard predictor variables. Further research is needed to shed light on other predictor constructs, including interaction effects based on race or race/ethnicity and gender.

2. Youth Suicide in California in 2018

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Statement of purpose: In 2018, there were 544 suicide deaths among youth aged 10-24 years in California. This report summarizes surveillance data on youth suicide in California in 2018 using vital statistics data from death certificates and data from the California Violent Death Reporting System (CalVDRS). Results are reported by sex, age group, race/ethnicity, method of injury, and other circumstances. **Methods/approach:** CalVDRS collects data on violent deaths in California from death certificates, coroner and medical examiner reports, and law enforcement reports to provide a more comprehensive picture of circumstances associated with violent deaths in California. Death certificate data were available statewide, and supplemental data collected through CalVDRS were available for 21 counties in California in 2018. **Results/conclusions:** The rate of suicide among males aged 10-24 years was almost three times the rate of suicide among females in this age group in California in 2018. Suicide rates were highest among White and Black youth. Almost half of youth suicides occurred by hanging/strangulation/suffocation (46.1%), followed by firearms (27.4%). Among

the CalVDRS subsample of 251 cases, about half had a diagnosed mental health condition (47.8%). History of suicidal thoughts or plans were reported among 41.8%, and history of suicide attempts were reported among 23.5%. Lastly, intimate partner problems were reported among 18.7%. **Innovation and Significance to the Field:** CalVDRS plays an important role in understanding circumstances surrounding violent deaths and youth suicides in California. Within the California Department of Public Health's Injury and Violence Prevention Branch, the California Suicide Prevention Program and Essentials for Childhood (EfC) Initiative work collaboratively to prevent violence among youth through primary prevention strategies. Results from this study will be used to raise awareness about youth suicide, monitor future trends in California, and inform messaging to promote nurturing relationships, protective environments, and other factors that build resilience among children and families.

3. A Qualitative Analysis of Farmer Suicides in Wisconsin: Evidence for Prevention

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Statement of Purpose: Suicide is an increasing, yet preventable, public health concern – suicide rates in the United States are the highest they have been since the 1940's. In recent years, suicide research in the United States has focused on suicide in certain occupational groups. Occupation, and specifically farming, may impact suicide risk through a number of pathways. Studies of suicide among farmers in Australia have found that stressors related to climate change, and its associated effects of crop damage and loss, can contribute to increased suicide. In the United States, there is a demonstrated need to address suicide among farmers and understand what contributes to suicide farmers in order to effectively prevent suicide among them. **Approach:** The purpose of this qualitative study is to analyze narrative data from the WVDRS in order to uncover circumstances that were present in the lives of farmers who died by suicide prior to their death. **Results/Conclusions:** Four specific themes emerged from this analysis: stymied by physical health issues, grief from loss of relationships, prolific access to firearms in rural Wisconsin, and the burden of farming and the farm. The findings in this study suggest that farmers who die by suicide experience certain unique life events and circumstances that lead to their eventual suicide. In addition, farmers who die by suicide have similar life experiences than non-farmers who die by suicide. **Innovation and Significance to the Field:** These findings illustrate that while a focus on more "traditional" risk factors for suicide is important when considering farmer suicide, it is equally important to consider experiences that are unique to farming and farmers. With more focused suicide prevention efforts that build healthier and safer farming communities, there is hope of saving lives.

4. Suicide Risk Within One Year of Dementia Diagnosis in U.S. Older Adults: A National Retrospective Cohort Study

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Statement of Purpose: Receiving a diagnosis of Alzheimer's disease or related dementias (ADRD) can be a pivotal and stressful period. Research is mixed for the association of dementia with suicide. We examined the

risk of suicide in the first year following ADRD diagnosis relative to the general geriatric population. **Methods/Approach:** We extracted a cohort of adults aged >65 years with newly diagnosed ADRD (2011-2016) from Medicare claims linked to the National Death Index. Cause-specific hazard ratios adjusted for demographics were used to identify risk factors of suicide. Standardized mortality ratios (SMRs) were calculated to quantify suicide risk using the U.S. Compressed Mortality File. **Results/Conclusions:** Of the 2,667,987 older adults with ADRD, 62.2% were women, 82.5% were non-Hispanic White, and 46.5% aged 85+ years. The suicide rate was 26.42 per 100,000 person-years. After adjusting for demographic variables, rural residence, recent mental health and substance use disorders, and chronic pain conditions were associated with increased risk. Relative to the general population, the overall SMR for suicide was 1.54 (95% CI=1.42, 1.65) with the highest risk among ADRD adults aged 65-74 years (SMR=3.43, 95% CI=2.96, 3.89). Approximately half of all suicide deaths occurred within 90 days of index ADRD diagnosis. **Innovation and Significance to the Field:** To our knowledge, this is the first nationally representative U.S. cohort study of short-term suicide risk in older adults with newly diagnosed dementia. The clinical and policy implications of these results highlight the importance of suicide risk screening and support at the time of diagnosing incident ADRD. Our findings also support active management of pre-existing mental disorders, thorough assessment of patient and caregiver needs, initiating referrals for services and supports, and safety counseling with restricting access to lethal means.

5. Poly-Victimization and Suicide Risk: Preliminary Findings from a National Survey of Emerging Adults

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Statement of Purpose: Violence exposure has been linked to suicidal behaviors among young adult populations, however, prior studies have been limited to single assessments of violence exposure in relation to suicide risk. This study assesses multiple forms of violence across the life span in relation to past-year suicidal ideation, suicide attempts, and non-suicidal self-injury (NSSI) using a national, demographically diverse sample of emerging adults. **Methods/Approach:** A cross-sectional, online survey was administered in January 2021 to emerging adults 18 to 29 recruited through Qualtrics Panels (N = 1000). Self-report, retrospective measures of violence exposure included caregiver abuse, youth violence (e.g., physical assault, bullying), adult intimate partner violence (IPV), and police violence. Suicide-related outcomes included self-reported suicidal ideation, suicide attempt, and NSSI in the past 12 months. Descriptive statistics and logistic regressions were used to model associations between each type of violence exposure and suicide-related outcome, controlling for demographic variables. **Results/Conclusions:** A total of 26% of respondents reported past-year suicidal ideation, 7.1% reported a suicide attempt, and 14.5% reported NSSI. Younger age, lower levels of education, sexual minority identity, caregiver abuse, and youth violence were significantly associated with increased odds for past-year suicidal ideation. Transgender/non-binary identity and police violence were associated with past-year suicide attempt. Younger age, sexual minority identity, youth violence, and IPV were significantly associated with past-year NSSI. Emerging adults exposed to youth violence are at greater risk for suicidal ideation and NSSI, whereas those exposed to police violence appear to be at greater risk for suicide attempts. **Innovation and Significance to the Field:** This study highlights distinct effects of understudied forms of violence in relation to suicide risk. Targeted prevention strategies and interventions are needed for younger, sexual minority, and transgender emerging adults. Public policy aimed at preventing suicide should consider how violence may increase suicide risk, including disproportionate impacts across emerging adult populations.