

LINKS TO LIVE STREAM & POSTER SESSIONS

The live stream from 8:30am – 11:45am EST will be hosted on the U-M IPC website. There will be 6 concurrent poster sessions, which will be hosted on Zoom from 11:55am – 1:00pm EST. See below for links to the live stream and poster sessions, a list of the posters presented in each room, as well as the accompanying abstract. Poster session links can also be found on the U-M IPC website.

Link to Live Stream

injurycenter.umich.edu/research-symposium-2020/

Attendee Links to Poster Sessions

Session 1: Adverse Childhood Experiences and Alcohol and Drug Misuse

Attendee Link: <https://umich.zoom.us/j/99022668093>

Session 2: Older Adult Falls, Motor Vehicle Crashes, and Trauma-Informed Care

Attendee Link: <https://umich-health.zoom.us/j/98237731182>

Session 3: Concussions and Traumatic Brain Injuries

Attendee Link: <https://umich.zoom.us/j/96405868888>

Session 4: Opioid Overdose

Attendee Link: <https://umich-health.zoom.us/j/92128284902>

Session 5: Violence

Attendee Link: <https://umich-health.zoom.us/j/94256476424>

Session 6: Suicide and Resources for Opioid Overdose Prevention

Attendee Link: <https://umich-health.zoom.us/j/92332168656>

POSTERS

POSTER SESSION 1

Adverse Childhood Experiences and Alcohol and Drug Misuse

Attendee Link: <https://umich.zoom.us/j/99022668093>

Poster #	Presenter(s)	Affiliation	Title
1	David J Greco, MA	University of Michigan Medical School	ACEs Prevention in Adolescents: Maintaining the Efficacy of Longitudinal Community-Based Educational Programs
2	Kathryn A Beathard	Department of Psychiatry, University of Michigan	Adolescent and Emerging Adults' Acceptability of a Social Media Intervention to Reduce Risky Alcohol Use
3	Jennifer Jester, PhD	Department of Psychiatry, University of Michigan School of Medicine	Decrease in Child Abuse Potential Following Infant Mental Health Home Visiting treatment
4	Laura Schwab-Reese, MA, PhD	Department of Public Health, Purdue University	Text- and Chat-Based Hotlines: A Novel Approach to Provide Child Maltreatment-Related Support
5	Nora Alrubaie, MPH, PhD student	Kent State University, School of Public Health	Childhood Exposure to Drugs at Home Predicts Adulthood Difficulty Concentrating, Remembering, or Making Decisions
6	Laura Schwab-Reese, MA, PhD	Department of Public Health, Purdue University	#NoMeansNo: How Young People Share Sexual Violence Experiences Through TikTok
7	Fanghong Dong, PhD, MA	School of Nursing, University of Pennsylvania	The Association of Adverse Childhood Experiences, Physical Activity and Depression in a National Sample of US Adolescents
8	Sarah A Stoddard, PhD, RN, CNP, FSAHM, FAAN	University of Michigan School of Nursing	Efficacy of a Future-Oriented Empowerment Intervention to Prevent Alcohol and Drug Use in School-Disengaged Youth: Three- and Six-Month Follow-Up

POSTERS

POSTER SESSION 2

Older Adult Falls, Motor Vehicle Crashes, and Trauma-Informed Care

Attendee Link: <https://umich-health.zoom.us/j/98237731182>

Poster #	Presenter(s)	Affiliation	Title
1	Dae Hyun Kim, PhD	Department of Health Care Administration, College of Business, Idaho State University	The Effect of Health Literacy on Fall Prevention for the Elderlies
2	Geoffrey Hoffman, PhD	UM School of Nursing	Hospitalization and Fall Injuries Among Older Adults: An Examination of Fall Risk in the Pre and Post-Hospital Periods
3	Lauro Ojeda, MS	Department of Mechanical Engineering University of Michigan	Reconstruction of Real World Losses Trips and Recovery Responses in Older Adults at Risk for Falls
4	Sabah Ganai, MPH	Dept. of Public Health and Health Sciences, University of Michigan Flint	Walkability and Social Ties in Fall Prevention: Lessons Learned in the Recruitment and Retention of Older Adults in Flint
5	Lauren Shawver, BS	Wayne State University	Free-Text Surveys as a Tool to Understand Patient Recovery from Trauma
6	Michelle L Munro-Kramer, PhD, CNM, FNP-BC	School of Nursing, University of Michigan, Ann Arbor, MI	Understanding Student Experiences with Inappropriate, Disrespectful, and Coercive Healthcare and Physical Exams

POSTERS

POSTER SESSION 2 - Continued Older Adult Falls, Motor Vehicle Crashes, and Trauma-Informed Care

Poster #	Presenter(s)	Affiliation	Title
7	Hala Khalil, PhD	King Faisal Specialist Hospital & Research Centre, Department of Biostatistics-Epidemiology and Scientific Computing, Riyadh, Saudi Arabia	Motor Vehicle Collisions Among Patients with Seizure Disorders - A Call to Improve Awareness Among At-Risk Patients

POSTER SESSION 3 Concussions and Traumatic Brain Injuries Attendee Link: <https://umich.zoom.us/j/96405868888>

Poster #	Presenter(s)	Affiliation	Title
1	Jiacheng Liu, MS	University of Michigan Transportation Research Institute; Department of Industrial and Operations Engineering, University of Michigan	Head Injury Assessment with Computational Human Models Considering Human Diversity
2	Abigail C Bretzin, PhD, ATC	Penn Injury Science Center, Department of Biostatistics, Epidemiology and Informatics, University of Pennsylvania	Sex Differences in Sport-Related Concussion Mechanisms: Findings from the Ivy League-Big Ten Epidemiology of Concussion Study

POSTERS

POSTER SESSION 3 - Continued Concussions and Traumatic Brain Injuries

Poster #	Presenter(s)	Affiliation	Title
3	Bernadette A D'Alonzo, MPH	Penn Injury Science Center, Department of Biostatistics, Epidemiology and Informatics, University of Pennsylvania	Symptom Profiles, Severity, and Recovery Among Football Athletes in the Ivy League-Big Ten Epidemiology of Concussion Study
4	Colin M Huber, BS	Department of Bioengineering, University of Pennsylvania; Center for Injury Research and Prevention, Children's Hospital of Philadelphia	Variations in Head Impact Rates in Male and Female High School Soccer
5	Douglas Wiebe, PhD	University of Pennsylvania, Department of Biostatistics, Epidemiology and Informatics	Measuring Recovery with Ecologic Momentary Assessment in a Randomized Trial of Exercise After Sport-Related Concussion
6	Patricia R Roby, PhD, ATC	Center for Injury Research and Prevention, The Children's Hospital of Philadelphia, Philadelphia, PA	Visio-Vestibular Function of Pediatric Patients Presenting with the First Concussion vs. a Recurrent Concussion
7	Divya Jain, BS	Department of Bioengineering, University of Pennsylvania	Cognitive Dysfunction in Concussed Adolescents during Driving Tasks
8	César Rubén Vuelvas-Olmosa, MsC	Medical Sciences, School of Medicine, University of Colima	Cognitive Effects of Repetitive Head Impact in Mexican Collegiate Contact Sport Athletes.

POSTERS

POSTER SESSION 4 Opioid Overdose

Attendee Link: <https://umich-health.zoom.us/j/92128284902>

Poster #	Presenter(s)	Affiliation	Title
1	Emily Pasman, LLMSW	Wayne State University School of Social Work	Willingness to Use Syringe Service Programs and Safe Consumption Sites in a Small Midwest Community
2	George Gray, MS	Michigan Opioid Prescribing Engagement Network (Michigan OPEN)	Naloxone Availability and Accessibility of Select Michigan Pharmacies that Participate in the Statewide Naloxone Standing Order
3	Grant Victor, PhD	Center for Behavioral Health and Justice, School of Social Work, Wayne State University	Associations with Opioid-Related Mortality: Buprenorphine Treatment Pptake and Critical Encounters Following a Non-Fatal Overdose
4	Jacquelyn Kercheval, BA	University of Michigan Medical School	Evaluation of Opioid Overdose Prevention Education for Medical Students
5	Jason Goldstick, PhD	University of Michigan Injury Prevention Center	Changes in Initial Opioid Prescribing Doses Following the Release of the CDC Guideline for Prescribing Opioids for Chronic Pain
6	Laura Thomas, MPH, MSW, CCRP	Department of Psychiatry, University of Michigan; VA Center for Clinical Management Research, Ann Arbor MI; Department of Anesthesiology, University of Michigan	Development of an Evidence-Based Online Toolkit to Improve Opioid Safety

POSTERS

POSTER SESSION 4 - Continued Opioid Overdose

Poster #	Presenter(s)	Affiliation	Title
7	Stephanie Slat, BS	Department of Internal Medicine, University of Michigan	Opioid Policy and Chronic Pain Treatment Access Experiences: A Multi-Stakeholder Qualitative Analysis and Conceptual Model
8	Terri Voepel-Lewis, PhD, RN	University of Michigan School of Nursing; Department of Anesthesiology, University of Michigan Medical School	Effect of Gist Risk Messages on Parents' Decisions to Retain Left-Over Prescription Opioids
9	Miranda Gali, BA	University of Michigan School of Public Health	The Impact of an Online Naloxone Training Curriculum for Community Laypersons

POSTER SESSION 5 Violence

Attendee Link: <https://umich-health.zoom.us/j/94256476424>

Poster #	Presenter(s)	Affiliation	Title
1	Jennifer Conley, MPH	University of Michigan	Feasibility and Acceptability of a Smartphone APP to Assess Daily Firearm Behaviors Among an Urban Emergency Department Sample
2	Sirivan Seng, MD	Department of Surgery, Crozer Keystone Health System, Upland, PA	Highlighting The Burden Of Firearm Injuries: A Trend Of Gun Violence in Southeastern Pennsylvania
3	Vijay Singh, MD MPH MS	University of Michigan Medical School University of Michigan Injury Prevention Center	Physical Intimate Partner Violence Perpetration and Victimization Among a Nationally-Representative Sample of Young Men: Prevalence and Correlates

POSTER SESSION 5 - Continued Violence

Poster #	Presenter(s)	Affiliation	Title
4	Lisa Fedina, PhD	U-M School of Social Work	Intimate Partner Violence and Economic Insecurity During the Covid-19 Crisis
5	Nicole Brass, MS	Combined Program in Education and Psychology, University of Michigan	Perceptions of School Safety in Middle School: The Role of Social Support
6	Allison Thompson	Department of Health Behavior and Health Education, School of Public Health, University of Michigan	The Relationship Between Sexuality Education and the Perpetration of Sexual Violence
7	Yvonne Lee, BA, MS-4 & Ryan Rogers, MS-3	Oakland University William Beaumont School of Medicine	Classroom Connection: Engaging Adolescents on Weapon Safety and Cyberbullying Prevention
8	Astha Patel, BA	University of Michigan Medicine, Injury Prevention Center	Correlates of Violence Among Youth in the Emergency Department Receiving M-Health Interventions.
9	Jessica Roche, MPH	University of Michigan Injury Prevention Center	Implementation of Screening and Delivery of Violence Prevention Approaches for Adolescents in Primary Care: A Pilot Implementation Study

POSTERS

POSTER SESSION 6

Suicide and Resources for Opioid Overdose Prevention

Attendee Link: <https://umich-health.zoom.us/j/92332168656>

Poster #	Presenter(s)	Affiliation	Title
1	Diana Curtis, BA & Sara Pasiak, BS	VA Center for Clinical Management Research, Ann Arbor, Michigan; University of Michigan	PREVAIL: A Peer Mentorship Program to Reduce Suicide Attempts Among High-Risk Adults
2	Juliann Li, MSW	University of Michigan School of Social Work	The Relationships Between Risk-Taking, Depression and Alcohol Use in the Experience of Suicidal Ideation Among Adults in the General Population
3	Lindsay A Bornheimer, PhD & Juliann Li, MSW	University of Michigan, School of Social Work	Trends of Non-fatal Suicide Behaviors Among Adults in the United States from 2009-2017
4	Athena Kheibari, PhD	Wayne State University, School of Social Work	Comparing Attitudes Toward Stigmatized Deaths: Suicide & Opioid Overdose Deaths
5	Keara Sullivan, BA	University of Michigan Injury Prevention Center	Enhancing Opioid Overdose Response Strategies in Genesee County, Michigan
6	Amy Rooker, MPH	University of Michigan Injury Prevention Center	Development of an Evidence-Based Safer Opioid Prescribing Toolkit for Clinical Care

POSTER SESSION 1

Adverse Childhood Experiences and Alcohol and Drug Misuse

1. ACEs Prevention in Adolescents: Maintaining the Efficacy of Longitudinal Community-Based Educational Programs

David J Greco MA, Keara S Kilbane BS, Katarina Alajbegovic BS, Taania Girgla, Annie C Murphey, Cecilia Hollenhorst, Paulina Devlin, Yadonay Engeda, Daniella Ortiz, Alma Torres, Clare Jacobson, Michael Lukela MD
University of Michigan Medical School

Statement of Purpose: We partnered with a Detroit-based youth organization to develop a day-long educational program to prevent Adverse Childhood Experiences (ACEs) by increasing understanding of six student-chosen health topics. **Methods/Approach:** 44 students aged 14-18 years participated over a two-year period (n = 22 (2018); n = 22 (2019)). Prior to educational sessions a pre-test was administered to assess understanding in six areas: safe sex, LGBTQ+ identity, depression, physical fitness, nutrition, and diabetes. Immediately following the educational program, students completed a post-test, covering the same material as the pre-test. Results within each year were analyzed using a paired t-test. Results between years were analyzed with non-parametric tests. Satisfaction was measured using a 10-point scale (10 = highest satisfaction). **Results:** There was no significant difference between mean 2018 and 2019 pre-test scores (54.88%-vs-60.48%, p=0.203), while post-test mean scores were significantly different between cohorts (74.25%-vs-58.75%, p=0.015). Within the 2018 cohort, student knowledge improved between pre- and post-test scores (54.88%-vs-74.25%, +19.37%, p<0.001). The 2019 cohort showed no improvement between pre-test and post-test scores (60.48%-vs-58.75%, -1.73%, p=0.644). In 2018, there was significant improvement across all subjects except sexual health (p=0.111); however, in 2019, no improvement was observed across any area. Mann-Whitney U testing of satisfaction ratings showed no difference between years (8.78/10-vs-8.89/10, p=0.918). **Conclusions:** Despite no difference in pre-program knowledge the 2018 cohort showed significant knowledge attainment comparatively. Given similar participant characteristics and identical content composition, this discordance may be related to differences in content delivery between the 2018 and 2019 teaching teams. **Innovation & Significance to the Field:** Longitudinal educational programming requires consistency to be effective. Our results highlight the potential of student-driven educational programming to prevent ACEs in adolescents.

2. Adolescent and Emerging Adults' Acceptability of a Social Media Intervention to Reduce Risky Alcohol Use

Kathryn A Beathard¹, Erin E Bonar PhD^{1,2}, Diane M Schneeberger LMSW¹, Carrie Bourque MS, LLP¹, Frederic C Blow PhD¹, Sean D Young PhD³, José A Bauermeister PhD, MPH⁴, Amy Bohnert PhD, MHS^{1,2}, Rebecca M Cunningham MD^{2,5}, Maureen A Walton PhD, MPH^{1,2}

¹Department of Psychiatry, University of Michigan, ²University of Michigan Injury Prevention Center, ³Department of Informatics, University of California, ⁴School of Nursing, University of Pennsylvania, ⁵Department of Emergency Medicine, University of Michigan

Statement of Purpose: Preventing injury-related consequences of risky drinking (e.g., overdose, impaired driving) for adolescents and emerging adults (AEAs) can have a significant public health benefit. Interventions using social media (SM) may be effective and well-received. We delivered an 8-week SM alcohol intervention

led by trained e-coaches who facilitated peer interaction. Our goal is to share injury-related baseline characteristics and intervention acceptability data obtained at 3-months post-baseline. **Methods:** We recruited participants with past 3-month risky drinking (N=955; 54.5% female, M age = 20.4 years; 69.6% White, 19.3% Black, 11.1% another race) nationally via Facebook and Instagram (2017-2019). They were randomized to 8-weeks of either: SM Intervention (SMI), SM Intervention + Incentives (SMI+I), or attention-placebo Control (C, receiving neutral content). E-coaches posted Motivational Interviewing (MI) adherent content (e.g., stress, alcohol, other drugs, injury prevention) in closed Facebook groups. Post-intervention, participants rated acceptability. **Results:** At baseline, participants reported drinking and driving (51.6%), driving under the influence of cannabis (26.6%), and physical fights while drinking (49.4%). Overdose history (i.e., more than your body could handle) was also prevalent (63.1%). More participants in the intervention groups (vs. C) reported positive e-coach ratings on: helpfulness (SMI: 78%, SMI+I: 86%, C: 65%), warmth (SMI: 94%, SMI+I: 96%, C: 81%), respect (SMI: 97%, SMI+I: 98%, C: 92%), and understanding (SMI: 77%, SMI+I: 86%, C: 61%). More intervention participants found peer interaction helpful than control participants (SMI: 68%, SMI+I: 80%, C: 46%). Coach helpfulness, understanding, and peer interaction ratings, had significantly greater proportions in the SMI+I group than the SMI group (all $ps < .05$). **Conclusions/Innovation:** Data suggest AEAs were receptive to 8-week interventions delivered in secret SM groups by e-coaches trained in MI. High receptivity ratings demonstrate that SM is a potential avenue for future alcohol and injury prevention interventions. Future analyses will examine intervention efficacy on alcohol and injury-related outcomes.

3. Decrease in Child Abuse Potential Following Infant Mental Health Home Visiting treatment

Jennifer Jester PhD, Katherine Rosenblum PhD, Maria Muzik MD, MS
Department of Psychiatry, University of Michigan School of Medicine

Statement of purpose: Home visiting for high risk families is a potential intervention to decrease child maltreatment. In two evaluation studies, we examined the effect of Infant Mental Health Home Visiting (IMH-HV) treatment on the Brief Child Abuse Potential Inventory, an indicator of the likelihood of parents to abuse their children. **Methods/Approach:** The first study was a year-long community-based observational study of 76 mother-child pairs receiving IMH-HV services. Assessments were made near the beginning of treatment, and 6 and 12 months later. The second study was a randomized controlled trial of IMH-HV. In this study, 78 families were randomized to one year of IMH-HV ($n=38$) or services as usual ($n=35$). For the analysis, we moved two families who were assigned to treatment but received no services to the “no treatment” group. Child abuse potential at the end of the study was predicted in a regression equation by treatment classification while controlling for baseline levels of child abuse potential. **Results:** In the observational study, amount of treatment received by the families across the year was a time-varying predictor of child abuse potential in a linear mixed model. Higher number of IMH visits predicted a decrease in child abuse potential ($b = -.078$, $p = .043$). In the RCT, treatment classification was associated with a decrease in child abuse potential ($b = -2.08$, $p = .038$). **Conclusions:** The convergence of results from these two studies helps to provide evidence that Infant Mental Health Home Visiting is effective in decreasing child abuse potential. In future studies, direct measurement of child maltreatment would provide further evidence of the effectiveness of IMH-HV in decreasing risk to children. **Significance:** This research supports the implementation of Infant Mental Health Home Visiting treatment as a strategy to decrease an important aspect of adverse childhood experience.

4. Text- and Chat-Based Hotlines: A Novel Approach to Provide Child Maltreatment-Related Support

Laura Schwab-Reese MA, PhD¹, Caitlyn Short¹, Larel Jacobs MEd, MS², Michelle Fingerman MS²

¹Department of Public Health, Purdue University, ²National Child Abuse Hotline, Childhelp

Statement of Purpose: The purpose of this study is to describe how people seek child maltreatment-related support from a text- and chat-based crisis hotline. Ultimately, this study will provide the foundation for the Childhelp National Child Abuse Hotline practice model and crisis counselor training. **Methods/Approach:** We conducted a qualitative content analysis of 300 conversations abstracted from text- and chat-hotline. We followed the qualitative content analysis processes to analyze the coded data. **Results:** We identified six groups who seek support, as defined by their relationship to the child: family members, peers/friends, maltreated children (self), distressed children (self), other known adults, and persons unknown to the child. Many people used the hotline as a source of information for referral to CPS. Children often sought resources for coping with maltreatment or supporting a friend who was being maltreated. Overall, the conversations progressed through five stages: introduction/clarification of hotline role, exploring the issue, problem-solving, working towards a resolution, and conclusion. Across these stages, crisis counselors used empathy/active listening to build rapport. **Conclusions:** Text- and chat-based hotlines may be one way to reach young people and others who need child maltreatment-related support. During the six months of operation (02/2019-07/2019), the hotline had 30,646 text- or chat-based exchanges, and the number has grown exponentially since this period. During this time, 90% of chat-based hotline users and 50% of text-based hotline users reported that they would not call a phone hotline, suggesting that this service fills a critical gap in available services. **Innovation & Significance to the Field:** As text- and chat-based hotline services become increasingly popular, it is critical to understand how to provide adequate and appropriate support to individuals seeking child maltreatment-related help.

5. Childhood Exposure to Drugs at Home Predicts Adulthood Difficulty Concentrating, Remembering, or Making Decisions

Nora Alrubaie MPH

Kent State University, School of Public Health

Statement of purpose: To evaluate whether childhood exposure to drugs at home was associated with difficulty concentrating, remembering, or making decisions. **Method:** 2019 Behavioral Risk Factor Surveillance System data of adults aged 18 years and older were used from 15 U.S states that integrated the ten adverse childhood experience questions. The study included participants who answered, “Did you live with anyone who used illegal street drugs or who abused prescription medications?” The outcomes measure was self-reported difficulty concentrating or remembering due to physical, mental, or emotional condition. Weighted logistic model was used to calculate the risk of exposure to drugs on difficulty concentrating, remembering, or making decisions. **Result:** Sample of 106,220, where 9.2% reported living with an adult who abused drugs. Exposure to drugs at home was associated with 42% higher odds of self-reported difficulty concentrating or remembering (Odds Ratio [OR], 1.425; 95% confidence interval: 1.296, 1.566), compared to those who were not exposed to drugs at home during childhood. **Conclusions:** There were significantly higher odds of difficulty concentrating, remembering, or making decisions due to physical, mental, or emotional condition in adults who reported childhood exposure to drugs than participants who reported no drug exposure. **Innovation & significance:** Childhood development is a critical period, providing a healthy and safe social and physical environment for

the child and preventing exposure to adverse childhood experiences could improve adulthood quality of living. The significance of investigating the prevalence of ACEs is purposefully to help in the management of adverse impacts. The field of public health would benefit from this study by having a foundation for establishing evidence-based structures and programs for helping individuals suffering from ACEs.

6. #NoMeansNo: How Young People Share Sexual Violence Experiences Through TikTok

Laura Schwab-Reese MA, PhD¹, Isha Nair², Neha Kapur², Andrea DeMaria PhD, MS¹

¹Department of Public Health, Purdue University, ²School of Health Sciences, Purdue University

Statement of Purpose: This project aims to describe the content of popular sexual violence-related videos on the social media platform TikTok. **Methods/Approach:** Because there are hundreds of millions of TikTok users, we began by identifying an appropriate sampling framework to reduce the scope of the analytic dataset. For ten weeks, we randomly selected two days to abstract the top six videos from three hashtags related to sexual violence (#MeToo; #NoMeansNo; #SexualAssault). Videos were abstracted on each data collection day, and we recorded the characteristics of each video (e.g., caption, music, hashtags, likes, videos). Qualitative content analysis techniques were used to analyze the videos. **Results:** The hashtags were viewed by millions. Top videos in each hashtag were consistent over time. For example, only eight videos appeared in the top six for #MeToo across the ten weeks of data collection. Most of the videos across the hashtags fell into two primary themes: personal experiences or empowering messages. Among the personal experience videos, interpretive dance was commonly used to share their story. Other women used humor, such as rating perpetrators' excuses for the assault. In the empowering messages, people shared crafts (e.g., jeans embroidered with positive phrases), the results of legal proceedings (e.g., abuser went to jail), or their efforts to prevent sexual violence. A few videos included men who shared anti-violence messages for other men. **Conclusions:** Results of our study suggest young people use TikTok to share messages about myriad sexual violence-related topics, which are viewed by millions of global TikTok users. **Innovation & Significance to the Field:** Study findings can be used to generate meaningful and valuable information for teens and young adults, their healthcare providers, and their communities. TikTok may be one way to reach young people with sexual violence prevention and recovery messages.

7. The Association of Adverse Childhood Experiences, Physical Activity and Depression in a National Sample of US Adolescents

Fanghong Dong PhD, MA

School of Nursing, University of Pennsylvania

Statement of Purpose: Adverse childhood experiences (ACEs) have been consistently linked to long-term effects on individual's depression. Physical activity may help nurture an adolescent's resilience and mitigate the consequences of ACEs. However, the association between the ACEs exposure, physical activity and depression remains unclear in adolescents. This study is to examine this association and also test whether the associations are robust by controlling different levels of covariates. **Methods:** Secondary analyses were conducted on 29,617 adolescents aged 12-17 years from the 2016-2017, National Survey of Children's Health (NSCH). Survey questions on depression, ACEs and physical activity were used. Covariates include individual-level, social-level and societal-level factors. **Results:** More than one third of the adolescents experienced at least one type of ACEs in their lifetime, and the prevalence of ACEs in the depressed group (62%) is almost twice than the non-depressed group (34.3%). The odds of having a depression diagnosis were 1.6 times

(adjusted OR: 1.6, CI: 1.37-1.86) greater for adolescents with one type of ACEs, and 3.4 times greater (adjusted OR: 3.39, CI: 2.78-4.13) for adolescent with three or more ACEs, compared to adolescents without ACEs. Physical activity for 1-3 days per week remained a significant, substantial protector of childhood depression among adolescents with at least one type of ACEs (adjusted OR: 0.73, CI: 0.62-0.87). **Conclusions:** These results suggest a clinical concern for adolescents with more ACEs. Trauma-informed care to address cumulative trauma screening and physical activity interventions to reduce the negative impact of ACEs on depression symptoms. **Innovation & Significance to the field:** The findings highlight the importance of screening cumulative ACEs on adolescents. Health care providers in both primary care and school settings should help identify adolescents at risk, and provide resilience skill building, such as physical activities.

8. Efficacy of a Future-Oriented Empowerment Intervention to Prevent Alcohol and Drug Use in School-Disengaged Youth: Three- and Six-Month Follow-Up

Sarah Stoddard PhD, RN, CNP, FSAHM, FAAN¹, Kathryn Hughesdon PhD, RN²

¹University of Michigan School of Nursing, ²Eastern Michigan University School of Nursing

Background: Youth who are school-disengaged (e.g., chronically absent) during early adolescence are at increased risk for continued school disengagement, leaving secondary school prior to graduation (i.e., dropout), and engaging in risky behaviors such as alcohol and drug use. Future orientation and empowerment are key characteristics to target for the prevention of substance misuse and other risky behaviors. Youth Empowerment Solutions for Positive Futures (YES-PF) is a 5-week, future-oriented, empowerment-based summer enrichment program designed to improve school engagement and prevent substance use in school-disengaged youth. **Purpose:** To test the efficacy of YES-PF on school engagement, prosocial behaviors, and substance use attitudes at 3- and 6-months post-intervention. **Methods:** Youth in two school districts were recruited in spring of grade 7 based on the presence of early warning signs for school disengagement (e.g., chronic absenteeism). Youth attended YES-PF 4 hours per day, 4 days per week for 5 weeks in their school building. Baseline and post-intervention surveys were completed at school. Surveys included previously validated measures of psychological empowerment (e.g., self-esteem), future orientation (e.g., perceived control), school outcomes (e.g., school engagement), responsible decision-making, prosocial behaviors, and drug use attitudes. Data analysis included paired t-tests to assess pre/post-intervention differences and Cohen's d to assess effect size. **Results:** Six-months post-intervention, youth (n=50) who participated in YES-PF reported increased leadership efficacy (p=.01; d=.37), more positive future expectations (p=n.s.; d=.21), more positive attitudes about school (p=.03; d=.28), increased emotional engagement in school (p=.04; d=.35), and more prosocial behaviors (p=.02; d=.37) 6-months after completing YES-PF. **Conclusions:** The summer school setting provides a unique opportunity to deliver prevention programs for youth at increased risk for substance use, namely school-disengaged youth. Preliminary findings support the effectiveness of YES-PF to enhance school engagement and prosocial skills - characteristics associated with reduced risk for substance use and positive school outcomes.

POSTER SESSION 2

Older Adult Falls, Motor Vehicle Crashes, and Trauma-Informed Care

1. The Effect of Health Literacy on Fall Prevention for the Elderlies

Dae Hyun Kim PhD

Department of Health Care Administration, College of Business, Idaho State University

Statement of Purpose: While many healthcare organizations have implemented number of interventions to prevent this problem, a possible solution that is yet to be explored more thoroughly is improving American adults' health literacy levels. The purpose of this study is to identify the effect of health literacy on preventing possible falls for older adults in the United States. **Methods/Approach:** Literature review with three databases, which are PubMed, ABI/Inform, and Google Scholar, has been conducted. All peer-reviewed, empirical studies relating to the effect of health literacy on fall preventions for the elderlies were reviewed. **Results:** Out of the three studies that have directly examined the effect of health literacy, one study observed health literacy intervention tool and its' effect on educating elderly patients. Second study measured health literacy levels of older patients who entered the emergency department after the fall to see if the association between patients' health literacy levels and fall injuries existed. The last study examined the likelihood of elderly patients being readmitted to hospitals based on their health literacy levels. **Conclusions:** While the number of studies that directly observe the effect of health literacy on fall prevention for the elderlies is limited, these studies do show that elderly patients' low health literacy levels were associated with higher incidents of all injuries occurring either during their hospital stays or after discharge. **Innovation & Significance to the Field:** Despite the fact that health literacy is gaining more attention from healthcare organizations and researchers for its' effect on quality improvement, it seems clear that health literacy is not being extensively examined in the context of fall and injury preventions for the elderlies. By targeting patients' health literacy as a solution, the rate of fall injuries can be decreased and can ultimately result in better healthcare quality outcomes.

2. Hospitalization and Fall Injuries Among Older Adults: An Examination of Fall Risk in the Pre and Post-Hospital Periods

Geoffrey Hoffman PhD¹, Mary Tinetti MD², Jinkyung Ha PhD³, Neil Alexander MD, MS³, Lillian Min MD, MSHS³

¹University of Michigan School of Nursing, ²Yale School of Medicine, ³University of Michigan School of Medicine

Statement of Purpose: Episode-based reimbursement models are increasingly used to incentivize high-value care across care settings but have not been applied to fall injuries which are typically addressed separately within discrete care settings – hospitals, nursing facilities, and the community. Little is known about longitudinal changes in fall injury risk across an entire care episode including treatment across such settings. We estimated the risk of older adult fall injury during year-long care episodes anchored by an acute hospitalization. **Methods:** Using 2006-2014 data for older (≥ 65 years) Medicare fee-for-service patients, we assessed weekly fall injury rates during four periods relative to an anchor hospitalization: at baseline (-6 to -1 months before hospitalization), just before (< -1 month before hospitalization), just after (< 1 month after hospitalization), and at follow-up (1 to 6 months after hospitalization). Piecewise logistic regression models were used to estimate the weekly marginal risk of fall injury (how much fall injury risk increased weekly) within each of the four time periods, adjusting for beneficiary sociodemographics and health characteristics.

Results: We identified 10,106 observations from 4,101 beneficiaries. The overall fall injury rate was 0.77%. In adjusted models, the weekly marginal risk for a fall injury increased slightly at baseline (0.02 percentage points, $p=0.001$) and rapidly just before hospitalization (0.27 percentage points, or 33%, $p<0.001$), decreased just after hospitalization (-0.18 percentage points, $p<0.001$), then leveled off at follow-up (0.00 percentage points, $p=0.78$). Pre-hospital weekly risk increases (1.89 percentage points, or 310%, $p<0.001$) and post-hospital decreases (-0.39 percentage points, $p=0.03$) were larger for patients with a fall injury at the anchor hospitalization. **Conclusion:** Fall injury risk around an anchor hospitalization is highly variable, with sizeable increases just before hospitalization that do not fully subside after hospital discharge. **Significance:** An episode-based approach to fall injury that incentivizes coordinated and integrated care and prevention across settings is warranted.

3. Reconstruction of Real World Losses Trips and Recovery Responses in Older Adults at Risk for Falls

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Statement of Purpose: Trips, slips, and other losses of balance (LOBs) are major risk factors for falls in older adults and can lead to injuries. Falls are associated with walking (54%) such as slips and trips, but a sizeable percentage (over 43%) are associated with non-walking activities such as changing position or reaching. Data about real-world LOBs is limited, particularly information quantifying the prevalence, frequency, and contributing intrinsic and extrinsic factors. **Methods/Approach:** Using wearable inertial measurement units worn on the on feet, trunk and wrist, we developed and tested a method to identify and analyze LOBs through real world recording of body movements in at-fall risk older adults. We used a voice recorder for immediate, time-stamped self-reporting of the type, context and description of LOBs. Using our inertial sensor processing algorithms, we were able to generate kinematic information representing the body motion during the event. **Results:** Over a two-week period, these sensor data recorded over 200 potential LOB events during waking hours in 11 older adults (5 M, 6 F, mean age 76) at risk for falls and fall injury. Events reported as a trip by the participant and identified as a trip by a researcher, blinded to voice recordings description, were included in an initial analysis. A total of 18 trips obtained from 5 participants were analyzed, 2 trips occurred at home, 3 outside and for 3 the location was not reported; one trip lead to a fall. **Conclusions:** Our approach demonstrated the feasibility of identifying trip-related LOBs during real-world activities. **Innovation/Significance to the field:** These methods describe a new methodology that may provide insight into LOB response and recovery in at-fall risk older adults, and in the future can lead to customize an intervention program to reduce fall risk in older adults.

4. Walkability and Social Ties in Fall Prevention: Lessons Learned in the Recruitment and Retention of Older Adults in Flint

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Statement of purpose: Recruiting older adults into research has become an increasingly difficult task. Previous research has shown that utilizing multiple modes of recruitment increases potential participants' likelihood to engage in research studies. The purpose of our research is to describe our experiences in recruiting older adults in Flint. The current study followed up with participants from a previous study and invited them to come to the University of Michigan-Flint campus to complete study activities on two separate days. **Methods:** Recruitment started in June 2019. In 12 weeks, we approached previous study participants up to 6 times. Multiple strategies were used for study recruitment. First, potential participants received a flyer, and two follow-up postcards. Then attempts were made to contact participants by phone up to 3 times. When approached, the benefits and importance of this study were provided. Additionally, a reminder confirmation phone call was made one day before the appointment date. Participants received up to \$60 total for completing both sessions. **Results:** One flyer and two postcards were sent to 140 past study participants. Twenty-one expressed interest in participating and 36 were returned as unknown addresses. Of 21, 5 did not meet the eligibility criteria and six did not show up on the scheduled appointment day. As a result, ten participants were recruited into the study with an overall response rate of 9.6% out of 104 with known addresses. **Conclusions:** The use of flyers/postcards as the initial approach was adequate. However, it did not result in increased participation. Further, the phone call alone sometimes could not obtain participants' trust, and flyers/postcards were more effective at getting participants' attention. The recruitment and retention of the repeated measures study are challenging in Flint, MI. **Innovation and Significance:** This knowledge will have great appeal to those working to advance in gerontological research.

5. Free-Text Surveys as a Tool to Understand Patient Recovery from Trauma

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Statement of Purpose: Adverse posttraumatic neuropsychiatric sequelae (APNS), including posttraumatic stress (PTS), depression, post-concussion syndrome (PCS), and regional or widespread pain, causes great suffering in trauma survivors. Trauma survivors experience complex patterns of overlapping/co-occurring symptoms, and little is known about recovery processes. While standardized instruments may assess

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outcomes (e.g., PTS, PCS), free-text responses provide additional insight. The analysis categorizes free-text comments to identify themes at 2 weeks, 8 weeks, and 3 months. **Methods:** This a secondary qualitative analysis of the AURORA (Advancing Understanding of RecOvery afterR trauma) study, a large cohort (n=1616) of trauma survivors recruited from > 27 emergency departments (EDs) in early aftermath of trauma. AURORA assesses neurocognitive, physiologic, digital phenotype, psychophysical, neuroimaging, and genomic domains in individuals after trauma exposure discharged from EDs. Participants completed standardized assessments and provided free-text responses about their experience at 2 weeks, 8 weeks, and 3 months. **Results:** A subset (n=48) of patients provided at least one free-text comment at each of 3 time points. Most were female 67% (32) and non-white 60% (25) with a mean age of 39.1 years. At 2 weeks, 15% reported other previous or concurrent trauma. At 8 weeks, 98% provided a response for what was “most important to understand about their experience.” Common themes include resources (15%), emotion (15%), pain (13%), and the positive impact of AURORA (17%). At 3 months, 96% responded with similar trends in resources (17%), emotion (21%), pain (19%), and the positive impact of AURORA (17%). Within the theme of emotions, at 3 months, specific emotions included anxiety (6%), stress (4%), and hyperalert (8%). **Conclusions:** Trauma is a recurrent event for a significant number of patients and response suggest themes in recovery persist for months. **Innovation & Significance:** Free-text responses provide a better understanding to recovery after trauma in patients own words.

6. Understanding Student Experiences with Inappropriate, Disrespectful, and Coercive Healthcare and Physical Exams

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Purpose: There have been increasing accusations of misconduct by healthcare providers at universities across the country. College-aged students are particularly vulnerable, as they are frequently navigating healthcare independently for the first time. A valid survey tool is necessary to investigate the frequency of inappropriate, disrespectful, and coercive (IDC) healthcare exams for this population. **Methods:** This study analyzed data from the University of Michigan, University Health Service’s patient complaint and satisfaction surveys from 2011-2018 for common themes of IDC healthcare. Additionally, 9 focus group discussions (FGDs) and 3 individual interviews were conducted from November 2019-May 2020 with a total of 38 students to explore how IDC experiences are described and perceived. This data informed the creation of a survey tool assessing for IDC healthcare experiences, which was validated through 18 cognitive interviews in August 2020. **Results:** The patient complaint data did not elicit any concerns about egregious sexual or physical abuse. However, students frequently reported concerns with communication (n=288); diversity, equity, and inclusion (DEI; n=79); and system issues. The satisfaction data was used to identify key words for IDC survey tool development. Common themes of IDC experiences that emerged during FGDs included: communication, lack of cultural awareness, institutional practices, power imbalances, and lack of patient empowerment. Themes from cognitive interviews for survey validation included: clarifying intent, adding inclusive examples, reducing redundancy, clarifying instructions, and modifying answer options. **Conclusions:** Students are having IDC experiences that appear to be related to communication and DEI concerns and rarely include physical or sexual abuse. **Innovation and Significance:** The development of this survey tool will allow for further research to understand the extent of IDC healthcare experiences among college-aged students. The next step in this research project is to pilot the survey tool with students at one large public university.

7. Motor Vehicle Collisions Among Patients with Seizure Disorders – A Call to Improve Awareness Among At-Risk Patients

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Statement of Purpose: Motor vehicle collisions (MVCs) are one of the leading causes of morbidity and mortality in Saudi Arabia. We aim to describe the prevalence of MVCs related to epilepsy and prevalence of counseling on driving from neurologists. **Methods:** This was a cross-sectional study of 550 patients attending epilepsy and epilepsy surgery outpatient clinics. Two-hundred-fifty-eight male patients were interviewed by structured questionnaire. Driving status was examined in relation to seizure characteristics, counseling history, and perceived risk of driving. **Results:** In the last six months, 14% of patients who drove reported that they had experienced a seizure while driving. Ten-percent experienced a seizure that resulted in an MVC. Seventy-percent of collisions resulted in injury while 2.4% resulted in fatality. Fifty-eight-percent of 103 patients who were unfit to drive (those with a history of generalized seizure in the last 6 months) reported that they drove, while 76% of 173 patients considered fit to drive were driving. Reasons for ceasing to drive included physicians' advice (60%), patients' own fears (48%), and advice from non-medical persons (30%). All unfit patients who did not drive perceived themselves to be at risk of driving. Seventy-six-percent of patients who were unfit to drive reported that they previously received counseling from their neurologist regarding safety to drive. Among patients who were counselled within the last 6 months of the survey, all unfit patients had been advised not to drive however this did not prevent them from driving. **Conclusion:** Although patients with epilepsy were counselled by their physicians on driving safety, they were found not to comply with advice. Perception of risk may play a greater role in the prevention of driving among at-risk individuals. **Innovation & Significance:** Current counselling methods targeting the risk behaviors need to be re-evaluated to improve road safety.

POSTER SESSION 3

Concussions and Traumatic Brain Injuries

1. Head Injury Assessment with Computational Human Models Considering Human Diversity

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Statement of Purpose: This study aims to develop parametric head finite element (FE) models accounting for geometric variations in the population, and to conduct population-based simulations to evaluate the influence of head morphological variation on brain impact responses. **Methods/Approach:** We used medical image analysis and statistical methods to quantify the geometric variance of the skull and brain among 101 subjects between 14 and 25 year-old; and used mesh morphing methods to rapidly morph a baseline head FE model to a large number of head models with a wide range of head size and shape. By leveraging existing head impact kinematics data from crash test dummy with helmet, we conducted a set of parametric impact simulations to evaluate the effects of head size and shape on brain tissue responses under three impact directions. **Results:** The maximal principal strain in the brain varied significantly among the FE head models generated in this study. Strain responses show positive relationship with brain volume, indicating the influence of morphological variations on concussion. Regression models show the potential to predict the concussion risk based on the individual's morphological features. Different maximum strain concentrated areas provide useful information to explore brain injury mechanisms considering brain morphology and impact directions. **Conclusions:** We developed parametric head FE models to represent a wide range of head sizes and shapes. Impact simulation results demonstrated that brain geometric variations can affect brain tissue responses substantially. **Innovation & Significance:** The parametric models developed in this study will for the first time overcome the limitations in existing head models that do not adequately consider human variability in injury prediction. This is a critical step toward accurate head injury assessment that can help decision-making for sports-related concussions, head injury assessment from many other causes, and protective equipment designs for mitigating head injuries.

2. Sex Differences in Sport-Related Concussion Mechanisms: Findings from the Ivy League-Big Ten Epidemiology of Concussion Study

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Statement of Purpose: To describe mechanism of injury (MOI) for sport-related concussion (SRC) and sex differences within four contact sports. **Methods/Approach:** A prospective cohort study using a surveillance system accruing SRC cases in collegiate sports from 2013-14/2019-20. A total of 697 collegiate student-athletes sustained a SRC participating in basketball (n=148; 47.3% male), lacrosse (n=212; 58.5% male), soccer (n=267; 44.2% male), and water polo (n=70; 57.1% male). **Results:** The most common basketball MOI was contact from another person (n=107, 72.3%), accounting for 82.9% in men versus 62.8% in women; also more women (16.7%) than men (4.3%) had contact with surface ($\chi^2(3)=9.87$, $p=.02$). The most common lacrosse

MOIs were contact from a ball (n=57, 26.9%) or person (n=54, 25.5%). More men sustained SRC from a person (33.9%) or person during a ground ball (10.5%) compared to 13.6% and 5.7% of women, respectively; and more women had contact with a stick (18.2%) or ball (37.5%) compared to 8.9% and 19.4% of men, respectively ($\chi^2(5)=20.16$, $p \leq .001$). The most common soccer MOI was contact from a person (n=122, 45.7%) or ball (n=86, 32.2%), which was more common in men (56.8%) compared to women (36.9%); also more women had contact with a ball (38.3%) compared to men (24.6%; $\chi^2(4)=12.29$, $p=.02$). SRCs in water polo occurred from contact with a person (n=39, 56.5%) or ball (n=20, 29.0%), with no significant sex differences ($\chi^2(3)=0.29$, $p=.96$).

Conclusions: Differences in MOI exist within men's and women's sports, regardless of similarities and differences in rules and protective equipment. SRC preventative strategies should include gender and style of play. **Innovation & Significance to the field:** MOI is a potentially modifiable risk factor of SRC that varies between and within sport. Identifying leading MOI can help to reevaluate or modify rules aimed at preventing injury and making sports safer.

3. Symptom Profiles, Severity, and Recovery Among Football Athletes in the Ivy League-Big Ten Epidemiology of Concussion Study

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Statement of Purpose: Sport-related concussion (SRC) management recommends stepwise progression through return-to-learn (RTL) and return-to-play (RTP) protocols. Athletes experience various symptoms following SRC and differences in symptom presentation may influence recovery. We explore this within a sample of football athletes with SRC, collected from 2013-2019. **Methods/Approach:** Athletic trainers within two conferences enroll athletes with concussion across 28 sports (N=3,137) and collect demographic and clinical information, including 22 symptoms recorded with the SCAT3 and dates of progression through RTL and RTP protocols. We use exploratory factor analysis to identify symptom domains and Kaplan-Meier curves to determine time to outcomes by profile type and severity. We define recovery profiles as the sequence through RTL and RTP, and with Chi-square and Kruskal-Wallis examine how recovery differs by symptom profile type. **Results:** Among 520 football athletes with SRC (med symptom count=11) the most common symptoms were headache (94%), pressure in the head (78%). The 22 symptoms had excellent internal consistency ($\alpha=0.88$) and loaded on 5 domains: 1) emotional, 2) foggy/groggy, 3) vestibular+remember, 4) headache+light/noise sensitivity, 5) pressure/neckpain. Difficulty falling asleep and fatigue loaded on no domains. 32 distinct symptom profiles emerged, indicating the way athletes experienced concussion varied considerably. Endorsing High/Low on each symptom domain was associated with 3-5 day delay in symptom resolution ($p < .001$). Time to symptom resolution varied with severity in a dose response fashion ($p < .001$); median 4 days for least severe to 18 days for most severe. Four recovery profiles accounted for how 85% returned to play. **Conclusions:** Among these athletes, symptom type and severity varied greatly. More symptoms corresponded to slower recovery, with a 14-day delay in symptom resolution among those who endorsed the most symptoms. **Significance to the field:** SRC management and progression through the RTL and RTP protocols could be tailored to a given athlete's symptom type.

4. Variations in Head Impact Rates in Male and Female High School Soccer

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Statement of Purpose: Repetitive head impacts in soccer have been linked to short-term neurophysiological deficits, and female soccer players have higher concussion rates than males. To understand gender and sport differences in head impact exposure, various periods of exposure have been used to calculate head impact rates including head impacts per season, game, and player-hour. The aim of this study was to apply different methodological approaches to quantify and compare head impact rates by gender for two seasons of high school varsity soccer. **Methods:** Video review was used to confirm all events recorded by a headband-mounted impact sensor and calculate playing time for all players. Impact rates were calculated per athlete exposure (presence and participation) and per player-hour (scheduled game time, individual play time, and absolute time). **Results:** Impact rates per athlete exposure ranged from 2.5-3.2 for males and 1.4-1.6 for females, and impact rates per player-hour ranged from 2.7-3.8 for males and 1.0-1.6 for females. The exposure calculation method significantly affected head impact rates; however, regardless of approach, the head impact rate for males was higher, by up to three-fold, than for females. Individual head impact exposure varied substantially within a team with one in five players experiencing no impacts. **Conclusions:** The gender differences found in this study indicate that males experience higher head impact exposure compared to females, and future research is needed to reconcile higher female concussion rates with the reduced head impact rates. **Innovation and Significance to the Field:** These findings will add to the sparse literature investigating gender differences and inspire research on how individual head impact rate contributes to the cumulative effect of head impact exposure on neurological outcomes. Further, this study uniquely analyzed head impact rates per real time exposure to provide a quantitative reference for designing controlled repetitive soccer heading studies.

5. Measuring Recovery with Ecologic Momentary Assessment in a Randomized Trial of Exercise After Sport-Related Concussion

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Statement of Purpose: We investigated the reliability of concussion symptoms captured through ecological momentary assessment (EMA) and compared time to recovery based on three definitions of symptomatic recovery, as well as date of clinical clearance to begin the return to play (RTP) process. **Methods/Approach:**

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We used our ReCoUPS EMA protocol and mobile app to monitor concussion symptoms as part of a multicenter randomized controlled trial. Patients between 13-18 years old recruited from sports medicine clinics were prompted daily to complete the Post-Concussion Symptom Inventory (PCSI) daily over 4-weeks. We compared time (days) to reach the four outcomes using scatterplots and Kaplan-Meier curves. **Results:** Among 118 participants, symptoms reported into the app had excellent agreement with symptoms reported at a clinical visit on the same day (intraclass correlation coefficient=0.97). Most (>50%) participants reached “Specific Symptom Return to Pre-Injury Levels,” “Overall Symptom Return to Pre-Injury Levels,” and “Current Symptom Resolution” based on EMA symptom reports between several days and one week before achieving “Clinical Clearance to RTP” determined at a clinical visit, which had 100% sensitivity, but between 56.3% and 78.1% specificity, relative to the app-measured symptom outcomes. **Conclusions:** Time to symptom recovery varies based on the chosen definition of symptomatic recovery, but is a more precise correlate with clinical clearance to begin the RTP process when defining symptom recovery as a return to a pre-injury baseline level of symptomatology. Realtime symptom monitoring may be beneficial clinically, allowing providers to assess patients’ recovery status and make more timely and remote treatment recommendations. **Innovation & Significance to the field:** Recording symptoms on a daily basis is useful for researchers and clinicians, but questions remain regarding how to best define recovery. No one, to our knowledge, has assessed whether a definition of symptom recovery that accounts for pre-injury symptoms is more meaningful

6. Visio-Vestibular Function of Pediatric Patients Presenting with the First Concussion vs. a Recurrent Concussion

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Statement of Purpose: The purpose of this study was to investigate visio-vestibular examination (VVE) outcomes in high school-aged patients presenting with their first concussion vs. recurrent concussion.

Methods: This study was performed by querying data collected prospectively in the electronic health record for patients aged 14-18 years old presenting for their initial injury visit to specialty concussion care centers within 28 days of injury between January 2018 and August 2020. Demographic information including lifetime concussions were self-reported prior to the start of the exam. The VVE consisted of 9 maneuvers: smooth pursuit, horizontal/vertical saccades and gaze stability, binocular convergence, left/right monocular accommodation, and complex tandem gait. Primary outcomes included self-reported lifetime concussions (1 vs. 2+), VVE subtests (normal/abnormal for each), and total VVE score (abnormal= 2+ abnormal subtests). A multivariable logistic regression was employed to determine if recurrent concussion was associated with abnormal VVE outcomes while controlling for age. **Results:** One thousand fifty-two patients were included in analysis (age=15.6±1.2 years). Five hundred and nineteen (49.3%) presented with a recurrent concussion (median lifetime concussions=3, IQR=2,3). When controlling for age, there were no significant associations between first vs. recurrent concussion and VVE outcome on any of the 9 subtests or total VVE score (P>0.05).

Conclusion: First vs. recurrent concussion is not associated with abnormal VVE outcomes in high school-aged patients. Our findings suggest that patients with a concussion history present with similar visio-vestibular function to those with no concussion history at initial visit following injury. **Innovation & Significance to the Field:** Recurrent concussions have been associated with cumulative clinical deficits and longer recovery in collegiate athletes. This study provides novel insight into the initial presentation of pediatric concussion patients with and without a previous concussion history. Additionally, our study adds formative data regarding cumulative clinical effects of concussion in younger athletes.

7. Cognitive Dysfunction in Concussed Adolescents during Driving Tasks

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Statement of Purpose: Common sequelae of concussions include cognitive deficits that may limit performance of driving-related tasks, particularly in the high-risk adolescent driver population. Functional near infrared spectroscopy (fNIRS) is a non-invasive brain imaging technology that can quantify cognitive workload and deficits. The goal of this study was to understand how concussed adolescents manage the cognitive demands of driving tasks. **Approach:** Seven concussed and five healthy adolescents completed an experimental drive in a high-fidelity driving simulator, obtained from a validated simulated driving assessment. One simple and one complex driving task were added. The complex task was to text a scripted message on a cell phone while making a left turn. The simple task involved driving straight for 15 seconds. Generalized linear mixed-effects models were used to examine the effects of task type (simple versus complex) and group (concussed versus healthy) on cognitive workload. **Results:** Both groups drove significantly slower and with a greater standard deviation of lane position during the complex driving task, but differences between groups were not significant. There was significant interaction of task type and group ($F_{1,82}=7.15$, $p<0.001$) on cognitive workload as measured by fNIRS. The workload of the concussed group during the complex task was significantly higher than that of the healthy group. **Conclusion:** These results support the feasibility of driving simulator testing to assess cognitive workload management of concussed adolescents. These results could indicate poor management of cognitively complex tasks and this pattern may lead to an increased rate of mental fatigue in some concussed drivers, potentially impacting driving performance. **Significance:** There are currently no objective methods for determining the effect of cognitive deficits from a concussion on driving tasks. The combination of a validated, simulated driving assessment with fNIRS provides an objective framework for determining efficient management of complex driving tasks in adolescents post-concussion safely.

8. Cognitive Effects of Repetitive Head Impact in Mexican Collegiate Contact Sport Athletes.

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Statement of Purpose: Contact sport practice has been risen worldwide. According previous studies, head impacts constant while playing contact sports may lead to a variety of worrisome outcomes, even, an increased the susceptibility to concussion, chronic traumatic encephalopathy risk, changes in the brain with just a season in a sport contact, even when the player is not outward signs of a concussion, including neurocognitive deficits and brain matter changes at magnetic resonance imaging. To determine the effects of contact sport practice on cognitive performance in collegiate sport athletes. **Methods:** Participants were 30 collegiate

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soccer players and 30 noncontacts collegiate sport athletes, who practiced along 6 months uninterrupted. All athletes were assessed using the CogState Battery, which consists of six cognitive tasks that measure control motor visual, associated peer learning, psychomotor function, attention, working memory and executive function. **Results:** There no found significant differences between contact sport group compared to noncontact sport group, according to the sex, age, and years of education. The contact sport athletes performed more poorly at three cognitive domains than noncontact sport athletes: Associated peer learning (contact group: 1.39 ± 0.22 vs noncontact group 1.78 ± 0.18 ; $p=0.001$), Working memory (contact group: 1.47 ± 0.30 vs noncontact group 1.60 ± 0.24 ; $p=0.003$) and attention (contact group: 1.14 ± 0.21 vs noncontact group 1.74 ± 0.36 ; $p=0.001$). There not found significant differences in the others cognitive domains. **Conclusions:** Therefore, repetitive head impacts may negatively impact associated peer learning, working memory and attention functions in collegiate athletes; even when there are no outward signs of injury. **Innovation & Significance to the field:** Evidence has shown these impacts without a concussion or without TBI record has relationship with long-term health problems, including a persistent decline in cognitive functioning, emotional deficits, and the potential to develop long-term neurological disorders.

POSTER SESSION 4

Opioid Overdose

1. Willingness to Use Syringe Service Programs and Safe Consumption Sites in a Small Midwest Community

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Background: As accidental overdose deaths and related harms persist, innovative approaches are needed to reduce the adverse consequences of opioid misuse. Syringe service programs (SSPs) and safe consumption sites (SCSs) are evidence-based strategies to reduce harm associated with opioid and injection drug use. However, access to SSP and SCS is limited in rural and small urban areas. This study assesses willingness to use SSPs and SCSs among people with opioid use disorders and history of injection drug use in a small Midwest community and identifies factors associated with likely use of each program. **Methods:** Patients at an opioid treatment program completed web-based surveys. Analyses were limited to those reporting histories of injection drug use (n = 145, 61.6%). Logistic regression was used to identify factors associated with willingness to use each program. **Results:** Overall, 86.9% indicated they would have likely used a SSP, and 81.4% indicated likely use of a SCS. Willingness to use the programs did not vary by gender, age, or race/ethnicity. Likely SSP users reported more lifetime consequences of opioid use. Those without a high school diploma/GED were more likely to report willingness to use SCS. Likely SCS users also demonstrated greater levels of self-stigma. **Conclusion:** Adults with opioid use disorders in this small urban community and its surrounding rural areas perceive SSPs and SCSs to be useful harm reduction strategies. Results indicate increased interest among those with high-risk drug use behaviors who may not be reached by traditional service models. **Innovation & Significance to the Field:** Expansion of SSPs and SCSs should be further explored as viable practices to prevent overdose fatalities and the spread of infectious disease in small urban and rural communities.

2. Naloxone Availability and Accessibility of Select Michigan Pharmacies that Participate in the Statewide Naloxone Standing Order

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Statement of Purpose: Over 2,000 Michigan residents died from an opioid overdose in 2018. Naloxone, an opioid antagonist, can reverse opioid-related overdoses and can be available in pharmacies through a Statewide Naloxone Standing Order (SO). We aim to assess the availability and accessibility of naloxone through pharmacies that participate in the SO for counties among the Michigan Emergency Department Improvement Collaborative (MEDIC) in Michigan. **Methods:** Pharmacies (N=689) within select counties (Genesee, Grand Traverse, Ingham, Kalamazoo, Kent, Saginaw, Washtenaw, and Wayne) were abstracted from the MDHHS Naloxone SO Pharmacy list. From June to December of 2019, telephone interviews were

conducted using a script that contained a list of 12 questions regarding existing naloxone dispensing procedures, out-of-pocket cost, and education practices for staff and customers. **Results:** Among the 622 total respondents, 90.6% (n=568) reported participation in the SO. Of the identified SO pharmacies (n=515), 195 (37.9%) had never had a customer pick up naloxone through the SO, and 44 (8.5%) were uncertain. 491 (87%) pharmacies had naloxone in-stock. Of the 74 pharmacies that did not have naloxone stocked, 33 (%) reported that naloxone could be obtained within one day of ordering. Naloxone was available as generic intramuscular naloxone, Narcan nasal spray, and Evzio auto-injector with out-of-pocket costs between \$35.11 and \$5,000. 93.2% (n=525) provided patient education about naloxone and overdose prevention. 92.3% (n=514) had education materials on overdose prevention. **Conclusions:** Despite the apparent availability and accessibility of naloxone, the results suggest barriers to utilization of the SO. Pharmacy staff knowledge of SO dispensing procedures, variability of out-of-pocket costs, or lack of awareness of SO could contribute to barriers to SO utilization. **Innovation/Significance to the field:** Ensuring access to naloxone is critical for preventing overdoses. Although naloxone is available and accessible through the SO, barriers to utilization exist and must be explored.

3. Associations with Opioid-Related Mortality: Buprenorphine Treatment Uptake and Critical Encounters Following a Non-Fatal Overdose

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Background: Individuals with prior opioid-related overdose events have an increased risk for opioid-related mortality. Buprenorphine is a partial agonist that has shown to be an effective medication for opioid use disorder (MOUD). Yet, few studies have investigated whether buprenorphine reduces the risk of opioid-related mortality following a nonfatal opioid-related overdose. **Methods:** A retrospective study was conducted on all overdose cases in Indiana between January 1, 2017 and December 31, 2017. Data were linked from multiple administrative sources. Cases were linked to vital records to assess mortality. Bivariate analyses were conducted to assess group differences between survivors and decedents. A series of multiple logistic regression models were used to determine main and interaction effects of opioid-related mortality. **Results:** Among the 10,195 nonfatal overdoses, 2.4% (247) resulted in a subsequent fatal overdose. Overdose decedents were on average 36.4 years-old, 66.8% male, 91.1% White, and 83.8% did not receive a buprenorphine dispensation. Incremental increases in the number of buprenorphine dispensations decreased the likelihood of fatal overdose by 94% (95% CI = 0.88-0.98, $p = .001$). Incremental increases in arrest encounters were found to significantly increase the likelihood of a fatal overdose (AOR =2.16; 95% CI = 1.13-3.55). Arrest encounters were a significant moderator of the relationship between buprenorphine uptake effectiveness and drug-related mortality. **Conclusions:** Analysis of linked data provided details of risk and protective factors of fatal overdose. Buprenorphine reduced the risk of death; however, criminal justice involvement remains an area of attention for diversion and overdose death prevention interventions. **Innovation & Significance:** Linking data sources had utility in identifying risk and protective factors of fatal overdose.

4. Evaluation of Opioid Overdose Prevention Education for Medical Students

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Statement of Purpose: 128 Americans die daily from opioid overdose. Future physicians must know how to respond to overdose and use naloxone. This project evaluates the efficacy of an in-person opioid overdose prevention training for medical students. **Methods/Approach:** We trained 156 third- and fourth-year medical students. Students were surveyed prior to, immediately following, and three months following the training. Questions assessed demographics, prior experience with naloxone and overdose, and knowledge. Students also self-reported on a Likert 5-point scale their feelings of preparedness and their confidence in teaching others. Descriptive statistics and paired samples t-tests were used to analyze the changes over time. **Results:** 119 students (M[SD] age=27.0[2.7], 50% female) completed the pre-training survey. Of those, 81 (68%) also responded immediately post-training and 17 (14%) three months post-training. Compared to the pre-training survey (M correct=4.8 of 7 questions), there were statistically significant increases in naloxone knowledge both immediately post-training (M=6.5, $p<0.001$) and three months later (M=5.7, $p<0.001$). Following the session, students also felt more prepared to respond to an overdose (M=3.1 to M=4.3), talk to patients (M=3.2 to M=4.3), co-prescribe (M=2.6 to M=3.8), and train others (M=2.2 to M=4.2), and they felt more confident in teaching others about overdose risk factors (M=2.2 to M=4.2), recognizing signs of overdose (M=3.7 to M=4.4), and administering (M=2.7 to M=4.3) and co-prescribing naloxone (M=2.5 to M=3.7). At three months, there was a pattern of decrease in preparedness and confidence. **Conclusions:** Students' knowledge, preparedness, and confidence improved after receiving in-person overdose prevention education. There was some pattern of decay in knowledge, preparedness, and confidence at the 3-month follow-up survey, suggesting a need to identify optimal time points for refresher training. **Innovation & Significance to the Field:** An in-person, brief overdose prevention training is effective for medical students.

5. Changes in Initial Opioid Prescribing Doses Following the Release of the CDC Guideline for Prescribing Opioids for Chronic Pain

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Statement of Purpose: In 2016, the CDC released the Guideline for Prescribing Opioids for Chronic Pain. The guideline recommends using the lowest effective dose when opioids are started. We assessed changes in initial prescribing doses following the release of the CDC Guideline. **Methods/Approach:** We used data from the OptumInsights database (1/2012-6/2017), which contains all claims made by commercial and Medicare Advantage beneficiaries enrolled with UnitedHealth. We restricted to enrollees age ≥ 18 years (consistent with the intended patient population of the CDC Guideline), which comprises ~7.7% of US adults. We created a cohort of opioid naïve individuals (no opioid fills for twelve months) pre-guideline that were continuously enrolled through 6/2017 (fifteen months post-guideline). To establish the pre-guideline trend, we constructed

three analogous control groups, but shifted back 1, 2, and 3 years, respectively. Statistical analyses focused on the difference between observed post-guideline initial high-dose (≥ 50 MME/day) prescribing rates, and those predicted from the pre-existing trend. We derived adjusted effects using logistic regression adjusted for age, sex, race, insurer type, as well as state and time fixed effects. **Results:** There were 6,276,020 beneficiaries across the four cohorts, 792,591 (12.6%) of whom received a prescription opioid during their follow-up. Among those initiating opioids post-guideline, 18.7% were started with high-dose prescriptions, lower than the 19.8% predicted by the pre-existing trend. Adjusted analyses confirmed that the post-guideline cohort had a 6.3% (95%CI: 4.1%-8.3%) lower odds of high-dose initiation than expected. Sensitivity analyses around the 50MME/day threshold showed post-guideline dosage changes were primarily reflected in lowering moderate/high dosages (40-60 MME/day) to ≤ 40 MME/day. **Conclusions:** Changes in high-dose initial prescribing seen following release of the CDC guideline could not be explained by pre-existing secular trends. **Significance/Contribution to Injury Science:** Safer opioid prescribing has great potential to reduce injuries and other harms incurred by opioid misuse.

6. Development of an Evidence-Based Online Toolkit to Improve Opioid Safety

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Statement of Purpose: A randomized clinical trial demonstrated efficacy of an Emergency Department-based Motivational Interviewing-based (MI) intervention reducing opioid overdose risk. We sought to develop a user-friendly online toolkit (OPT-IN), to aid translation of the intervention combined with naloxone distribution. As part of an iterative development process we completed stakeholder interviews to inform toolkit development. The current presentation details toolkit feedback received in qualitative end-user interviews. **Methods/Approach:** We conducted n=15 qualitative interviews lasting about 30 minutes with staff at varied clinical settings and non-profits to obtain feedback on feasibility of toolkit components. Additional interviews are ongoing. The toolkit contains an intervention guide, interactive training videos, and other resources. The online toolkit was updated in real time when end-users shared ideas for website improvement. **Results:** To date, interviewees indicated that a 15-minute intervention would be most feasible in practice. They shared preferences for inclusion of brief worksheet-based options for the intervention and screening questions. Interviewees provided suggestions for website layout and functionality. In addition to the OPT-IN intervention training, some expressed interest in MI training. Additional results will be reported pending completion of final interviews and website images will be shown. **Conclusion:** Translating an evidenced based research project to an online toolkit is enhanced by an iterative approach. Research therapists are involved in intensive training and supervision that is not always practical for real world implementation. The OPT-IN Toolkit, through the qualitative interviews, went through an iterative refinement to adapt and optimize the intervention translation across settings. **Significance/Contribution to Injury and Violence Prevention:** The initial study indicated that this intervention can reduce opioid overdose risk with a brief 30-minute intervention. The iteratively refined OPT-IN Toolkit increase the dissemination of this intervention to reduce opioid overdose risk and related deaths.

7. Opioid Policy and Chronic Pain Treatment Access Experiences: A Multi-Stakeholder Qualitative Analysis and Conceptual Model

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Statement of Purpose: Patients with chronic pain on long-term opioid therapy (LTOT) experience barriers to primary care, possibly due to providers' fear and reluctance around LTOT. Lack of primary care access could lead to unintended consequences such as suicide, overdose, or conversion to illicit opioids. This study aimed to understand barriers to primary care access and multimodal treatment for chronic pain from the perspective of multiple stakeholders. **Methods/Approach:** Semi-structured phone interviews were conducted May-October 2019 with adult chronic pain patients, primary care clinicians, and clinic office staff in Michigan. Interview guides probed about stakeholder experiences with prescription opioids, opioid-related clinic policies, and access to care for chronic pain. Using inductive and deductive methods, RAs analyzed the data independently, reconciling at each step to arrive at consensus emergent themes. **Results:** 25 interviews were conducted (15 patients, 7 primary care clinicians, and 3 office staff). Barriers to treatment access were attributed to five major themes: 1) reduced clinic willingness to take on LTOT management for a new patient versus continuing LTOT for an established patient, 2) systemic barriers to delivery of high-quality pain care, 3) fear of liability and use of new guidelines to justify not prescribing opioids 4) delayed prescription receipt due to prior authorization and pharmacy issues, and 5) poor availability of effective non-opioid treatments. **Conclusions:** Issues of policy, logistics, and clinic-level resources converge to disrupt consistency of primary care access for this population, creating potential for patient harm. **Innovation & Significance to the field:** In light of recent guidelines attempting to prevent opioid-related harm, this study highlights key breakdowns in primary care access where risk for injury may arise. Potential solutions to explore include an improved model of care coordination and reimbursement that allows for nuanced, high-quality care for chronic pain.

8. Effect of Gist Risk Messages on Parents' Decisions to Retain Left-Over Prescription Opioids

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Statement of Purpose: The presence of left-over prescription opioids in the home has contributed to widespread misuse, diversion, and poisonings among children, adolescents, and young adults in the U.S. The purpose of this study was to determine whether our interactive Scenario-Tailored Opioid Messaging Program (STOMP) would increase parents' risk perceptions and disposal intentions, thereby decreasing their retention of left-over opioids. **Methods:** With IRB approval and informed consent, 648 parents were randomized to receive routine information (Control) vs. Scenario-Tailored Opioid Messaging Program (STOMP) when their

children were prescribed an opioid for short-term use. At baseline, 3 days post-STOMP, and 14 days post-STOMP, we assessed parents': perceived risk of keeping/sharing opioids; perceived risk of child misuse (eg, sharing between children); and disposal intentions. After the child stopped opioid use, we assessed parents' retention decisions (eg, kept their child's left-over opioid). **Results:** Group characteristics were similar at baseline. Parents' risk perceptions increased over time for the STOMP group, but not for Controls ($p < 0.001$). Mixed effect regression models demonstrated significant effects of STOMP and risk perceptions on hypothetical and final retention decisions. Importantly, parents' past opioid misuse behavior more than doubled the odds of retention. **Conclusion:** The STOMP intervention not only enhanced risk perceptions, but also affected parents' opioid retention decisions. Given the significant effect of past misuse behavior on retention, it is important to educate parents about opioid risks before they are prescribed opioids, themselves. **Innovation and Significance:** This study tested an innovative risk messaging program that can enhance the perceived risk of opioids and change risky drug retention behavior. Adaptation of this intervention to address the risks of other controlled substances (e.g., stimulants, anxiolytics) has the potential to reduce diversion and misuse among children who are prescribed these medications.

9. The Impact of an Online Naloxone Training Curriculum for Community Laypersons

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Purpose: Increasing access to naloxone is an effective public health intervention to reduce opioid overdoses. Community laypersons are often first at the scene of an overdose. To increase dissemination of our in person naloxone training, an online naloxone curriculum, www.overdoseaction.org, was built in collaboration with our community partners. As of October 2020, 487 laypersons and first responders have taken the online training. For the purpose of this project, we aim to evaluate the impact of our online naloxone trainings on community laypersons in Washtenaw County. **Methods/Approach:** The online training was designed so that each participant took a pre-test, followed by online modules, and a post-test after the training. Survey questions assessed knowledge, belief and attitudes towards naloxone, and feelings of preparedness to use naloxone. Descriptive statistics and paired samples t-test was used to analyze the results. **Results:** 136 participants completed both pre and post-test surveys. We found statistically significant differences between pre-post measures for all domains ($p < 0.05$). The largest effects were seen on the total knowledge (effect size=1.07, mean increase from 18.7 to 22.4), knowledge about opioid overdose (effect size=1.25, mean increase from 4.33 to 6.54), reduction in fear of harming someone when using naloxone (effect size=0.77, mean decrease from 2.34 to 1.55), and the preparedness to administer naloxone in the event of an opioid overdose (effect size 0.9, mean increase from 2.61 to 3.98). Participants were also able to better recognize the signs and symptoms of an opioid overdose (effect size 0.61, mean increase from 7.26 to 8.33). The attitude and belief questions were measures on a 5-point Likert scale. **Conclusions:** Community laypersons knowledge, attitudes, and preparedness improved after participating in an online naloxone training. **Innovation & Significance:** An online naloxone training is effective for preparing and educating community laypersons who may encounter individuals experiencing overdose in their communities.

POSTER SESSION 5

Violence

1. Feasibility and Acceptability of a Smartphone APP to Assess Daily Firearm Behaviors Among an Urban Emergency Department Sample

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Purpose: Firearms are a leading cause of injury and death among youth, though daily factors preceding risky firearm behaviors (RFBs) are not well understood. To better define causal relationships between daily factors contributing to RFBs we evaluate the feasibility and acceptability of ILD data collection through smartphone APPs. **Methods:** Youth (16-29) recruited from Hurley Medical Center's emergency department (ED) screening positive for substance misuse, firearm possession, and smartphone ownership were enrolled in the study. 30 daily surveys assessing firearm behaviors, violence behaviors, substance use, cognitive factors, and activities were delivered to participant's smartphones through the Life Data APP. Of the 1,312 youth screened, 5.0% met eligibility criteria with 88% of participants enrolling in the ILD pilot trial. 82% of participants completed a 3-month follow-up survey to evaluate the feasibility, acceptability, and usability of the APP for daily data collection. **Results:** Participants (mean age 24; 43% male; 67% African American; 57% receiving public assistance) completed an average 19.6 days of surveys (65.3%), with higher completion rates observed among those enrolled in-school during the time of their survey window (mean days 24 vs 1; $p < 0.05$), suggesting that structured days may promote overcoming barriers to daily survey completion. The most common barriers reported were lack of time or forgetting the survey. 92% of participants reported feeling very/somewhat comfortable answering questions about sensitive substance use, violence, and firearm questions on the smartphone APP, and that it was easy to use. 82% of participants reported willingness to enroll in another similar daily data trial. **Conclusions:** High enrollment and acceptability suggests smartphone APPs are a feasible and acceptable method for collecting ILD on daily firearm risk behaviors in high-risk youth. **Innovation & Significance:** Developing an APP that connects youth with tailored supportive content can empower youth to receive assistance during daily interactions in low resource communities.

2. Highlighting The Burden Of Firearm Injuries: A Trend Of Gun Violence In Southeastern Pennsylvania

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Statement of Purpose: Firearm injury is a major public health concern in the United States. In 2015, firearms killed over 35,000 people and injured over 200,000. The purpose of the study was to provide a trend of firearm injuries of Chester, Delaware and Gloucester counties. **Methods/Approach:** A retrospective review of patients with firearm injuries from 2009 to 2019 at a Level 2 Trauma Center was performed. All patients who

met inclusion criteria for the Pennsylvania Trauma Outcome Study registry were included. Patients with firearm injuries were compared in mild to moderate ($ISS < 16$) and severe injury ($ISS \geq 16$) cohorts based on injury severity score (ISS). **Results:** 1028 patients met inclusion criteria. The 11-year in-hospital mortality was 8.2%, decreasing from 14.3% in 2009 to 7.5% in 2019 ($p=0.06$). The most common demographic was African-American (84.3%) and male (90.2%), with a median age of 24 (20, 31). Overall, median ISS was 9 (4, 17). Patients with $ISS \geq 16$ had a higher rate of massive transfusion protocol activation (MTP) ($p < 0.0001$) and mortality ($p < 0.0001$) compared to those with $ISS < 16$. Of the 331 (32.2%) patients with $ISS \geq 16$, 190 survived past 24 hours. Within the cohort with $ISS \geq 16$ that survived past 24 hours, MTP was activated in 48 cases (25.3%) and 143 (75.3%) went immediately to the operating room. Upon their discharge, 25.8% went to long term acute care, rehabilitation or skilled nursing facilities, while mortality was 6.3%. **Conclusions:** Gun violence disproportionately affects young, African-American men in our community. While mortality has shown a downward trend, the number of firearm injuries has increased in the past eleven years. **Innovations & Significance to the Field:** Efforts to create hospital-based violence intervention programs through collaboration with Chester Community Coalition are being established to decrease firearm-related injuries.

3. Physical Intimate Partner Violence Perpetration and Victimization Among a Nationally-Representative Sample of Young Men: Prevalence and Correlates

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Statement of Purpose: determine prevalence and correlates of physical IPV perpetration only, both perpetration and victimization, and victimization only among a nationally-representative sample of young men. **Methods/design:** nationally-representative sample of 1,052 men age 18-35 years completed surveys August-September 2014 with validated measures: demographics, children, smartphone use, health service use, substance use, and physical IPV perpetration and victimization. We conducted survey-weighted descriptive statistics to determine prevalence of physical IPV perpetration only, both perpetration and victimization, and victimization only. We performed survey-weighted multinomial logistic regression to examine physical IPV category associations. **Results:** Among this national sample of men (mean age 26.5, 42.4% non-white), prevalence of physical IPV perpetration only was 2.5%, both perpetration and victimization was 16.7%, and victimization only was 10.0%. Multinomial logistic regression analyses identified physical IPV perpetration only correlated with smartphone use for health-related activities (AOR 2.97, 95%CI 1.05-8.38), regular doctor for care (AOR 0.28, 95%CI 0.11-0.76), and prescription pain medication non-medical use (AOR 2.65, 95%CI 1.76-3.99); both perpetration and victimization correlated with belief that children who do not witness parental IPV are still harmed (AOR 0.62, 95%CI 0.45-0.85), regular doctor for care (AOR 0.58, 95%CI 0.35-0.98), alcohol misuse (AOR 1.09, 95%CI 1.03-1.16), and prescription pain medication non-medical use (AOR 1.81, 95%CI 1.23-2.67); and victimization only associated with mental healthcare visits (AOR 2.19, 95%CI 1.10-4.36). **Conclusions:** In the U.S. among young men, physical IPV was reported by 1 in 40 for perpetration only, 1 in 6 for both perpetration and victimization, and 1 in 10 for victimization only. Correlates among the three IPV groups included children, smartphone use, health service use, physical health problems, alcohol misuse, and prescription opiate misuse. **Innovation & Significance to the field:** Healthcare providers in primary and mental health care can assess young men for physical IPV perpetration or victimization, and associated risk factors.

4. Intimate Partner Violence and Economic Insecurity During the Covid-19 Crisis

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Purpose: Evidence suggests that national crises exacerbate many risk factors associated with intimate partner violence (IPV), including decreased access to financial stability and basic needs. This study assesses experiences of economic insecurity, resource access, and recent IPV exposure in the context of the Covid-19 pandemic, including demographic variations in the population. **Methods:** A cross-sectional, online survey was administered to adults 18 and older residing in the state of Michigan (N = 1,169) using Qualtrics Panels. Measures of economic insecurity included five self-report items assessing decreased access to food, internet, phone, money, and medical care since the start of Covid-19. Past 6-month exposure to IPV included self-reports of physical, sexual, and/or psychological IPV. Descriptive statistics and binary logistic regressions were used to examine relationships between IPV exposure, economic insecurity, and demographic factors. **Results:** Racial and sexual minority participants exposed to IPV reported significantly higher rates of decreased access to food, internet, phone, money, and medical care since the start of Covid-19 compared to those without violence exposure. Participants exposed to IPV had over twice the odds of experiencing decreased access to phone and internet access and over 15 times the odds of decreased access to medical care, controlling for other variables. **Conclusions:** Individuals with recent experiences of IPV are at elevated risk for economic insecurity during the Covid-19 pandemic, particularly in relation to internet and phone access, as well as access to needed medical care. These risks may be exacerbated among women of color and sexual minority women. **Significance:** This highlights critical areas of economic and healthcare needs among individuals experiencing IPV specifically in the Covid-19 context. Targeted prevention strategies and interventions are needed for underserved communities most impacted. State policy focused on improving health outcomes and reducing the economic impacts of Covid-19 should include considerations for those experiencing IPV.

5. Perceptions of School Safety in Middle School: The Role of Social Support

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Statement of Purpose: Feeling safe at school is a necessary precursor for academic and socioemotional well-being (Juvonen, Nishina, & Graham, 2006). Adolescents encounter locations in their school building that may exhibit more risky and violent behavior, affecting their perceptions of safety. Moreover, underrepresented groups can feel less safe at school than their majority peers (Adams & Mrug, 2019). Having positive relationships at school may help foster students' sense of safety across school locations. We examined whether student reports of safety varied by building location, SES, race, and gender, as well as whether social support moderated these associations. **Methods/Approach:** Surveys were administered to 1,133 middle school students (86% White; 48% free/reduced lunch; distributed across 5th-8th grades) as part of a school climate study. School safety was measured with reports on how often students felt safe (1=never, 5=always) at school, in their classrooms, hallways/bathrooms, and lunchroom/cafeteria. Students also reported on their perceptions of social worry, teacher support, and peer support. Analyses were conducted with Ordinary Least

Squares regression. **Results:** Students reported feeling most safe in their classrooms, followed by the lunchroom/cafeteria, generally at school, and least safe in unsupervised spaces like hallways/bathrooms. Across locations, there were no SES or race differences, but older students reported feeling less safe than younger students and boys reported feeling less safe than girls. Lower feelings of safety were associated with greater social worry. However, greater perceived support from teachers and peers enhanced feelings of safety. **Conclusions/Significance:** Results suggest interventions could focus on prevention of threats and violence in unsupervised spaces, while ensuring students feel supported at school. Increased social worry from a perceived lack of safety warrants concern, as it may bring later declines in mental health and academic outcomes. Secondary intervention may be needed to address students' reactions to perceived stressors and trauma at school.

6. The Relationship Between Sexuality Education and the Perpetration of Sexual Violence

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Statement of Purpose: Education programs have been identified as a potential tool for sexual violence prevention. Despite this knowledge, there is a lack of evidence-based prevention programs. The purpose of this literature review is to identify existing literature relating to the use of sexuality education programs to prevent sexual violence perpetration. **Methods/Approach:** A scoping review was conducted with three databases (PsycInfo, PubMed, CINAHL). Key terms related to four areas (sexual violence, perpetration, sex education, and prevention) were used to identify articles. Only United States-based studies written in English were included; commentaries, editorials, or opinion pieces were excluded. **Results:** In general, the articles from the search fell into one of four categories: 1) sexual violence prevention programs, 2) sexuality education and sexual violence, 3) sexuality education and treatment for sexual abuse survivors, and 4) sexuality education and treatment for perpetrators. Treatment for survivors and perpetrators focus on sexuality education as a secondary program to attempt to break the survivor-perpetrator cycle and learn appropriate behaviors for consenting sexual intercourse. Despite studies indicating the potential of comprehensive sexuality education to prevent risk factors associated with sexual violence perpetration, many sexual violence prevention programs focus on bystander intervention and alerting participants to resources for survivors. However, some programs do address components of comprehensive sexuality education, like problematic gender and sexuality norms and how they contribute to sexual violence. **Conclusions:** The results of this literature review highlight the gaps in research in the field of primary sexual violence prevention and underscore the importance of sexuality education as a prevention tool and treatment component for survivors and perpetrators alike. **Innovation & Significance to the field:** The results have the potential to inspire future research on comprehensive sexuality education programs as a primary intervention for sexual violence prevention to create a safer and healthier environment for adolescents.

7. Classroom Connection: Engaging Adolescents on Weapon Safety and Cyberbullying Prevention

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Statement of Purpose: Classroom Connection is a medical student-initiated program promoting health and wellbeing of adolescents through education and mentorship. In-person lessons and penpal exchanges support adolescents in academics, career development, and health. Adolescents who report involvement in bullying (victim, bully, bystander) are more likely to engage in suicide-related behavior, including improper use of weapons. Early intervention and preventative education may reduce incidents of violence, including within our partner school district, which refers a disproportionately high number of students to youth detention.

Methods/Approach: Classroom Connection provided monthly in-person lessons to a diverse group of middle schoolers in an under-resourced school district. In consultation with classroom teachers and medical faculty, medical students created interactive lessons on various health topics, including weapon safety and cyberbullying prevention. Age-appropriate lessons were based on validated and accredited resources. Small group discussions encouraged middle schoolers to reflect on prevalence and impact of weapon violence and cyberbullying. Students created a class pledge to prevent cyberbullying, identified adults to contact in unsafe situations, and presented safety measures and interventions for violence and bullying. Real-time, online pre-/post-tests were administered. **Results & Conclusions:** Thirty-three middle schoolers participated in the weapon safety and cyberbullying prevention lesson facilitated by nine medical students. The 15-item pre-/post-tests demonstrated a general increase in knowledge on the prevalence and consequences of weapon safety (85%) and cyberbullying (82%) issues. A majority reported confidence in approaching weapon safety (76%) and cyberbullying (92%) situations. **Innovation & Significance to the Field:** Adolescents receiving positive influence and support from adults, schools, and communities are less likely to engage in high-risk behaviors, including bullying and violence. Classroom Connection utilizes interactive technology to provide education and mentorship to aid in the prevention of public health risks, such as violence and cyberbullying, in adolescents.

8. Correlates of Violence Among Youth in the Emergency Department Receiving M-Health Interventions

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Purpose: Youth violence prevention is a public health priority. This paper describes correlates of violence among youth in the emergency department (ED) who are enrolled in a sequential, multiple assignment, randomized trial (SMART) testing adaptive mHealth interventions. **Methods:** Youth (ages 14-20) in the emergency department (ED) who screen positive for binge drinking and physical aggression are enrolled, and receive the SafERteens intervention by a health coach. Boosters include 4 weeks of text messages or tele-health sessions; then, response is determined (e.g., binge drinking or physical aggression) and participants are re-randomized to additional boosters during weeks 5-8, with outcomes assessed over 8 months. Baseline data

was examined to identify correlates of frequency of aggressive behaviors (e.g., Conflict Tactics Scale). **Results:** Thus far, 13.1% (234/1788) screened positive and 198 (15.4% refused) were enrolled (mean age 18.3; 21.3% male, 44.4% African American, 52.0% receive public assistance). At baseline, participants reported average weekly consumption was 8.6 drinks (SD=14.5); also, 79.1% reported marijuana use, 11.6% carried a firearm, and 44.4% screened positive for depression (PHQ-2) and 51.0% for anxiety (GAD-2). Bivariate analyses showed significant correlates of aggression included: male gender, impulsivity, alcohol consumption, marijuana use, peer substance use, and community violence. Regression analyses, including age and gender, showed that significant markers of aggression were impulsivity, alcohol consumption, and community violence. **Conclusions:** Future analyses will examine efficacy of mHealth booster interventions for youth involved with binge drinking and violence. **Innovation and Significance:** Findings support prior research showing the need for interventions to address individual level factors, particularly impulsivity and alcohol consumption, and community level violence exposure, given associations with aggression among youth. (Funding: NIAAA AA024755.)

9. Implementation of Screening and Delivery of Violence Prevention Approaches for Adolescents in Primary Care: A Pilot Implementation Study

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Statement of purpose: Youth violence is an alarming public health concern. Although most youth use primary care, violence screening and prevention interventions have yet to be systematically offered in this setting. This paper describes data from our pilot implementation trial of the efficacious behavioral health program focusing on violence prevention (SafERteens) at two community health clinics serving disadvantaged adolescents. **Methods/Approach:** In Phase 1, we obtained feedback from stakeholders to inform the repackaging of the SafERteens program for primary care (PC). In Phase 2, we implemented the customized Saferteens-PC program and conducted a quasi-experimental pilot study involving adolescents (ages 14-18) who screened positive for recent aggression. Participants were assigned to a usual care control condition (n=49) or an intervention condition (n=61) receiving the Saferteens-PC program; three-month follow-up rates were 91.8%. In Phase 3, we conducted stakeholder interviews to examine barriers to maintenance. **Results:** Based on stakeholder interviews (n=12), we created a web-based Saferteens-PC package which includes: a violence screener, intervention delivery tool, training videos, and text message boosters. During Phase 2, intervention delivery varied by clinic, including completion (75.9%; 62.5%), modality (100% telehealth; 60% telehealth/40% in-person), and enrollment in text messages (81.8%; 55.0%). Using an intent-to-treat approach, the intervention group showed significantly greater reductions in severe peer aggression ($p<.05$), anxiety ($p<.05$) and substance use consequences ($p<.05$) relative to the comparison group. Other outcomes were in the expected direction, with greater reductions in intervention vs. comparison groups in peer victimization, substance use, intention to avoid fighting, and depression (all p 's $<.10$). **Conclusions:** Findings support the effectiveness of implementation of Saferteens-PC in primary care. Participant and staff feedback was positive, identifying challenges to long-term implementation. **Innovation and Significance to the Field:** If these challenges could be addressed, provision of violence prevention in primary care could have high impact on health outcomes for adolescents.

POSTER SESSION 6

Suicide and Resources for Opioid Overdose Prevention

1. PREVAIL: A Peer Mentorship Program to Reduce Suicide Attempts Among High-Risk Adults

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Background: Novel approaches to suicide prevention are needed to address increasing rates of suicide deaths. Few interventions have shown to be effective for high-risk adults, and even fewer have been widely adopted by health systems. Key risk factors for suicide include hopelessness and poor social support. Peer specialists – individuals with a lived experience of mental illness, trained and employed to provide support to others in earlier stages of recovery – may be effective at improving hope and social support. **Methods:** The study will recruit 490 participants with current suicidal ideation or a recent suicide attempt from two Midwestern inpatient psychiatric units. Participants randomized to the intervention will receive 3 months of one-on-one peer support from a certified peer support specialist that includes reinforcement of safety plans and semi-structured conversations regarding hope and belongingness. Outcomes assessed at 3 and 6 months include suicidal ideation according to the Beck Suicide Scale and suicide attempts according to the Columbia Suicide Severity Rating Scale and chart review. This poster will present the study's ILSM (Invite, Learn, Share, and Motivate) conversations. This format integrates motivational interviewing techniques with intentional sharing to validate participants' experiences and offer new ideas. **Results/Conclusions:** Study enrollment will continue until 2021 with results anticipated for 2022. **Innovation and Significance to the Field:** This study of peer mentorship will be the first effectiveness trial of a peer-delivered intervention designed to reduce suicide attempts and suicidal ideation. Our theoretical model for peer mentorship as a suicide prevention method draws from the interpersonal theory of suicide which posits that suicidal ideation occurs when belongingness and burdensomeness occur in the presence of hopelessness. PREVAIL was designed with explicit structured content to address these risk factors. If shown to be effective, the study's hybrid effectiveness-implementation design aims to maximize the likelihood of rapid implementation in the community.

2. The Relationships Between Risk-Taking, Depression and Alcohol Use in the Experience of Suicidal Ideation Among Adults in the General Population

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University of Michigan School of Social Work

Statement of Purpose: Suicide is a leading cause of preventable death, impacting individuals of all ages. Data support associations between suicidality and risk-taking among depressed adolescents. Alcohol is among the nation's most used substances resulting in abuse, dependence, and need for treatment. While alcohol use relates to greater depression and suicidality, less is known about these relationships with risk-taking. Additionally, the majority of studies report on adolescent populations with a notable gap in the literature

pertaining to other age groups. The current study thus examined the relationships between suicidal ideation, alcohol use, depression, and risk-taking tendencies among adults. **Methods:** Data were obtained from adults 18 to 65 years of age who participated in the National Surveys on Drug Use and Health (NSDUH) in 2017 and were asked questions related to major depression (n=8,145). Structural equation modeling was used to examine the specific aims in Mplus8. **Results:** A total of 1740 (21.4%) participants endorsed the experience of suicidal ideation. The model demonstrated good fit and findings indicate increases in alcohol abuse or dependence (b=.094, SE=.01, p<.001), depression (b=.036, SE=.01, p<.001), and risk-taking (b=.044, SE=.01, p<.001) all independently related to increased odds of ideation. Increases in alcohol abuse or dependence (b=.210, SE=.02, p<.001) and depression (b=.026, SE=.01, p<.05) also related to elevated risk-taking. Based on the joint significance test, risk-taking tendencies served as a partial mediator. **Conclusions/Significance to Field:** Risk-taking functioned as a mechanism in the relationships between alcohol use, depression, and suicidal ideation among adults. Risk-taking tendencies therefore serve as an important risk factor for, and potential treatment target in, the prevention of suicidal ideation. Future research is needed to examine risk-taking tendencies, depression, abuse and dependence of various substances, and suicide attempts as a next step towards the prevention of suicide death.

3. Trends of Non-fatal Suicide Behaviors Among Adults in the United States from 2009-2017

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Statement of Purpose: The age-adjusted rate of suicide death in the United States has increased significantly since 2000. We examined national trends in non-fatal suicidal behaviors (ideation, plan, and attempt) among adults and their associated sociodemographic and clinical characteristics. **Methods/Approach:** Data were obtained from adults 18 to 65 years of age who participated in the Substance Abuse and Mental Health Services Administration (SAMHSA) National Survey on Drug Use and Health (NSDUH) from 2009 to 2017 (n=335,359). **Results:** Suicidal ideation showed fluctuation from 2009 to 2017, whereas suicide plan and attempt showed significantly positive linear trends. The odds of suicide plan increased by an average of 3% per year (OR_{linear} = 1.03, 95% CI: 1.01, 1.05), whereas the odds of suicide attempt increased by an average of 4% per year (OR_{linear} = 1.04, 95% CI: 1.02, 1.06). Suicide plan increased the most for females and adults ages 18-34, and attempt increased the most for adults with drug dependence. Both plan and attempt increased the most among adults who either had mental illness but were not in treatment or had no mental illness. **Conclusions:** This study provides new evidence about national trends for non-fatal suicidal behaviors among adults, including evidence for how these trends differ by age, sex, mental health status, and drug dependence. **Innovation & Significance to the Field:** Study findings indicate that non-fatal suicidal behaviors have increased over time in the U.S. and subgroup findings point towards the importance of increasing awareness of and access to suicide prevention and behavioral health services in conjunction with tailoring prevention efforts to various sociodemographic and clinical factors.

4. Comparing Attitudes Toward Stigmatized Deaths: Suicide & Opioid Overdose Deaths

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Statement of Purpose: Given the strong association between suicide and substance use, it is important to investigate whether these two types of deaths share similar stigmatized perceptions and ambivalence towards intervention that would impede prevention and treatment efforts for both of these public health issues. This study is the first to conduct a comparative analysis of attitudes toward suicide and unintentional opioid overdose deaths. **Methods:** Respondents were recruited for an online survey and randomly assigned to one of two groups: (1) those that responded to questions related to suicide and (2) those that responded questions about opioid overdose death. Respondents' attitudes toward suicide and fatal opioid overdose were measured using a stigma and willingness to intervene scale. **Results:** Results revealed that respondents in the suicide condition were more likely to attribute the death to isolation or depression as compared to those in the opioid overdose condition. Respondents who were asked about an overdose decedent had greater endorsement of the following items: Pathetic, An Embarrassment, Irresponsible, and Stupid. Respondents were also more willing to intervene in a hypothetical case of a person at-risk for suicide than those who were asked about a person at-risk for opioid overdose. **Conclusions:** These findings could possibly be interpreted as more severe stigmatization of fatal opioid overdose for the present sample. Additional studies are needed to further explore the multidimensional nature of these attitudes that may not have been captured in the present study. Learning more about attitudes towards overdose deaths can also help us better understand how to change attitudes about suicide and fatal opioid overdose. **Innovation and Significance:** The current study is the first of its kind and demonstrates significant differences in perceptions of suicide and unintentional opioid overdose, and contributes to the broader understanding of public attitudes toward two types of stigmatized deaths.

5. Enhancing Opioid Overdose Response Strategies in Genesee County, Michigan

Jason Goldstick PhD, Amanda Ballesteros MPH, Zaire Totty MPH, Keara Sullivan BA, Jessica Roche MPH, Rebecca Cunningham MD

University of Michigan Injury Prevention Center

Statement of Purpose: Timely opioid overdose surveillance is critical for data-driven community-based responses to combat the opioid epidemic. Questions remain on the optimal strategy for disseminating data to facilitate such responses. **Methods:** The study proceeded by disseminating near-real-time surveillance data reports (descriptive statistics and spatio-temporal data visualizations), constructed as part of the Michigan System for Opioid Overdose Surveillance (SOS), to stakeholder groups comprised of public health, public safety, and community outreach service providers in Genesee County. We gathered stakeholders for an initial focus group and individual 1-on-1 interviews to identify: 1) How real-time overdose reports can be used to inform prevention and response; 2) Barriers to prevention and response; and 3) Effective methods to coordinate a community-level response strategy. Stakeholders received SOS data reports for their jurisdiction on a regular basis for eight weeks, and their feedback was solicited over time through biweekly surveys. A final focus group emphasized the mobilization of data-driven coordinated community responses through near real-time reports, and the creation of a coordinated community response toolkit. **Results:** Initial analysis of

ABSTRACTS

Genesee County pilot project data suggests SOS data is being used to impact local planning, implementation, and responses to opioid overdoses. A toolkit based on stakeholder feedback describing community-based response strategies will be completed for Genesee County. **Conclusions:** These data provide vital information on what is most useful to stakeholders in Michigan, laying the foundation for targeted interventions in high-risk communities across the state. **Innovation and Significance to the Field:** Data provided by the SOS reports provides stakeholders with access to more granular and timely suspected opioid overdose data in comparison to other data sources. These data can be used to implement innovative interventions to respond to opioid overdose.

6. Development of an Evidence-based Safer Opioid Prescribing Toolkit for Clinical Care

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Statement-of-Purpose: Despite a 30% reduction nationwide in new opioid prescriptions since 2012, prescription opioid overprescribing, as well as opioid misuse and overdose remain significant U.S. public health issues. To address a deficit in educational resources/tools for clinical providers and their patients, the Injury Prevention Center (UM-IPC), in partnership with the Department of Health and Human Services (MDHHS), created the Michigan Safer Opioid Prescribing Toolkit (michmed.org/optoolkit), – a comprehensive, evidence-based, on-line resource. **Methods/Approach:** A needs assessment was conducted, identifying knowledge/skills gaps among primary care providers across the state. Utilizing results, a comprehensive review of publicly available opioid prescribing resources and systematic literature review to identify up-to-date recommendations was conducted in key areas. Provider- and patient-focused educational content and resources were identified/curated from existing sources or newly developed for the toolkit. Resources were reviewed by expert researchers/clinicians for accuracy and by practicing primary care clinicians for usability and applicability/relevance. **Results:** Toolkit resources were developed across seven domains, including background resources on pain and pain management (managing acute/chronic pain, reducing stigma), management strategies for chronic opioid use and opioid use disorders (screening tools, naloxone, medication-assisted treatment), non-opioid/non-pharmacological pain management, opioid pain management (prescribing/tapering guidelines), prescribing laws (PDMPs, legal resources), just-in-time resources (clinical decision flowcharts, assessment tools, safe storage/safe disposal), and special populations (adolescents, LGBTQ, pregnant women, veterans, etc.). Since the November 2019 launch through September 2020, website reach has included 3,819 unique visitors. **Conclusions:** Development/dissemination of a just-in-time toolkit to guide evidence-based primary care pain management (i.e., safer opioid prescribing), harm reduction, and opioid use disorder treatment/linkage to care has potential for broad public health and clinical impact in addressing the opioid epidemic. **Significance/Contributions to Injury/Violence Prevention:** This toolkit is one of the first fully online, comprehensive, evidence-based clinical resources to address the opioid epidemic.

THANK YOU!

On behalf of everyone at the University of Michigan Injury Prevention Center:

Thank you to all of the staff, hosts, presenters, and timekeepers for helping to make this symposium possible.

Materials and recordings from this symposium are archived at injurycenter.umich.edu/research-symposium-2020/