BIENNIAL REPORT 2018-2019

BOSTON MEDICAL CENTER

Injury Prevention Center

COVID-19

This biennial report covers the activities of the Boston Medical Center Injury Prevention Center for the 2018-2019 years, but we must acknowledge the tremendous efforts and positive impact of many of the IPC faculty and staff in the response to the COVID -19 pandemic. There has been outstanding cooperation and significant contributions from all departments at Boston Medical Center, as well as the leadership from BMC, BUSM, and BUSPH. This widespread engagement has led the institution to manage an unprecedented crisis in a way that has maximized the safety of both patients and healthcare workers. Finally, we want to recognize the great work of many of our Board of Visitors, especially Monica Bharel, MD, MPH, Commissioner of the MA Department of Public Health, that has benefited the entire commonwealth. We are extremely proud of the entire campus response in clinical care, advocacy and timely research.

OUR MISSION

The Injury Prevention Center (IPC) conducts and facilitates research and advocacy on the causes, treatment, and prevention of violence- related and unintentional injuries. The IPC promotes inter-disciplinary collaboration across academic and clinical disciplines, research and teaching institutions, and legislative, regulatory, and policy- making entities. Through education, research and advocacy, the IPC fosters engagement in injury research among students, clinicians and researchers.

Jonathan S. Olshaker, MD

Peter A. Burke, MD

We are pleased to present the 2018-2019 biennial report of the Boston Medical Center (BMC) Injury Prevention Center. 2019 marks the ninth anniversary of the Center, which continues to grow under the leadership of Executive Director, Jonathan Howland, PhD, MPH, MPA, Deputy Director, Traci Green, PhD, MSc, and Senior Research Associate, Holly Hackman, MD, MPH, whom we welcomed to the Center in 2016. The Center brings together the Department of Emergency Medicine, Department of Surgery, Division of Acute Care and Trauma Surgery, and many BMC, Boston University School of Medicine (BUSM), and Boston University School of Public Health (BUSPH) faculty and staff with the combined mission of injury prevention research, education, and advocacy. This report highlights our programs focusing on violence intervention, substance abuse treatment and harm reduction, older adult fall prevention and many others that are making significant contributions to local, national, and international injury prevention efforts.

Sincerely,

Jonathan S. Olshaker, MD
Professor and Chairman,
Department of Emergency Medicine
Boston University School of Medicine;
Chief, Department of Emergency Medicine
Boston Medical Center

Peter A. Burke, MD, FACS
Chief, Acute Care & Trauma Surgery,
Boston Medical Center;
Professor of Surgery,
Boston University School of Medicine

A UNITED VISION

The BMC Injury Prevention Center (IPC) was founded in July 2010 with support from the Department of Emergency Medicine and the Division of Trauma Surgery. The IPC combines the resources of the Boston Medical Center and the Boston University School of Medicine to establish a viable, self-sustaining, long-term institution for injury prevention research and practice. The IPC was founded on the shared belief that:

- Many of the injuries treated at BMC are preventable
- Treatment should include intervention to prevent subsequent injury
- BMC is positioned to become a nationwide leader in injury prevention research and intervention.

Boston Medical Center

Boston University School of Medicine

LEADERSHIP COMMITTED TO IMPROVING LIVES

The IPC staff brings together a wealth of experience to create a world-class center for research and training in the field of injury prevention and education. The BMC Injury Prevention Center is staffed by the following individuals:

IPC EXECUTIVE ADMINISTRATION

Jonathan Olshaker, MD, *Chief of the Department of Emergency Medicine, BMC, Professor and Chair of the Department of Emergency Medicine at BUSM.* Dr. Olshaker is the Senior Editor of Forensic Emergency Medicine, co-editor of the new textbook Geriatric Emergency Medicine, and a co-editor of five editions of the Emergency Medicine Clinics of North America. He serves on the editorial board of the American Journal of Emergency Medicine, the Western Journal of Emergency Medicine, and is Section Editor for Public Health and Emergency Medicine in the Journal of Emergency Medicine. He is a nationally recognized lecturer and expert on managing Emergency Department overcrowding and is also a retired Captain in the United States Naval Reserve after a 26-year career.

Peter Burke, MD, FACS, *Chief of Trauma Services, BMC, Professor of Surgery at BUSM.*
Dr. Burke's major areas of interest are critical care and trauma and he has a broad surgical practice in all areas of general surgery. He is actively involved in medical student and resident teaching in the areas of trauma, shock, and sepsis. His professional interests include clinical and lab research on topics including: liver trauma, patient nutritional support in hospital and at home, and molecular, metabolic and immunologic responses in sepsis and injury.

IPC LEADERSHIP

Jonathan Howland, PhD, MPH, MPA – *IPC Executive Director and Professor of Emergency Medicine at BUSM.*
Dr. Howland has 30 years of experience in injury research with emphasis on traffic safety, older adult falls and alcohol's contribution to error in safety sensitive occupations. His research includes epidemiological studies of risk factors for burns, falls, traffic injuries, drowning, and non-combat military injuries, and experimental trials of interventions for traffic safety. His work also includes randomized alcohol administration trials on the acute occupational and neurocognitive effects of low-dose alcohol consumption and next-day effects of intoxication. Howland has published many peer-reviewed papers and book chapters, primarily focused on injury causation and control. For 20 years he taught program evaluation research methods at the Boston University School of Public Health.

Traci Green, PhD, MSc – *IPC Deputy Director, Senior Scientist for Substance Abuse, and Professor of Emergency Medicine at BUSM.*
Dr. Green is a nationally recognized leader in opioid overdose prevention. Her research and advocacy have centered on prescription/opioid use, injection drug use, opioid overdose surveillance, public health strategies for community-wide naloxone distribution, and prescription monitoring programs to address the epidemic of opioid overdose. Green is known for her ability to translate research to public policy. She has developed innovative community-based programs for overdose prevention in Rhode Island and Connecticut and has worked extensively with substance abuse clinicians and researchers of the BU schools of Public Health and Medicine. Her role as the Deputy Director of the IPC has greatly expand our ability to address the growing epidemic of opioid overdose in Massachusetts.

Lisa Allee Barmak, MSW, LICSW – *IPC Director of Programs and Education, Instructor of Surgery at BUSM, and Director of Injury Prevention and the Community Violence Response Team for the Department of Surgery at BMC.*
Ms. Barmak develops, monitors and maintains evidence-based injury prevention initiatives for the hospital. Her clinical background spans 10 years as BMC's Pediatric and Pediatric Intensive Care Unit (ICU) Social Worker, where she specialized in the care of trauma patients and their families during their time in the ICU, as well as end of life care. She transitioned to her role as an injury prevention professional in 2008. Ms. Barmak Co-Chairs the Massachusetts Statewide Injury and Violence Prevention Committee (MassPINN) and works both regionally and nationally in injury prevention efforts both with the Eastern Association for the Surgery of Trauma (EAST) as well as the American College of Surgeons' Committee on Trauma. Current projects include research on mental health in hospital based violence intervention programs, firearm injury prevention, older adult falls prevention, health care disparities and surgical education.

Thea James, MD – *Vice President of Mission and Associate Chief Medical Officer at Boston Medical Center, Associate Professor of Emergency Medicine, and Director of the Violence Intervention Advocacy Program at BMC.*
Dr. James is a founding member of the National Network of Hospital-Based Violence Intervention Advocacy Programs (NNHVIP). In 2011 she was appointed to Attorney General Eric Holder's National Task Force on Children Exposed to Violence. As Vice President of Mission, Dr. James works with caregivers throughout the BMC Medical Campus. She has primary responsibility for coordinating and maximizing BMC's relationships and strategic alliances with a wide range of local, state and national organizations including community agencies, housing advocates, and others that partner with BMC to meet the full spectrum of patients' needs. The goal is to foster innovative and effective new models of care that are essential for patients and communities to thrive. Integrating upstream interventions into BMC's clinical care models are critical to achieve equity and health in the broadest sense. She is the recipient of many awards and was a 2019 Massachusetts Public Health Association Health Equity Champion. She also serves on numerous public and private agency boards, including Massachusetts Board of Registration in Medicine and the Boston Disaster Medical Assistance Team. Dr. James' passion for domestic and global Public Health has fostered partnerships with international partners in Haiti, and Africa to conduct sustainable healthcare projects.

Ed Bernstein, MD – *IPC Faculty, Co-Director, Section of Public & Global Health, Director Faster Paths to Treatment Program, BMC; Vice Chair, Academic Affairs, Professor of Emergency Medicine, BUSM, Professor, Community Health Sciences, BU SPH.*
Dr. Bernstein is Medical Director of Project ASSERT. Faster Paths to Treatment is a MA DPH-funded Regional Opioid Urgent Care Center that provides assessments and referrals to a continuum of substance use disorder treatment and community support services, including an onsite medication assessment and bridge treatment unit. He has been a national leader in Emergency Department Overdose Education and Naloxone Distribution. Bernstein is the author of 82 peer reviewed publications applying Public Health to Emergency Medicine and has served as principal investigator on a number of NIH funded research studies. He is currently serving a five-year term as Member of the Massachusetts DPH Public Health Council. He is currently an investigator on NIDA funded MassHeal Grant: Reducing opioid overdose deaths by 40% and RAPIDS fentanyl test strip study at Brown University.

Elissa Schechter-Perkins MD, MPH, DTMH – *Vice Chair, Research, Department of Emergency Medicine, Associate Professor of Emergency Medicine, Boston University School of Medicine.*
Dr. Perkins has been conducting research related to infectious diseases in the Emergency Department for over 10 years, including influenza, skin and soft tissue infections, and STIs. Her current focus is on confronting the Hepatitis C Virus (HCV) and HIV epidemics that are affecting Boston as well as the nation. She is the Principal Investigator on a multi-disciplinary grant-funded program that aims to expand the diagnosis of HCV and HIV at Boston Medical Center and provide navigational support to help link patients to outpatient care. She supports the research arm of the Injury Prevention Center.

Patricia Mitchell, RN – *Director of Research Operations, Department of Emergency Medicine, BMC; Assistant Research Professor, BUSM.* Ms. Mitchell has over 20 years of clinical research experience at BMC. She has expertise in all aspects of the conduct of research including design, implementation, IRB/Human subjects, and budgeting. She has implemented and managed single center and multicenter trials (NIH, industry funded/FDA regulated and unfunded) and her injury prevention research interests have focused on Screening, Brief Intervention and Referral to Treatment (SBIRT), substance use disorders, violence prevention, and social determinants of health. Ms. Mitchell has provided guidance and served as a mentor to numerous faculty and residents in the ethical conduct of research in emergency medicine. Her role is integral to the collaborative efforts of the Injury Prevention Center, Department of Emergency Medicine and Department of Trauma Surgery.

Elizabeth Dugan, LICSW – *Clinical Director, Violence Intervention Advocacy Program (VIAP), BMC.* Ms. Dugan holds a Master's degree from Simmons School of Social Work, and a certificate in Urban Leadership in Clinical Social Work from Simmons, where she was the first recipient of the Dean's Leadership Award. Her formal training also includes certification in Traumatic Stress Studies from the Trauma Center in Brookline, Mass. Ms. Dugan trained at the Children's Trauma Recovery Foundation, and is certified in school and community-based Post Traumatic Stress Management (PTSM) through the Trauma Response Networks (TRN). She is one of the founding members of the Health Alliance for Violence Intervention (HAVI), a national organization that fosters hospital and community collaborations to advance equitable, trauma-informed care in violence intervention and prevention programs. Ms. Dugan serves as the Chairperson for the Workforce Development Group for the HAVI, providing support and coordination around best practices related to staff development, staff training, program development, and human resources. Ms. Dugan is a current member and past chairperson of the Board of Trustees at Victory Programs, one of the largest Boston-based agencies providing services to individuals and families facing homelessness, addiction, or other chronic illnesses, including HIV/AIDS. She is also a member of the Board of Trustees at the St. Francis House, the largest day shelter in Boston. St. Francis House provides a host of comprehensive services ranging from food and shelter to vocational training and healthcare services. Her passion is working with urban youth and families, and providing services, opportunity, and hope to some of the most at-risk individuals in the community.

Julia Campbell, MPH – *Center Coordinator.* Ms. Campbell earned her MPH in epidemiology and maternal and child health from Boston University School of Public Health. Before pursuing her MPH, she graduated from the University of Vermont with a B.S. in Psychology. Julia joined IPC Executive Director Jonathan Howland's team in 2019 and hopes to gain experience in injury and violence prevention that she can apply to her future career in public health research.

SENIOR SCIENTISTS

Kerrie Nelson, PhD – *IPC Biostatistician and Research Professor in the Department of Biostatistics at BUSPH.* Dr. Nelson provides statistical support to investigators in BMC's Department of Emergency Medicine and also collaborates on other projects with medical and public health researchers at Boston University related to breast cancer. Originally from New Zealand, she received her PhD in Statistics from the University of Washington in Seattle.

Emily Rothman, ScD – *Senior Scientist for Interpersonal Violence and Professor at BUSPH.* Dr. Rothman's primary research focus is the prevention of youth dating violence, with additional research projects on the topics of adult partner violence, sexual violence, human trafficking, and pornography. She has a secondary appointment in the Department of Pediatrics at BUSM and is also a visiting scientist at the Harvard Injury Control Research Center.

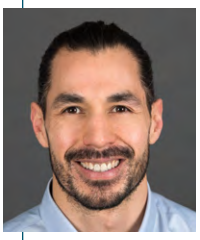
Holly Hackman, MD, MPH – *Senior Scientist, Injury Prevention Center, Department of Emergency Medicine; Assistant Professor at BUSM.* Dr. Hackman works with state and local health departments to provide surveillance and evaluation support. Her work in 2018/2019 included the evaluation of several opioid overdose interventions and policies for the Massachusetts Department of Public Health, epidemiologic support for opioid biosurveillance projects, and evaluation of enhanced opioid overdose prevention and harm reduction services within Dorchester, Roxbury, and Mattapan, for the Boston Public Health Commission. Additionally, she worked on projects related to pedestrian injury, traumatic brain injury, falls in older adults, and the implementation of multidisciplinary reviews for drug overdose deaths.

Alexander Walley, MD, MSc – *Associate Professor of Medicine at BUSM; Internist and Addiction Medicine Specialist at BMC; Director Addiction Medicine Fellowship Program at BUSM.* Dr. Walley trains addiction medicine specialist physicians in the addiction medicine fellowship program. He conducts clinical and research-related work on the medical complications of substance use, specifically HIV and overdose. He is principal investigator of a CDC-funded study of post-overdose outreach programs in Massachusetts and the Care Continuum Core Director for the HEALing Communities Study-Massachusetts. He provides primary care and office-based addiction care for patients with HIV at BMC. He is the medical director for the Massachusetts Department of Public Health's Opioid Overdose Prevention Program which has trained over 90,000 people since 2007, and is also the medical director for several police and fire department naloxone rescue programs in Massachusetts.

Kalpana Narayan Shankar, MD, MSc, MSHP – *Research Scientist for Health Services and Associate Professor of Emergency Medicine at BUSM.* Dr. Shankar has a long-standing interest in health services research with particular focus on the quality of care provided to older adults. She has previously engaged in a variety of projects examining caregiver burden. Her current research interests lie in the area of geriatric falls and associated morbidity and she looks to use this information to promote falls awareness among physicians and nurses. Dr. Shankar's most recent endeavors include collaborations to establish a rapid follow-up and referral process for older adults who are discharged from the emergency department after sustaining a fall, the evaluation of and community health and legal outreach for the ED high utilizer population and understanding the patient's social determinants of health as a factor to ensuring a safe and sustainable quality of life while at home for all adults, but with a particular focus on older adults.

Robert A. Stern, PhD – *Professor of Neurology, Neurosurgery, and Anatomy & Neurobiology at BUSM, and Co-Founder and Director of Clinical Research for the BU CTE Center.* Dr. Stern is an internationally recognized expert on chronic traumatic encephalopathy (CTE) and the long-term effects of repetitive head impacts in athletes. He is the lead investigator of a $17 million, 7-year NIH grant for a multi-center study to develop methods of diagnosing CTE during life as well as examining potential risk factors of the disease. Dr. Stern's other major area of funded research includes the diagnosis and treatment of Alzheimer's disease. He oversees several clinical trials for the treatment and prevention of Alzheimer's and has conducted research on innovative new tests to detect and diagnose the disease. Dr. Stern has over 250 publications, is a member of several medical journal editorial boards, and is the co-editor of two recently published books: Sports Neurology, which is part of the Handbook in Clinical Neurology series published by Elsevier, and The Oxford Handbook of Adult Cognitive Disorders, which is part of the Oxford Handbook collection. He has also developed several widely used neuropsychological tests, including the Neuropsychological Assessment Battery (NAB). Stern has received numerous NIH and other national grants and he is a Fellow of both the American Neuropsychiatric Association and the National Academy of Neuropsychology. He is a

member of the medical advisory boards of several leading biotech/pharma companies and was appointed to the four-member Medical Scientific Committee for the NCAA Student-Athlete Concussion Injury Litigation. In addition to being a scientist, Dr. Stern is a clinician, teacher, and mentor. He is a sought after lecturer, has testified before the U.S. Senate, and he appears frequently on national and international broadcast media, including "60 Minutes," "Today Show," "CBS This Morning," NPR, ESPN, and others.



Jonathan Jay, DrPH, JD – *Assistant Professor, Boston University School of Public Health.* Dr. Jay studies urban health, especially gun violence involving children, as an assistant professor at Boston University School of Public Health. He works at the intersection of data science and community health, focusing on relationships between the built environment and health and safety risks. He leads Shape-Up, a project using analytics to help city residents reduce firearm violence through environmental improvements (winner of the $100k Everytown for Gun Safety Prize and a 2019 Solver with MIT Solve). Dr. Jay previously served as a research fellow for the Firearm-Safety Among Children and Teens (FACTS) Consortium, led by the University of Michigan School of Public Health, and for the Computational Epidemiology Group at Boston Children's Hospital. He also consults on public health and safety with Portland (OR) Fire & Rescue. Before receiving his doctorate in public health (DrPH) from the Harvard T.H. Chan School of Public Health, Dr. Jay trained as a lawyer-ethicist and worked in global health policy. He received a BA with honors from Brown University, a JD cum laude from Georgetown University Law Center, and an MA in philosophy from Georgetown University.

Alcy R Torres, MD, FAAP – *Director, Concussion Clinic, Associate Professor of Pediatrics and Neurology, Boston University School of Medicine*. Dr. Torres, a pediatric neurologist who specializes in traumatic brain injury, is the Director of the Pediatric Traumatic Brain Injury Program at Boston Medical Center. Since 2013, Dr. Torres has engaged in clinical research aimed at understanding the challenges his patients face, and the needs of sports and non-sports related concussion patients, including patients that speak Spanish or other non-English languages. Dr. Torres developed a Standardized Clinical Assessment and Management Plan at BMC that functions to continuously review individual patient data for areas of clinical concussion care that need improvement. His interdisciplinary programs are offered through an open access clinic at BMC, and other satellite locations. The goals of his research are to investigate risk factors for prolonged post concussive symptoms in vulnerable patient populations, assess pharmacological treatments for patients with concussion, increase understanding of the role of psychology in concussion management programming, assess brain imaging in patients with mild traumatic brain injury, and develop brain injury databases of college students and young adults that will help facilitate long-term studies related to chronic traumatic encephalopathy (CTE). It has been an important goal of Dr. Torres' to collaborate with other clinicians researchers at and beyond BMC to increase the research capabilities of other leaders of youth concussion management and treatment.

IPC FACULTY

EXPERTISE AT THE CORE

The IPC core faculty represents a wide range of disciplines and medical specialties. Their combined skills form a foundation for the advancement of the Center's mission. The IPC faculty includes the following individuals:

Tracey Dechert, MD, *Attending Physician, Division of Trauma Surgery, BMC; Associate Professor of Surgery, BUSM.*

Angela Laramie, MPH, *Epidemiologist at Massachusetts Department of Public Health, Occupational and Health Surveillance Program.*

James Feldman, MD, MPH, *Attending Physician and Senior Investigator, Department of Emergency Medicine, BMC; Professor of Emergency Medicine and Chair, IRB Panel Blue , BUSM.*

Ziming Xuan, ScD, SM, MA, *Associate Professor, Community Health Sciences, BUSPH.*

Judith Linden, MD, *Vice Chair of Emergency Medicine, Department of Emergency Medicine, BMC; Professor of Emergency Medicine, BUSM.*

Robert J. Vinci, MD, *Chief, Department of Pediatrics, BMC; Joel and Barbara Alpert Professor and Chairman, Department of Pediatrics, BUSM.*

Lauren Nentwich, MD, *Medical Director of Quality and Patient Safety, Department of Emergency Medicine, BMC; Assistant Professor, BUSM.*

IPC RESEARCH ASSISTANTS

Julianne Dugas, MPH – *Data Analyst*

Abigail Tapper, MPH – *Research Coordinator, Opioid studies*

Jesse Boggis, MPH – *Project Manager, Opioid studies*

Amanda DiMeo, MSc – *Research Coordinator, Opioid studies*

Nicole Shatz, MPH – *Research Coordinator, Opioid studies*

Carlie Alfaro, B.S. – *Research Assistant, Opioid studies*

Brianna Baloy, MPH – *Research Assistant, Opioid studies*

Rachel Plotke, B.A. – *Research Assistant, Opioid studies*

Kathleen Coleman, B.S. – *Research Assistant, Opioid studies*

Tyler Pina, B.S. – *Research Assistant, AURORA*

Samantha Roberts, B.S. – *Research Assistant, AURORA*

Elizabeth Pino, PhD – *Data Manager, VIAP*

Francesca Fontin, MPH – *Research Coordinator, VIAP*

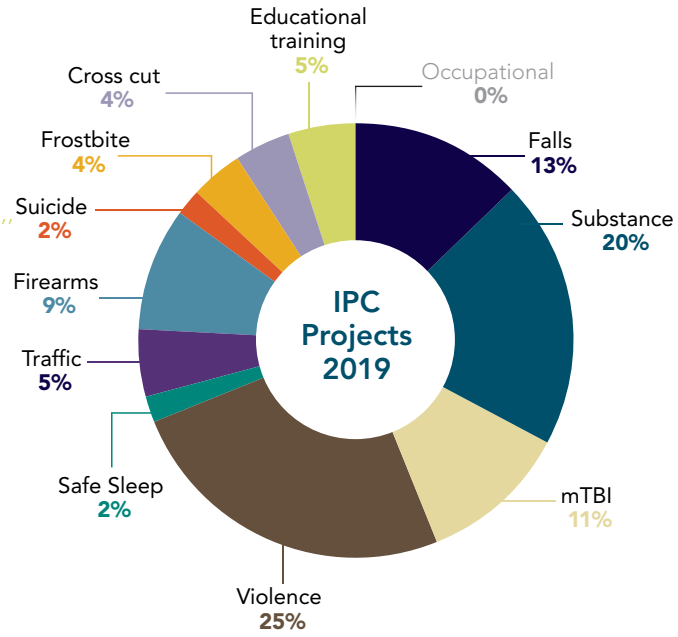
Sandy Gonzalez, MA – *Program Manager, Faster Paths*

DIRECTOR'S REPORT

PROJECTS AND FUNDING

The IPC approaches its 10th year with 55 active projects, of which 51% are externally funded. External funding has increased each year since the center was founded in 2010, reaching a total of around $9 million in 2019. IPC focus areas in terms of proportion of all projects are:

- Violence prevention (25%)
- Substance use disorder (20%)
- Older adults falls (13%)
- Youth concussion (11%)



BOARD OF VISITORS

The first IPC Board of Visitors convened in 2018 and included Karen Antman, MD, Medical Campus Provost and Dean of the Medical School; Sandro Galea, Dean of the BU School of Public Health; the directors of injury centers at Columbia, Brown, and Harvard (Guohua Li, Michael Mello, David Hemingway, respectively); Alice Bonner, former MA Executive Secretary for Elder Affairs; Monica Bharel, Commissioner of the MA Department of Public Health; Monica Valdez Lupi, Executive Director of the Boston Public Health Commission; Ed Davis, former Chief of the Boston Police Department; Carlene Pavlos, Executive Director of the MA Public Health Association; Michael Botticelli, Executive Director of the Grayken Center for Addiction Medicine; Jes Lauritzen, Professor of Orthopedics, University of Copenhagen; Mathew Miller, Professor, Northeastern University; Jonathan Woodson, Director of the Institute for Health Systems Innovation, Boston University School of Management; Cynthia Rodgers, Coordinator of the Northeast and Caribbean Injury Prevention Network; and Melissa Shannon, BMC Vice President for Government Affairs.

The second annual Board of Visitors meeting was convened In April 2019. The keynote talk, *Why Children Should Not Be Exposed to Repetitive Head Impacts*, was presented by Robert A Stern, PhD, Professor of Neurology, Neurosurgery, and Anatomy & Neurobiology at BUSM, and Director of the Clinical Core of the BU Alzheimer's Disease and CTE Center.

NEW DIRECTIONS

Over the last two years, the IPC's relationship with the Chronic Traumatic Encephalopathy Center has expanded in scope and collaborative projects include surveys of Massachusetts High School Athletics Directors and School Nurses on the implementation of the States sports concussion law and a study of disparities across state high schools relative to the student post-concussion management. In 2019, the IPC joined with the Department of Radiology in a study of the epidemiology of frostbite among BMC ED patients. The IPC is working with Boston Vision Zero, a city initiative to reduce traffic injuries, on a study of injury severity by transport mode (car, bike, pedestrian). Other initiatives include developing referral pathways for older adults presenting at the BMC ED with indications of depression/anxiety, risk for falling, possible physical, emotional, and/or financial abuse, and polypharmacy. IPC Senior Scientist Robert A Stern, PhD has testified before the Massachusetts Legislature in support of a law that would prohibit tackle football for children under 12 years and, with IPC colleagues, has been supportive in promoting flag football leagues for children and adolescents.

IPC GRAND ROUNDS

The IPC presents Injury Grand Rounds four times per year. Recent presentations include talks by Alice Bonner, PhD, RN, former Massachusetts Executive Secretary of the Office of Elder Affairs, on elder abuse incidence and intervention, Jonathan Jay, DrPH, Assistant Professor at Boston University School of Public Health on urban environmental effects on incidence of violence, Mikhail Higgins, MD, MPH, Assistant Professor of Radiology and Ted Mooncai, MD, Emergency Medicine resident on the epidemiology of frostbite among BMC ED patients.

PERSONNEL

The IPC welcomes Julia Campbell, MPH as the new Center Coordinator and Jonathan Jay, DrPH as an IPC Senior Scientist.

FOCUS ON FALLS

PRIMARY CARE PHYSICIAN'S ATTITUDES, BELIEFS, KNOWLEDGE AND PRACTICES RELATIVE TO OLDER ADULT FALL PREVENTION

By Jonathan Howland, PhD, MPH and Holly Hackman, MD, MPH

Each year, a quarter of those 65 years of age or older fall. Falls can result in debilitating, sometimes fatal, injuries and affect psychosocial status and quality of life. Among older adults, falls are the leading cause of fatal and non-fatal injuries. In 2015, 2.5 million older adults in the U.S. were treated in emergency departments (EDs) for non-fatal fall-related injuries and more than 734,000 of these patients were hospitalized. In that year, the direct medical costs for older adult falls exceeded $50 billion. Even when falls do not require medical attention, the experience can result in fear of falling, which can be psychologically disabling and lead to future falls through physical deconditioning.

Low cost, low-tech community-based prevention programs can result in 25-30% reductions in falls one-year post-program. Although these programs have been shown to be cost effective, they are not well-integrated into clinical practice and are most often offered by non-medical public and private organizations that serve older adults. Because these programs are typically marketed directly to the public, rather than through referrals from healthcare providers, participants tend to be self-selected and may not be those most likely to benefit from participation.

There have been relatively few studies of provider practices for fall risk assessment and intervention. To address this gap, we surveyed a sample of primary care physicians (PCPs) to assess their beliefs, attitudes, knowledge, and practices relative to fall risk assessment and intervention for older adult patients.

PCPs were surveyed at a convenience sample of two Massachusetts multi-specialty practice organizations, both of which were accountable care organizations (ACOs). The survey was administered May through August 2016.

In total, surveys were distributed to 136 PCPs, of which 71% responded.

RESPONDENT BELIEFS:

Eighty-seven percent agreed that they could do things to prevent their independently living patients from falling.

Ninety-six percent agreed that all patients ages 65 and older should be assessed for falls risk.

Eighty-five percent agreed that a fall risk assessment will uncover factors that can be modified.

Ninety-four endorsed as likely that evidence-based community fall prevention programs can reduce fall risk among high risk older adult patients.

Fifty-two percent agreed that they had the expertise to perform fall risk assessments.

Sixty-eight percent agreed that it is the prevailing standard among professional peers to assess fall risk for of their older adult patients.

RESPONDENT KNOWLEDGE:

Fourteen percent of respondents were aware of the CDC's fall risk assessment toolkit (STEADI).

Fifteen percent were familiar with Matter of Balance, the most widely distributed falls prevention program in Massachusetts.

Forty three percent were familiar with Tai Chi: Moving for Better Balance and, less than 1% of respondents were familiar with Otago, both of which have been shown to be effective in published randomized trials.

RESPONDENT ATTITUDES:

50% Fifty percent of respondents agreed that they had the time to perform fall risk assessment of older adult patients.

24% Twenty-four percent of respondents agreed that they were adequately reimbursed for performing fall risk assessments for their independently living older adult patients.

RESPONDENT PRACTICES:

With respect to conducting assessments recommended by the AGS/BGS Guidelines, the practice groups did not differ significantly on any of the component parts. On average, they reported assessing at least 50% of their older adult patients during the past year for falls history (59.8%), medication regimen (61.5%), and vitamin D deficiency (50.9%). Other assessments were conducted for less than 50% of older adult patients during the past year: vision (38.8%); Timed Up and Go Test (TUG) (20.6%); 4-Stage Balance Test (3.6%). With respect to interventions recommended by the AGS/BGS providers counseled an average of 47% of older adult patients during the past year and made referrals to fall prevention programs for 9.1%.

For community-based fall prevention programs to have population-level impact, they must be broadly disseminated and engage a substantial portion of the older adult population. Large scale participation by older adults in community-based fall prevention programs will likely not occur unless individuals are referred to these programs by their physicians within the context of clinical care.

Our findings indicate that further effort is required to increase integration of evidence-based fall prevention assessment algorithms and community fall prevention programs into primary care. New strategies that more directly target providers are needed to accelerate integration of fall risk assessment and intervention into primary care practice. For example, initiatives could be implemented to enhance education and training about older adult falls for medical students, and other relevant providers. Similarly, continuing medical education on fall prevention could be made a requirement for initial licensure and renewal for relevant healthcare providers. A public or private agency could create and maintain a website that listed the time, place, and sponsor of community-based fall prevention programs, so that older adults and their healthcare providers could locate these programs for referral. Insurance coverage for community-based fall prevention programs by private and public third-party payers could do much to stimulate provider referrals. In the absence of reimbursement, ACOs might consider offering or sponsoring fall prevention to reduce health care costs among their attributed patients.

Despite the limitation on generalizability, it is noteworthy that in most respects, the two practices surveyed were very similar with respect to knowledge, beliefs, attitudes, and practices, with few statistically significant differences. This suggests that findings may apply to other primary care providers in the state because most findings were consistent across the participating practices.

Howland J, Hackman H, Taylor A, O'Hara K, Liu J, Brusch J (2018) Older adult fall prevention practices among primary care providers at accountable care organizations: A pilot study. PLoS ONE 13(10): e0205279. https://doi.org/10.1371/ journal.pone.0205279

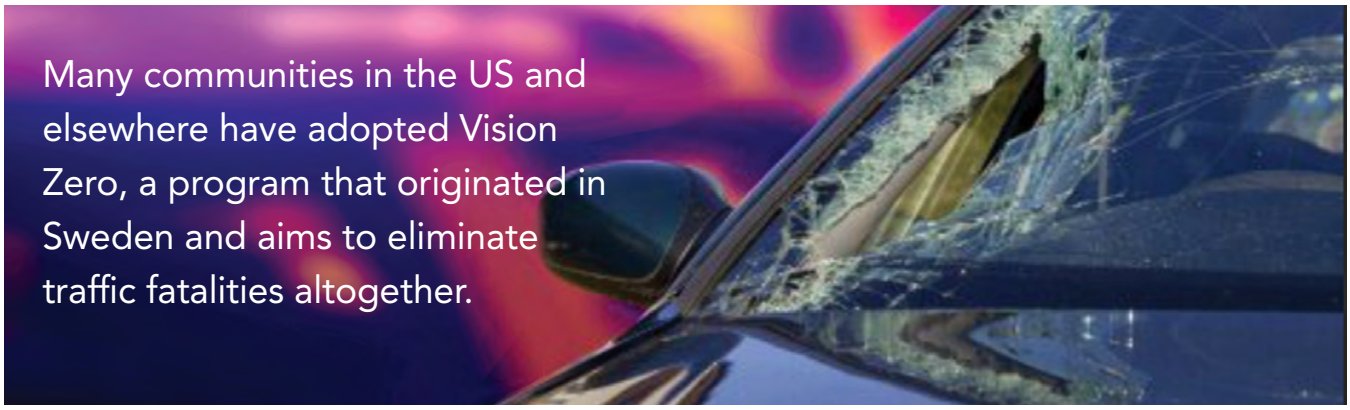
PEDESTRIAN FATALITIES IN THE U.S. — TRENDS AND DEMOGRAPHIC DISPARITIES

By Holly Hackman, MD, MPH and Jonathan Howland, PhD, MPH

Pedestrian traffic deaths represent an increasing proportion of all traffic deaths nationally. A recent report by the Governors' Highway Safety Association (GHSA) indicates that pedestrian fatalities increased 35% during 2008-2017 while all other traffic-related fatalities combined decreased 6%. In 2017, motor vehicle traffic (MVT) deaths to pedestrians in the U.S. were the highest they have been in over 25 years. We examined the details of this trend by demographics and explored disparities to inform future research and prevention strategies.

The Centers for Disease Control and Prevention's Web-based Injury Statistics Query and Reporting System (WISQARS) was used to generate counts, and age-adjusted rates in unintentional pedestrian deaths in MVT among U.S. residents by age subgroups, sex, race, Hispanic ethnicity, geographic region, and urbanization of residence for 2007 through 2017. Comparisons were made with trends in national estimates of nonfatal MVT pedestrian injuries using WISQARS 2007 to 2017 and the Agency for Healthcare Research and Quality's HCUPnet query system for 2007 through 2014 (the latest available at the time of analysis). These query systems use data from the National Electronic Injury Surveillance System (NEISS) and the Nationwide Emergency Department Sample (NEDS), respectively. Trends, characterized by average annual percent change (AAPC) across the time periods, were evaluated for the time periods 2009 and later using Joinpoint software.

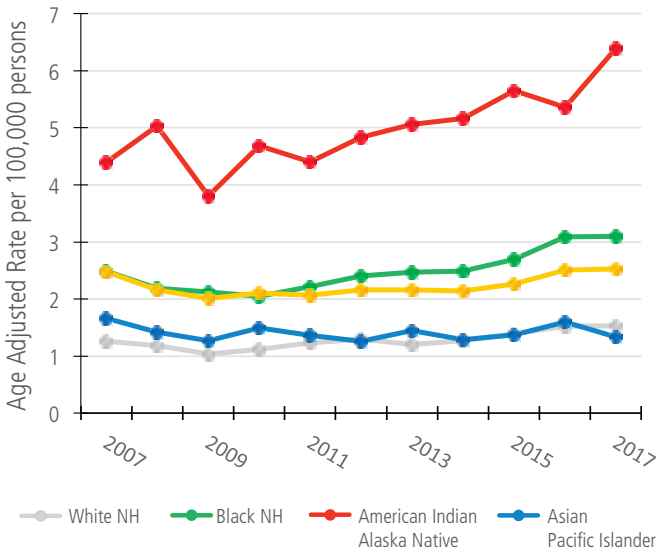
After a period of initial improvement from 2007 to 2009, the U.S. age adjusted MVT pedestrian death rates overall increased 45% from 2009 through 2017, with an AAPC = 4.6. A total of 6,480 individuals died from MVT pedestrian causes in 2017, nationwide. Death rates during 2009 through 2017 increased significantly in both males and females (AAPC = 4.6 and 4.3, respectively). By race and Hispanic ethnicity, rates during this period increased significantly for Hispanics (AAPC = 2.8), white non-Hispanic (NH) (AAPC = 4.6), black NH (AAPC = 4.8), and American Indian/Alaska Natives (AIAN) (AAPC = 3.4); rates among Asian/Pacific Islanders did not change significantly (AAPC = -0.6, p = 0.5) (Figure 1). Death rates during 2009 to 2017 also increased significantly among residents of metropolitan and non-metropolitan areas (AAPC = 4.6 and 2.9, respectively), and for all age groups except those 0-14 years. Western, Southern and



Midwestern regions of the U.S. (AAPC = 6.1, 4.5, and 4.1, respectively) experienced greater increases than the Northeastern region (AAPC = 1.7), although all increased significantly. In contrast, there was no significant change in nonfatal MVT pedestrian injury rates from 2009 to 2017 using estimates from WISQARS (AAPC = -2.1, p = 0.1) nor from 2009 to 2014 using estimates from HCUPnet (AAPC =0.1, p = 0.9).

Significant disparities exist by race, gender and age group. In 2017, individuals 75 years of age and older had the highest MVT pedestrian death rates, approximately 1.6 times the overall rate. AIANs had the highest age-adjusted death rate (6.4 per 100,000 persons) of all racial/ethnic groups in 2017, followed by black non-Hispanics (3.1 per 100,000 persons), with rates 4.2 and 2.0 times that of white, non-Hispanics, respectively. See Figure 1.

Figure 1.
MVT Pedestrian Death Rates by Race/Ethnicity, US, 2007-2017



The increase in these deaths and the associated disparities warrants further research to adequately target preventive interventions. Many factors can affect temporal and geographic variations in pedestrian fatalities, including changes in the economy, population density, demographics, weather, fuel prices, both vehicular miles traveled and miles walked annually, availability of public transportation, street engineering, speed limit and pedestrian safety laws, and substance use. Some hypotheses for explaining the increase in pedestrian fatalities include a shift in the prevalence of pick-up trucks and SUVs, relative to smaller cars. (The number of pedestrian fatalities involving SUVs increased at a faster rate from 2013 to 2017, relative to passenger cars.) Other hypotheses include increased use of distracting electronic devices, either by driver, pedestrian or both, increased numbers of pedestrians, declines in overall driver skills, and increases in substance use by drivers and/or pedestrians.

Despite the trends in pedestrian fatalities, changes to the environment, enacting and enforcing laws, and educating street users can reduce these events. The GHSA reports that pedestrian fatalities in the 10 largest U.S. cities declined by 15% in 2017. Following an aggressive pedestrian safety initiative, New York City traffic fatalities in dropped in 2017 to their lowest level since 1910. Many communities in the US, and elsewhere have adopted Vision Zero, a program that originated in Sweden and aims to eliminate traffic fatalities altogether.

Although large increases in MVT pedestrian death rates seen in recent years have occurred in nearly all demographic groups, these trends are not reflected in pedestrian nonfatal injuries. Further research is also needed to explain the trend differences in fatal and nonfatal events.

H Hackman, J Howland, J Olshaker. Pedestrian Fatalities in the U.S: Trends and Demographic Disparities. Presented to the Northeast Regional Directors Conference, March 2019.

REVIEWS OF DRUG OVERDOSE DEATHS AND THE USE OF MINI-GRANTS TO ADVANCE RECOMMENDATIONS

By Holly Hackman, MD, MPH and Traci C. Green, PhD, MSc

Rhode Island (RI) has been significantly impacted by the opioid epidemic, ranking 11th in unintentional drug overdose rates in the U.S. in 2017. Illicit fentanyl was involved in the majority of these deaths. In 2016, the RI Department of Health (RIDOH) received funding to develop and convene a multidisciplinary and multiagency team of professionals to conduct in-depth reviews of a sample of drug overdose deaths. This review process has recently been established in several states and local municipalities to identify gaps in policies and programming that would otherwise not be identified through traditional data systems and which can inform future interventions. Boston Medical Center's Injury Prevention Staff was contracted to provide coordination and epidemiologic support for this initiative.

The RI initiative, also known as "**M**ultidisciplinary Review of **O**verdose **D**eath **E**valuation" or "**MODE**" had three specific goals. First, to review and gain timely insight into emerging surveillance trends. Second, to identify gaps in, or opportunities for, policy development and prevention and to put forth structural (i.e. advanced through governmental policies and programming) and community-level recommendations to address them. Lastly, to utilize the information obtained through these reviews to inform the periodic distribution of time-sensitive mini-grants (i.e., grants not to exceed $4,900, with projects completed within three months) to RI communities in support of the community-level recommendations.

Since its inception in November 2016, the MODE initiative has evolved over two phases: a pilot phase, through May 2018, in which new and pre-existing memoranda of understanding (MOU) and data sharing agreements provided the legal framework for this work, and a "post-pilot" phase, following the passage of legislation for these reviews in June 2018. During the pilot phase, legal agreements between select state agencies and institutions enabled broad team representation and the sharing of information during each meeting. Professional expertise included a medical examiner, adolescent and adult addiction psychiatrists, a state overdose prevention manager, a physician from the RIDOH Board of Medical Licensure and Discipline, individuals overseeing the state's substance use and mental health treatment system, emergency medicine physicians, a toxicologist, physicians caring for inmates at corrections facilities, an emergency medical services administrator, professionals from the State's prescription monitoring program and the Medicaid program, and epidemiologists.

Reviews were conducted each quarter on up to ten deaths and revolved around a common theme. During the pilot period, the themes of the meetings were: fentanyl-related deaths (poly-fentanyl, and combined with cocaine); overdoses among individuals involved in medication treatment for addiction; overdoses in public locations; overdoses involving novel fentanyl analogues (i.e., furanyl fentanyl) and newly identified forms (i.e., counterfeit medications); overdoses among individuals recently incarcerated; overdoses among women; and overdoses among people of color. The most current statewide data on drug overdoses, including supplemental data findings relevant to the theme of the review, were compiled by BMC coordinators into a surveillance brief. This brief was reviewed with the team members at each meeting, enabling reviewers' statewide context.

Prior to each meeting, decedents' case files were systematically abstracted and synthesized by the team coordinators for the team members to review. This included the decedent's demographics and known medical history, summarized autopsy findings, location of death, toxicology, medical examiner intake information, and police narratives. Team members also brought information to the meeting for discussion, such as decedents' histories of controlled substance use, naloxone prescriptions, incarceration history and medical treatment during incarceration, and dates of substance use disorder and mental health treatment. Meetings were closed to participation by individuals outside of the team due to the confidential nature of the reviews.

Recommendations for prevention were generated by the team and summarized in a report to the Governor's Overdose Prevention and Intervention Task Force and the public within one month of each meeting. Announcements of mini-grant opportunities and funding to advance the community-specific recommendations were paired with each meeting. From November 2016 through May 2018, the pilot team convened 7 times and generated 78 recommendations. During this period 84 mini-grant applications were received and 31 mini-grants were awarded.

Early process evaluations of these grants has shown positive impact within local environments. The concept of the fatal overdose record review team is disseminating quickly, fueled in part by the broader availability of funds from the Centers for Disease Control and Prevention to support state-based initiatives that complement broader epidemiologic surveillance. The RIDOH and its contracted staff at the Boston Medical Center's Injury Prevention Center were able to successfully pilot a multidisciplinary review process for overdose deaths, a process that was institutionalized through legislation in June 2018. The successful implementation of many of the team's community-oriented recommendations, supported through a mini-grant process, highlights the impact that small financial investments can have to address the opioid epidemic and may be a model for other jurisdictions seeking to advance recommendations from these types of reviews. Future directions for multidisciplinary death record reviews such as MODE include cross-state collaborative learning; broader dissemination of the legal (e.g., examples of legislation and its components), procedural, and scientific components essential to the development of these review teams to other jurisdictions; and making investments in technology and procedures to streamline execution of the reviews and meetings.

Hackman HH, Koziol JA, McCormick M, McDonald JV, Green TC. Multidisciplinary team reviews of drug overdose deaths and the use of minigrants to advance recommendations: A statewide pilot in Rhode Island. J Public Health Manag Pract. 2019. doi: 10.1097/PHH.0000000000001081 [doi].

EMERGENCY DEPARTMENT RESPONSE TO THE OPIOID OVERDOSE EPIDEMIC

BRIDGING TRANSITION CHASM FROM ED TO OUD TREATMENT

By Edward Bernstein, MD

EPIDEMIOLOGY

Under current conditions, the opioid overdose crisis is expected to worsen — with the annual number of opioid overdose deaths projected to reach nearly 82,000 a year by 2025, resulting in approximately 700,000 deaths from 2016 to 2025. In 2018, opioid overdose deaths in Massachusetts reached 2,033 (29.4/100,000 and up from 14.3/100,000 in 2013), with Fentanyl confirmed in 89% of cases. Non-fatal overdoses have been rising in the Boston area based on Boston EMS data. From 2013 to 2018, narcotic related incidents (NRI) reported by Boston EMS rose from 1518 to 3546; among the 2018 NRIs, 42% (1250/2912) were transported to BMC ED, double the number NRIs transported in 2013.

THE BOSTON MEDICAL CENTER RESPONSE

In 2009 Project ASSERT partnered with the Boston Public Health Commission (BPHC) and the South End Healthy Boston Coalition to make the BMC ED the first to conduct overdose education and Narcan distribution to patients using drugs. At a meeting in 2013 with the BPHC Commissioner, BMC's President Kate Walsh announced a policy that all ED patients at risk for opioid overdose should be offered opioid education and naloxone/Narcan rescue kits.

Research has shown that the greater the concentration of naloxone in communities the lower the rates of mortality. Over the past five years, Project ASSERT peer counselors, ED providers and pharmacists collaborated to implement the Narcan take-home rescue kit policy. Project ASSERT/Faster Paths staff counsel about treatment options and utilize the PEERS model:

1. **P**aged to bedside;
2. **E**valuate, **E**ducate, and **R**efer interested patients to treatment including addiction medication; and
3. Negotiate a **S**afe discharge.

In 2016 the Departments of Emergency Medicine and General Internal Medicine joined forces to expand treatment options to BMC patients, supported in part by a five-year grant from the MA Department of Public Health Bureau of Substance Use Services to develop, implement and evaluate a Regional Opioid Urgent Care Center. As a result, BMC was able to expand Project ASSERT services and add a Medication for Addiction Treatment (MAT) clinic which combined in 2016 to create Faster Paths to Treatment.

From July 1, 2018 to June 30, 2019 Faster Paths to Treatment/OUCC had 7160 encounters; 2199 resulted in placement in detox and 837 of these were transported by local taxi or Uber Health. Sixty-five were placed in clinical stabilization or transitional programs. Four hundred sixty five patients were initiated on buprenorphine and 61 on naltrexone. Approximately 62% were referred for further care to medication for addiction treatment (MAT) maintenance programs. These encounters represented service to 2660 unique patients: 72% male; 56% white, 24% Black, 17% Hispanic. Among them, 70% reported high rates of homelessness, 10% manic depression, 10% PTSD, and 10% incarceration in past year.

Grayken Center for Addiction at Boston Medical Center

In March 2017 a $25 million dollar grant from the Grayken family to Boston Medical Center created the Grayken Center for Addiction to integrate and intensify BMC's 25 years of innovation in addiction treatment, education and research. Under the leadership of Michael Botticelli, President Obama's Director of the White House Office of National Drug Control Policy, BMC's Grayken Center has played an important role in policy advocacy.

> The fentanyl epidemic clearly demonstrates the critical interdependence of global and public health. **Global health IS public health.**
>
> – Ed Bernstein, MD, Professor of Emergency Medicine at Boston Medical Center; Professor of Community Health Sciences, Boston University School of Public Health; Director, BMC Faster Paths to Treatment

One policy change designed to extend access to addiction care took place in August 2018, when Massachusetts promulgated Chapter 208, an act for prevention and access to appropriate care and treatment of addiction that requires emergency departments to institute "protocols and capacity to provide appropriate, evidence-based interventions prior to discharge that reduce the risk of subsequent harm and fatality following an opioid-related overdose including … protocols and capacity to possess, dispense, administer and prescribe opioid agonist treatment, including partial agonist treatment." In October 2018, in response to the Law, the BMC emergency department, supported by our hospital administration and the BMC Grayken Center for Addiction, implemented an ED Opioid Withdrawal policy.

At BMC, 80% of ED faculty are now X-wavered (DEA licensed to prescribe buprenorphine) and those that are not, including residents, follow the 72 hours federal rule that permits ordering and administering buprenorphine and methadone on a once-a-visit basis to treat symptoms of withdrawal.

As a result of the implementation of the new emergency law, we can report that from October 2018 to May 2019 there were 2,796 encounters related to diagnoses of Opioid Use Disorder or an Opioid Overdose, 160 of which involved the administration of buprenorphine/ suboxone and 131 methadone. Additionally, 1,006 patients were referred and seen by Faster Paths'& Project ASSERT and 40 were seen in Faster Paths Medication Clinic.

BMC's ED is planning to roll out buprenorphine/ suboxone take-home kits with a 48 hour supply, and has adopted quality improvement metrics to track and reach an 80% initiation rate.

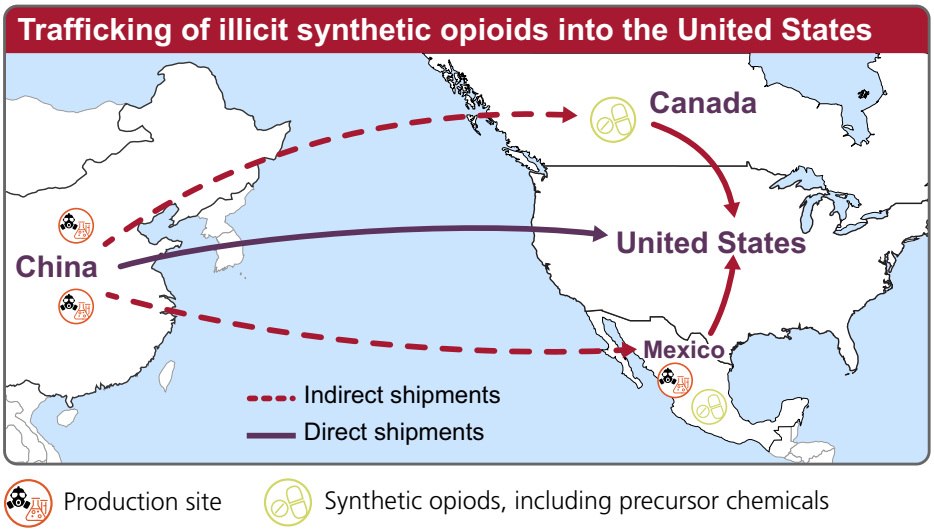
ADDRESSING THE SOCIAL DETERMINATES OF ADDICTION

At BMC we are learning that medical approaches including safe prescribing practices, Narcan distribution, and medication treatment for addiction are necessary but may not be sufficient in themselves to end the opioid epidemic. Access to peer support, trauma-informed mental health and addiction services, safe and sober housing and recreation, good nutrition, jobs and job training, transportation and other wrap around support services requires that health systems such as ours engage with and invest in the communities we serve. Because of the scope of the problem, success in any local area also requires national and global efforts to complement institutional and community programs.

For example, the rise in overdose deaths coincided with the entry of fentanyl, a synthetic opioid, into the illicit drug market. Dr. Nora Volkow, Director of the NIH National Institute of Drug Abuse, wrote in her NIH blog, "It is so highly potent, fentanyl is more easily smuggled into the country, and because it is so cheap to produce, drug traffickers have increasingly turned to fentanyl as a profitable product." The illicit opiate global market annual value is estimated at between $75-132 billion.

The opioid epidemic requires looking beyond biological and medical approaches of prevention, diagnosis and treatment to strategies that address broader structural issues such as the underdevelopment and poverty within illicit drug producing and distributing countries, geo-political relationships that promote international

cooperation in control of drug trafficking and inequities in the opportunity structure among drug consuming populations. It is clear that policies and programs must broadly address both opiate supply and demand and the multi-factorial root causes that underpin the opioid epidemic. As clinicians, we start at home, one community at a time, working with others who have the capacity to tackle these larger issues.



Source:
U.S. Government Accountability Office, *Illicit Opioids: While Greater Attention Given to Combating Synthetic Opioids, Agencies Need to Better Assess Their Efforts*, March 2018

www.gao.gov/assets/700/690972.pdf

Direct shipments from China, including Hong Kong

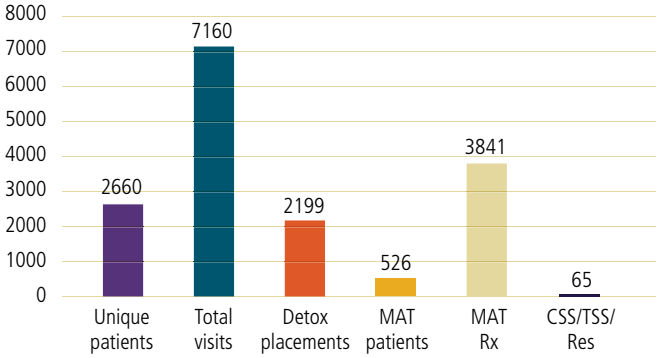
- High-purity synthetic opioids illicitly manufactured in China
- Sold and distributed through online illicit drug markets
- Transported directly into the United States

Trafficked into the United States from China via Canada and Mexico

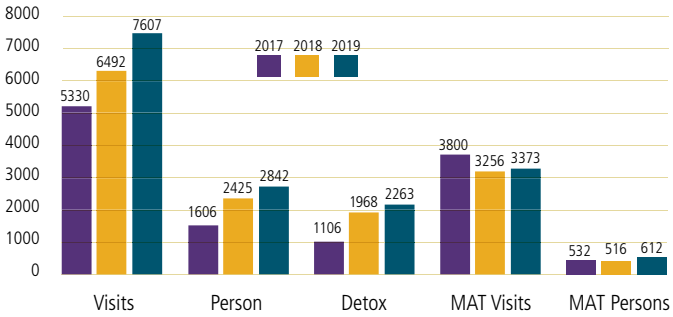
- Mixed with other illicit drugs (lowering purity)
- Sold as heroin or pressed into counterfeit prescription pills
- Potentially illicitly manufactured in Mexico

Faster Paths to Treatment

Faster Paths
July 1, 2018 to June 30, 2019



OUCC Three-year Data Report
January 1, 2017 to December 31, 2019



SPORTS CONCUSSION MANAGEMENT IN MASSACHUSETTS HIGH SCHOOLS

DISPARITIES IN BASELINE NEUROPSYCHOLOGICAL TESTING

By Julia Campbell, MPH, Jonathan Howland, PhD, MPH, and Courtney Hess, MA

Concussion, or mild traumatic brain injury (mTBI), is common among school-aged youth and results from a direct or indirect impact to the head or neck. Incidence estimates among children and adolescents under age 17 range from 1 to 2 million brain injuries a year. An estimated 300,000 of these are sports-related. Youth with concussion can experience both short- and long-term physical, emotional, cognitive, and sleep-related symptoms. Although individual symptoms can vary, researchers have consistently identified negative effects on academics, physiological functioning, psychological well-being, and overall quality of life.

Baseline neurocognitive testing (BNT) is cited by the Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP) as a component of best practice in concussion management. A baseline neurocognitive test establishes individuals' normative cognitive functioning, including visual-motor integration, learning and memory, attention, and reaction time before a potential head injury. Baseline data is stored and retrieved by clinicians for use in the diagnosis of subsequent concussion by comparing baseline results with post-injury test results. Such comparisons inform recovery management and return-to-activity planning, thereby potentially reducing the risk of long-term sequelae that could impact academic performance, social relationships, and emotional well-being.

Despite early adoption of progressive legislation, in Massachusetts (MA) BNT is not included among state-mandated concussion management practices and individual schools elect to conduct BNT at their discretion.

IPC researchers performed a secondary analysis of surveys conducted with MA Athletic Directors (ADs) (n=270) to investigate school characteristics associated with the provision of BNT, and to assess whether the scope of testing is associated with the economic status of student populations. Researchers examined the relationship between the scope and provision of BNT and schools' economic disadvantage rate (EDR). The EDR is the metric used by the state to assess the economic status of student populations, and represents the percent of students in each school whose students participate in state-administered social support programs.

Each school was ranked with respect to the scope of BNT as follows: 0= no testing provided; 1=testing provided to athletes engaged in contact sports; 2= testing provided to students engaged in all sport activities; 3=testing provided to all students in certain grades; and 4=testing provided to all students. In a multivariate regression model, EDR was significantly associated with the scope of baseline testing, while controlling for whether the school employed an athletic trainer, and school size (= -0.01, p= 0.03, adj-R2=0.1135).

Results suggest that cross-school disparities in the provision of student BNT are associated with the economic characteristics of the student body. Schools that have a greater proportion of low-income students are less likely to provide comprehensive BNT. This finding is important because the clinical implications of not receiving a BNT prior to concussion include poorer recovery prognosis and a lack of adequate post-concussive care, which can have short and long-term social, health-related and educational impacts. Moreover, our results indicate that most schools that provide BNT, provide it only for their students engaged in extracurricular sports. However, many youth concussions are not a result of extracurricular sports. Thus, many students may not receive the benefits of baseline testing, even if their school provides it for athletes. Findings also underscores the contradiction that students least able to financially access private BNT are also least likely to have this service provided by their school. It is probable that in many schools with a high EDR, limited school resources are prioritized to student needs other than BNT. Further study is needed to better understand school-level factors that affect disparities in BNT, and other concussion management practices.

Although this study involved a secondary analysis, with a limited range of variables, the relationship between socioeconomic status of student populations and the likelihood of students receiving BNT was statistically significant, and is socially and clinically important. The findings add to the small but growing literature on disparities in implementation of youth concussion policy and provide sufficient evidence to warrant further investigations.

VIOLENCE INTERVENTION ADVOCACY PROGRAM (VIAP)

VIAP LEADS IN ADDRESSING SOCIAL DETERMINANTS OF HEALTH

VIAP aims to break the cycle of violence and retribution by offering support services to victims of gunshots and/or stabbings treated at BMC. There is increasing awareness that social determinants of health affect physical and mental health outcomes. The World Health Organization describes Social Determinants of Health as "the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life."

There are five key areas to addressing Social Determinants of Health: financial self-sufficiency; education; social and community context; health and health care; and, community and environment. VIAP leads the way in providing comprehensive, wraparound services for victims and families that include resources and solutions for each.

Addressing social determinants of health is part of the continuum of care for VIAP clients, which includes food insecurities, housing, employment, and any other unmet need. These issues are addressed concurrently, as each issue intersects with the other. For example, the challenges of finding employment without having stable housing are significant, hence the recent rise in "housing first" programming for some high risk individuals and families in Boston. Additionally, gaps and interruption in education are also addressed and VIAP clients work towards long term, achievable goals for educational attainment.

In 2018, VIAP provided services to a total of 350 new, unduplicated victims of gunshot and/or stabbings.

VIAP Housing Services

VIAP Advocates provided some form of housing assistance 663 times in 2018, which included housing applications, requests for transfers due to safety issues, relocation, and accessing Emergency Shelter services. Twelve VIAP clients also received new housing from Boston Housing Authority, the Section 8 Housing Voucher Program, or a new market rate apartment in 2018.

Additionally, the VIAP Transitional Housing Program, funded by a Department of Justice grant, has been a great learning experience for both staff and clients. For a one-year period, housing was provided to VIAP clients and rent was paid through the grant. During this period, intensive work was done that addressed financial literacy, employment, and life skills. The goal for the end of the pilot project was for clients to be able to take over the lease and maintain their financial self-sufficiency. Nine VIAP clients went through the DOJ Housing Program, and currently 7 are still employed, maintaining their housing independently, and stay connected to ongoing supportive services from VIAP.

Alpha Management, signs leases with 3 VIAP clients.

VIAP Family Support Services

VIAP believes that including the victim's family and those around them in creating a recovery plan significantly influences outcomes. VIAP utilizes families as a resource for victims and provides wrap-around services to anyone identified by the victim as someone impacted by the traumatic event.

In 2018, VIAP Family Support Advocates provided 52 new families and 69 family members with support with housing issues, mental health, legal issues, parenting, and other case management services.

VIAP Employment and Educational Support

IIn 2018, VIAP provided employment services to 56 clients, and obtained 17 new jobs for clients. Three clients also received their GED.

VIAP PARTNERS IN ACTION AND ADVOCACY

City of Boston Neighborhood Trauma Team (NTT)

VIAP is the first point of contact and the entry point to services for almost 75% of all penetrating injuries city wide, making VIAP a critical component to the City of Boston's Neighborhood Trauma Team. The mission of the NTT is to build a system of care with providers and residents at the neighborhood level that strengthens resident's ability to understand what trauma is; and how to recognize its impact on their lives, the lives of their family and friends, and on their community. The goal is for communities to know what they can do to recover and heal from exposure to traumatic events and to know how to access resources; what to expect from them; and how to hold accountable the system of care.

The NTT works with residents and communities to aid in the recovery and healing process, and to continuously improve the robust, reliable, consistent and equitable delivery of trauma related services.

The Boston NTT offer the following services for individuals, families, and communities impacted by community violence:

- Access to support hotline 24/7 365 days a year (617-431-0125)
- Immediate support services for any individual impacted by community violence
- Support for individuals and families during community events including vigils, memorial and funeral services
- Referral to ongoing behavioral health services for individuals and families
- Trauma education and support at community meetings
- Community outreach to distribute basic health information on trauma
- Community coping/healing groups

Support is available to any resident who feels impacted by community violence. All services are free and private.

Boston Public Schools

Succeed Boston, a Boston Public School, formerly called the Counseling and Intervention Center and the Barron Center, is a short-term counseling and intervention program that addresses a range of Code of Conduct violations by students. Initially the Center was created in urgent response to the escalating problems in Boston communities and schools; namely, young people carrying weapons into school, which resulted in the increase of violence-related incidents and subsequent deaths. The Center was first established to provide services to all students city-wide who were found to be in possession of a weapon on school property. In 2012, a shift occurred from the focus on consequences of negative behaviors to decision-making, social emotional learning and the impact of trauma. Curtis Santos, VIAP Advocate, is spearheading the partnership with Succeed Boston to provide monthly workshops during the school year that address intergenerational trauma, community violence, and building resiliency and coping skills. Recently, the students spent a half day at Boston Medical Center visiting the food bank, the rooftop garden, the operating room, and other departments. Feedback from the students was that this was "the best field trip they ever had." Several students also expressed an interest in careers in health care eventually.

The Health Alliance for Violence Intervention (HAVI)

HAVI, of which VIAP is a founding member, is an organization that fosters hospital and community collaborations to advance equitable, trauma-informed care and violence intervention and prevention programs. VIAP staff members are active members of HAVI working groups and have representation on the Policy, Research and Evaluation, Workforce Development, and Communications groups.

Citizens for Juvenile Justice (CfJJ)

VIAP is an active member of CfJJ, the only independent, non-profit, statewide organization working exclusively to improve the juvenile justice system in Massachusetts. We advocate, convene, conduct research, and educate the public on important juvenile justice issues.

Massachusetts Coalition to Prevent Gun Violence

VIAP is a member of the Massachusetts Coalition to Prevent Gun Violence which brings together organizations and institutions across MA to end the epidemic of gun violence that plagues communities and takes the lives of *so many*.

Massachusetts Communities Action Network (MCAN)

VIAP is part of MCAN which advocates for legislative changes that impact our clients and communities. MCAN is a federation of community organizations across Massachusetts working for social and economic justice. Actions include advocacy at the State House and working with legislators to support bills and amendments that impact funding and resources for our communities.

The IPC works with the Boston University Schools of Medicine and Public Health to provide injury prevention education to students.

GMS INTERNSHIP/MPH PRACTICUM

Students at BU's School of Public Health have opportunities to participate in research practicum experiences on various injury prevention topics. They receive mentorship in conducting pilot studies and intervention evaluations. IPC core faculty members teach courses on intimate partner violence and sexual violence intervention and prevention. In addition, students in the BU Medical School's Graduate Medical Science program are offered year-long internships to develop injury prevention research projects as part of their thesis requirement.

INJURY PREVENTION CENTER GRAND ROUNDS

Starting in the fall of 2013, the IPC initiated a series of quarterly lectures on injury epidemiology and prevention for Emergency Medicine faculty, residents, and the community of interest. Lectures are presented by clinicians, researchers, epidemiologists, and public health program directors. The aim is to introduce physicians to injury surveillance data, intervention strategies — particularly those based in clinical settings — risk assessments and policy changes in areas including domestic violence, older adult falls, infant sleep death, opioid overdose, motor vehicle trauma and concussion, among others. The series is embedded in the Emergency Medicine Department's resident training program but is open to the Boston Medical campus and public health practitioners throughout the greater Boston area.

MEDICAL STUDENT TRAINING

Lisa Allee Barmak, the Boston Medical Center Injury Prevention Coordinator, and IPC Director of Education and Programs, provides training to medical students during their orientation to their surgical rotation on injury prevention topics including falls, distracted driving, bicycle safety, substance abuse, safe sleep, child passenger safety and violence prevention. Medical students learn injury trends at BMC and how to incorporate the discussion of injury prevention into their work with surgical patients. Many medical students participate in injury prevention research with the trauma service during their time at BUSM and are provided mentorship by our IPC.

PHYSICIANS IN TRAINING

The IPC-BMC faculty provides lectures and trainings to emergency medicine, surgical, and pediatric residents on injury prevention topics including brief intervention for substance abuse, violence intervention, and childhood injury. These training activities are continuous throughout the year and are conducted at seminars, classes, and weekly conferences.

PROGRAM EVALUATION

Evaluation of Massachusetts Core Injury Prevention Program *(Howland, Rothman, Campbell)* The IPC was selected for the second time by the Massachusetts Department of Public Health as the external evaluator for the state's CDC-funded core injury prevention program. The Department's new five-year injury prevention initiative began in August 2016 and targets traffic safety, youth sports concussion, child sexual abuse, and interpersonal violence.

Evaluation of an "Empowered Communities for a Healthier Nation Initiative" from the U.S. Office of Minority Health *(Hackman)* The IPC was selected by the Boston Public Health Commission's Bureau of Recovery Services as the external evaluator on a three-year project that is expanding harm reduction training and opioid overdose prevention services in the neighborhoods of Roxbury, Mattapan and Dorchester.

OLDER ADULT FALLS

Medication Review to Reduce Fall Risk among Older Adults Patients at an ACO *(Howland, Hackman)* IPC investigators are collaborating with pharmacotherapists and physicians at the Cambridge Health Alliance (CHA), an Accountable Care Organization (ACO), to conduct a trial of a program of medication review for older adult patients. The review focuses on prescriptions for medicines that are associated with increased risk for falling. Pharmacists review prescriptions of patients who are receiving specific fall-risk drugs to identify opportunities to eliminate or reduce the dosage of these medications. Recommended changes in medication are discussed with primary care physicians, psychiatrists and other specialists. If consensus is reached on changes, patients are counseled by the pharmacist and followed for one year to assess frequency of falling and other health effects.

STATE & LOCAL WORK

- **IPC affiliates Theodore Mooncai, MD and William Baker, MD presented *Improving ED Frostbite Identification and Care* at BMC Quality and Patient Safety Week, November 2018**

IPC at the regional Society of Academic Emergency Medicine (NERDS), Worcester, MA:

- Pedestrian fatalities in the U.S: trends and demographic disparities *(Hackman)*
- How well do we treat opiate abuse? Assessing performance in an urban academic emergency department *(Gill, Garcia, Baker, Nentwich)*
- Public health students' role in a pediatric emergency department health promotion advocacy program *(Campbell, McCartin, Bernstein)*

Pre-fracture medication use as predictor of 30-day mortality in hip fracture patients *(Jantzen, Lauritzen, Howland, et al.)* Hip fractures are associated with increased morbidity, mortality and cost to society. The increased mortality is known to be influenced by factors related to patients and hospital services, but the correlation between pre-fracture medication usage and mortality are less well explored. In a project, led by investigators at the University of Copenhagen, the BMC Injury Prevention Center participated in a study to evaluate the predictive value of pre-fracture medication usage on 30-day mortality following a hip fracture.

In total, 143,553 patients were included and a total of 27 drug groups were identified for analysis. Controlling for age, sex and Charlson score, an increase in mortality was found for several medications. This information might be used to identify high-risk patients for whom intensified care could be deployed to reduce post hip fracture mortality.

Jantzen C, Madsen CM, Jorgensen HL, Lauritzen JB, Abbrahamsen B, van der Mark Susanne, Duus B, Howland J (2018). Pre-fracture medication use as a predictor of 30-day mortality in hip fracture patients – An analysis of 143,553 patients. Hip International, March 1, 2019 D0l:10.1177/1120700019832603

INTERPERSONAL AND OTHER VIOLENCE

Evaluation of One Love Escalation Workshop with United States Navy *(Rothman, Campbell)* The aim of this randomized control study was to evaluate the efficacy of a program to reduce sexual abuse and interpersonal violence (IPV) among U.S. Navy Sailors. The One Love Foundation's Escalation workshop consists of a film about a fictional dating abuse-related homicide of a college student followed by a 45-minute discussion with a trained peer facilitator. The workshop focuses on making audiences aware of unhealthy relationship behaviors, available resources, and the tools to identify and intervene in IPV situations. The Navy partnered with IPC Senior Scientist Emily Rothman to evaluate the impact of the One Love prevention program on a sample of Sailors. Significant improvements were observed in outcomes related to attitudes about dating abuse, engagement in prevention-oriented bystander behavior, including starting conversations with friends and family about partner violence; intervening when someone was talking down to, bullying, or otherwise harassing someone else; and intervening with someone who appears to be thinking of hurting themselves.

Recovering in Safety: Addressing the Intersection of Partner Violence and Opioid use in Rural Vermont *(Rothman, Campbell)* This study examines the relationship between opioid use disorder (OUD) and intimate partner violence (IPV) among women in rural Vermont. The aim is to increase rates of recovery from OUD and reduce the frequency and severity of IPV. The study is part of the Robert Wood Johnson Foundation's Interdisciplinary Research Leaders initiative and consists of three phases: survivor and stakeholder qualitative interviews; development of a community-based intervention; and an evaluation of the developed intervention. Qualitative analysis of phase one survivor interviews is complete, and researchers are now working with survivors and stakeholders in Vermont to develop and implement a community-based intervention designed to improve access to OUD treatment for IPV survivors.

Screening for Intimate Partner Violence-related Traumatic Brain Injury: A Survey of MA Emergency Shelter Advocates *(Rothman, Campbell)* It is estimated that between 30 - 74% of intimate partner violence (IPV) victims seeking emergency shelter or care in the emergency department have sustained an mTBI as the result of IPV. IPC investigators are collaborating with the Massachusetts Department of Public Health (MDPH) to survey advocates working in domestic violence residential programs in greater Boston about their knowledge and practices regarding screening for mild traumatic brain injury (mTBI) among their clients. Results of the survey will be used to develop training modules that will help staff identify and assist survivors with suspected brain injury and related conditions. The training will aim to increase provider knowledge about the signs, symptoms and risk factors for mTBI among survivors of IPV, as well as how to refer clients with suspected brain injury for medical care.

SUBSTANCE USE DISORDER

Prescription Drug Overdose – Prevention for States, MA *(Green, Hackman)* This CDC-funded cooperative agreement provides support to the Massachusetts Department of Public Health to expand overdose prevention initiatives. As part of this agreement, the IPC has been engaged in evaluations of several state policies including the Good Samaritan law and opioid prescribing policies. In addition, to inform overdose prevention activities the IPC is collecting data throughout the state from persons who use drugs.

Overdose Data to Action, MA *(Green)* This CDC-funded cooperative agreement provides support to the Massachusetts Department of Public Health to translate overdose data to actionable initiatives. The IPC will continue rapid assessment projects and expand new surveillance efforts.

Opioid Biosurveillance Projects *(Hackman, Green)* This CDC-funded project provided support to the Massachusetts Department of Public Health to enhance surveillance systems for opioid surveillance, including the State Unintentional Drug Overdose Response System (SUDORS), the Massachusetts Ambulatory Trip Reporting System (MATRIS), and Emergency Department Syndromic Surveillance. The IPC was engaged in 2019 to support Abt Associates in the implementation of several of these enhancements.

IMPROVHISE: Motivating Physician's Response to Opioid Dependence in HIV Setting *(Walley, Green)* This implementation study evaluates the effectiveness of academic detailing for promoting physician best practices for preventing opioid overdose among the HIV-positive patient population. The academic detailing aims to increase naloxone prescribing, prescribing medication assisted therapies, and uptake of medication assisted therapy training. The project measures physician prescribing changes in 11 study sites across the country. A supplement to this study will develop and validate a methodology to measure the effectiveness of naloxone distribution and use through existing reporting mechanisms in the state prescription monitoring program.

Pregnancy and Opioid Use: Using Prescription Monitoring Programs to improve care *(Green)*: This study seeks to develop and evaluate a Continuing Medical Education (CME) program for prescribers in identifying and responding to prescription opioid use, misuse, and addiction among pregnant women patients and "academic detailing" of prescribers treating pregnant women using opioids. The evaluation will document clinical outcomes associated with these interventions.

Prescription Opioid Use, Misuse, Disorders and HIV Outcomes *(Green)* This project will employ innovative approaches to understand the types and impact of prescription opioid use among HIV+ patients with chronic pain, and to understand the complex patient and provider factors that influence health outcomes for this population.

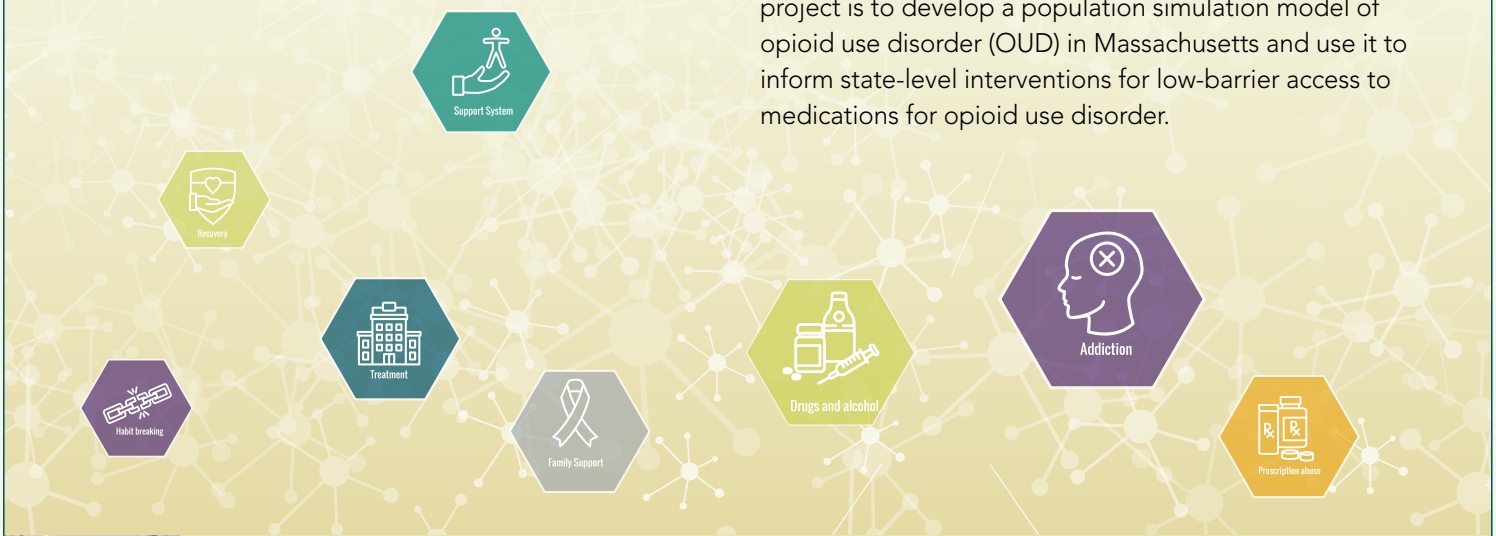
Pharmacy Naloxone Distribution: Assessing a New Tool to Reduce Overdose Mortality *(Pollini, Green, Walley)* This study will assess the implementation of a novel Massachusetts program designed to expand naloxone access by allowing community pharmacies to dispense the drug under standing orders from a licensed physician. The study will examine barriers and facilitators to program implementation from the perspectives of pharmacists, illicit opioid users, and potential overdose bystanders. It will also assess the impact of the program on opioid overdose mortality rates.

Respond to Prevent: A multi-state randomized controlled trial of pharmacy naloxone and opioid safety interventions *(Green)* This four-year multi-site randomized control trial will refine and test the efficacy of a pharmacy-based naloxone and opioid safety intervention at CVS and other Safeway/Albertsons retail pharmacies in Massachusetts, New Hampshire, Washington, and Oregon.

Clinical Addiction Research and Education (CARE Program) *(Samet, Walley)* This program exposes physicians-in-training to addiction clinical research and immerses chief residents and infectious disease fellows in addiction medicine to facilitate their teaching and inclusion of drug abuse issues into HIV research.

REBOOT: Repeated-dose behavioral intervention to reduce opioid overdose: a two-site randomized-controlled efficacy trial *(Coffin, Walley)* The goal of this project is to conduct a randomized-controlled trial of a repeated- dose motivational interviewing intervention to reduce overdose vs routine care.

RESPOND: Researching Effective Strategies to Prevent Opioid Death *(Linas, Walley)* The goal of this project is to develop a population simulation model of opioid use disorder (OUD) in Massachusetts and use it to inform state-level interventions for low-barrier access to medications for opioid use disorder.



NATIONAL WORK

Alexander Y. Walley, MD, MSc was a presenter at the Office of National Drug Control Policy in Washington, D.C. in June 2019. He spoke on building the addiction medicine workforce to expand access to treatment for substance use disorders. He also presented "How Hospitals Can Play a More Significant Role in Changing the Trajectory of the Opioid Epidemic" at the 2019 Rx Drug Abuse and Heroin Summit in Atlanta, Georgia.

Emily Rothman, ScD gave a Ted Med talk in Palm Springs, CA called, "How porn changes the way teens think about sex" that discussed her science-based curriculum that provides teens with the tools needed to understand how pornography influences their understanding of sex, sexual consent, intimacy and dating behaviors.

SAEM Annual Conference, Indianaoplis, IN

- A Survey of Massachusetts Primary Care Physicians: Older Adult Fall Risk Assessment, Intervention, and Referral *(Hackman, Howland, O'Hara)*
- Evaluation of a Near Real-Time Statewide Emergency Department Surveillance System for Suspected Opioid Overdoses: Experiences from Rhode Island *(Hackman, Green, McCormick, Koziol, O'Hara)*

SAEM Annual Conference, Las Vegas, NV

- How well do we treat opiate abuse? Assessing performance in an urban academic emergency department *(Gill, Garcia, Baker, Nentwich)*
- Exploring Opportunities to Improve Outcomes of Older Adults by Targeting Their Social Determinants of Health (AGEM and ADIEM Sponsored) Didactic Presenter: *Kalpana Narayan Shankar, MD, MSc, MSHP*

American College of Emergency Physicians (ACEP), Denver, CO

- Determining patterns of post-concussive symptoms in adults presenting to the ED after MVC across age groups. *(Beudoin, Change, McGrath, Datner, Rabinowitz, Peacock, House, Musey, Hendry, McLean.)*

CDC Conferenced Medication Therapy Management, Atlanta, GA

- Medication Therapy Management is a Residential Addiction Treatment Program in Massachusetts *(Reilly, Burns, Hackman, Sorensen-Alaward)*

Wilderness Medicine Conference, Crested Butte, CO:

- Drowning Injuries in the United States: Patient Characteristics and Complications in Hospitalized Patients Nationwide *(Maksimenko, Dugas, Ryan)*

The National Network for Hospital Based Violence Intervention Programs, Healing Justice Alliance Annual conference

- Mitigating Barriers: Unique and Individual Approaches to Engagement, 2018 *(Allee)*
- Trauma Informed, Healing Centered Mental Health Services – A Sharing Circle, 2019 *(Allee)*

Eastern Association for the Surgery of Trauma's Scientific Assembly, FL:

- Turning Trauma Research into Community-Level Advocacy *(Allee)*

Effectiveness of the Consult for Addiction Treatment and Care in Hospitals (CATCH) model for engaging patients in opioid use disorder treatment: Pragmatic trial in a large municipal hospital system *(McNeely, Weinstein, Walley)* The goal of this project is to develop and implement an addiction medicine consult service at 6 hospital sites through clinical training and development of a manual for hospital-based addiction treatment, which will standardize procedures across sites by describing treatment practices and policies for initiation and titration of medication, linking patients to treatment, and following patients post-discharge including the bridge clinic.

PRONTO: Knock and talk: Public Health-Public Safety Partnerships for Post-Overdose Outreach and Prevention *(Walley)* This project is a rigorous evaluation of Massachusetts' "Knock and Talk" programs. These novel secondary prevention programs deploy local public health and public safety partners to engage opioid overdose survivors and their social networks in overdose risk reduction and to facilitate access to addiction treatment and overdose prevention services.

Massachusetts HEALing Communities Study – Reducing overdose deaths by 40% *(Samet, Walley)* The MassHEAL study will implement and evaluate an intervention targeting overdose fatalities in 16 highly-affected Massachusetts communities via a cluster randomized parallel group design. The primary study outcome is the number of overdose fatalities in the last year of a 3-year intervention period.

URBAN ARCH Boston Cohort – Alcohol and HIV-associated comorbidity and complications: Frailty, Functional impairment, Falls, and Fractures *(Saitz, Walley)* Alcohol, substance use, use of any medications, underlying inflammation, other diseases and impairments related to HIV infection lead to people with HIV infection having a high risk of falling, even at a relatively young age. This project aims to study people with HIV infection to understand and evaluate how to better prevent falls.

PROFOUND: Prevention and Rescue of Fentanyl and Other Opioid Overdoses Using Optimized Naloxone Distribution Strategies *(Schackman, Walley, Marshall)* Experienced teams of investigators in New York City, Massachusetts, and Rhode Island have been working closely with government agencies and local communities to address the opioid crisis. In this study we will estimate the impact of alternative strategies for community and pharmacy distribution of naloxone on overdose fatalities.

EXHIT-ENTRE: Exemplar Hospital Initiation Trail to Enhance Treatment Engagement *(Bart, Walley)* This study includes two major aims: 1) a multi-site randomized controlled trial of extended release buprenorphine for hospitalized patients with opioid use disorder; and 2) a multi-site trial assessing high and low intensity implementation of addiction consult services across community hospitals in Massachusetts.

SPORTS CONCUSSION

Survey of Schools Nurses on Concussion Management in MA High Schools *(Howland, Hackman, Campbell, Hess)* In 2011, the Massachusetts Department of Public Health (MDPH) issued regulations pursuant to 2010 Massachusetts youth sports concussion legislation that provided policies and procedures for persons engaged in the prevention, training, management, and return-to-activity for students who sustain head injury during interscholastic athletics. This study will survey Massachusetts high school nurses to assess implementation of best practices for management of student concussion. The aim of the study is to examine practice variations as a function of the economic status of the student populations. The study is conducted in collaboration with Courtney Hess, a graduate student in Counseling Psychology at UMASS Boston.

Survey of Massachusetts Athletic Directors on Implementation of State Sports Concussion Regulations *(Howland, Campbell, Olshaker, Stern, Torres)* Athletic Directors (ADs) are significant stakeholders in the identification and management of head injury among student athletes. On behalf of the MA Department of Public Health, in 2018-2019 IPC investigators surveyed all Massachusetts high school ADs to assess their experience in implementing sports concussion regulations. The response rate was 75% (260/346). Results indicated that most ADs support the law, perceive the impact on their workload as moderate, and report that their schools had

a concussion management team, consisting of ADs, Athletic Trainers, School Nurses, and guidance counselors, to oversee students' post-concussion return-to-activity. While they perceive their peers and colleagues (Athletic Trainers and School Nurses) as knowledgeable about the regulations, they rate students, parents and students' healthcare providers as less knowledgeable in this respect.

Evaluating Post-Concussion Back to School Guidelines *(Howland, Campbell)* In 2018 the Massachusetts Department of Public Health (MDPH) developed a booklet to provide guidelines and tools for school staff as they support students in the process of returning to school following a concussion. This document was sent to all School Nurses in the state and made available online. In collaboration with the MDPH's Injury Prevention and Control Program, the IPC will conduct a survey of School Nurses to assess the effectiveness of the booklet for facilitating students' post-concussion reentry to academic activity.

Focus Groups with Massachusetts School Athletic Directors *(Howland, Campbell)* As part of an ongoing quality assurance program of the implementation of the Massachusetts youth sports concussion legislation, the IPC and the Massachusetts Department of Public Health conducted focus groups with Athletic Directors (ADs) at Massachusetts middle and high schools. Participating ADs felt that implementation of legislated regulations was necessary and important for protecting student athletes, despite many aspects of implementation being burdensome. Challenges identified included difficulties communicating with other relevant stakeholders, discordance between physician practice and regulation protocols, a lack of information flow about concussions that occurred in venues other than school athletics, and challenges associated with ADs lack of medical training relative to concussion management.

O'Hara K, Campbell J, Torres A, Brown L, Olshaker J, Howland J. (2020). Evaluation of Implementation of Massachusetts Sports Concussion Regulations: Results of Focus Groups with Athletic Directors, under review.

CLINICAL PRACTICE

The IPC works closely with various departments to integrate injury prevention into the clinical care of patients.

Screening, Brief Intervention, and Referral to Treatment (SBIRT) Project for Trauma Patients *(Barmark)* Substance abuse in general, and alcohol use in particular, have been clearly linked to fatal and non-fatal injury. Alcohol intoxication has been associated with 35-56% of all traffic fatalities, 25-35% of all non-fatal motor vehicle crashes, 40% of all falls, and 32-54% of homicides. The clinical social workers in the Care Management Department screen all trauma patients for high risk substance use using the National Institute on Alcohol and Alcoholism guidelines and provide SBIRT to all those who screen positive. The social workers are also involved in recovery of all trauma patients and their families and follow them throughout the hospitalization.

Longitudinal Assessment of Post-traumatic Syndromes (AURORA) *(McLean, McGrath, Mitchell)* The newly launched AURORA study, a NIH-funded multicenter project, has three overarching goals: to characterize posttraumatic disorders at a fundamental biological level; to determine how these disorders develop; and, to develop tools that will help clinicians identify individuals at high risk in the early aftermath of trauma. BMC will enroll patients who are discharged from the Emergency Department after a traumatic event. The goal of the AURORA study is to develop new insights to prevent morbid outcomes that are common in military veterans and civilian trauma survivors.

INTERNATIONAL WORK

International Brain Injury Association, Toronto, Canada:

- **Evaluating the Implementation of the Massachusetts Sports Concussion Law: Preliminary Results from a Survey of Athletic Directors. *(Howland, Wood, Hackman, Torres, Olshaker, Pearson, Brown)***

The IPC's mission includes not only research on the causes and prevention of injury, but also the development and implementation of evidence-based programs to serve the community. Working closely with several BMC departments, the IPC is conducting a number of injury prevention programs and services for Boston residents.

Violence Intervention Advocacy Program *(Thea James, MD; Elizabeth Dugan, LICSW)* Provides comprehensive resources to victims of intentional violence.

Supporting Male Survivors of Violence *(Elizabeth Dugan, LICSW; Carlos Cuevas, PhD)* Provides innovative interventions to address gaps in services, specifically housing and employment for high risk victims of violence.

Youth at Risk *(Elizabeth Dugan, LISCW)* The project, "From the Emergency Room to the Future: A Positive Youth Development Approach to Healing," is part of the Boston Medical Center (BMC) Violence Intervention Advocacy Program (VIAP), a hospital-based intervention program for all gunshot and stab victims that present at the BMC Emergency Department.

"Trauma not Drama" *(Curtis Santos, Francesca Fontin, MPH, Elizabeth Dugan, LICSW)* Addressing intergenerational and community issues in Boston Public Schools that impact social functioning, education, and health, and coping skills through a Positive Youth Development model.

Home Visiting Nursing *(Elizabeth Dugan, LICSW, Julie Swain, RN, Francesca Fontin, MPH, Elizabeth Pino, PhD)* Evaluates the impact of integration of in home medical care and VIAP case management of victims of penetrating trauma.

Senator Charles Shannon Community Safety Initiative *(Elizabeth Dugan, LICSW)* Supports the City of Boston comprehensive strategy aimed at reducing gun, gang and youth violence.

Community Violence Response Team *(Lisa Allee Barmak, MSW, LICSW)* Works to reduce psychological trauma associated with violence through counselling and other interventions.

Faster Paths *(Ed Bernstein, MD; Sandy, Gonzalez, MA)* Provides rapid access and treatment to appropriate level of care including acute treatment services and medically assisted treatment for those experiencing substance use disorders.

Child Passenger Safety Program *(Lisa Allee Barmak, MSW, LICSW)* Provides car seat installations, inspections, and education.

Low Cost Bicycle Helmet Program *(Lisa Allee Barmak, MSW, LICSW)* The IPC works in collaboration with the Boston Public Health Commission and the Play Safe Campaign to provide low-cost bicycle helmets to Boston residents.

Matter of Balance *(Lisa Allee Barmak, MSW, LICSW)* The IPC conducts a community-based program to reduce older adult fear of falling and to train student Physical and Occupational therapists.

Project ASSERT *(Ed Bernstein, MD, Ludy Young, M.Ed, LADC-1)* Reaching out to ED, inpatient and walk-in clients, an experienced team of Health Promotion Advocates provide services for those with substance use disorder, such as: linkage to primary care; shelter; opioid overdose prevention; and continuous advocacy and ongoing support.

Cribs for Kids *(Lisa Allee Barmak, MSW, LICSW)* Provides parents of newborns with cribs and information on infant safe sleep practices.

Boston Public Schools Outreach *(Lisa Allee Barmak, MSW, LICSW)* The IPC Director of Programs and Education pairs with one of the BMC Trauma Surgeons for monthly presentations at Succeed Boston of Boston Public Schools. These presentations offer a realistic picture of the physical and psychological challenges facing victims with gunshot and stabbing injuries. This presentation is provided to youth identified by the Boston Public Schools as being at high risk for interpersonal violence.

Critical Incident Response to Schools *(Lisa Allee Barmak, MSW, LICSW)* This program conducts parent/child forums that stress the importance of healthy choices and seat belt use, the risks of distracted driving, and the realities of injuries that may be sustained during a car crash.

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Michael Mello, MD, MPH, Professor of Emergency Medicine and Professor of Health Services, Policy and Practice at Brown University, Director of the Injury Prevention Center at Rhode Island Hospital/ Hasbro Children's Hospital

David Hemenway, PhD, Professor of Health Policy, Harvard TH Chan School of Public Health, Director of the Harvard Injury Control Research Center

Alice Bonner, Ph.D., RN, FAANP, FGSA, Secretary of the Massachusetts Executive Office of Elder Affairs

Monica Bharel, MD, MPH, Commissioner of the MA Department of Public Health

Monica Valdes Lupi, JD, MPH, Executive Director of the Boston Public Health Commission

Ed Davis, President and CEO, Edward Davis, LLC

Carlene Pavlos, M.T.S., Executive Director of the Massachusetts Public Health Association, Former Director of Bureau of Community Health and Prevention at the Massachusetts Department of Public Health

Michael Botticelli, M.Ed, Executive Director of the Grayken Center for Addiction, Boston Medical Center

Jes Lauritzen, MD, Professor of Orthopedics, University of Copenhagen

Mathew Miller, PhD, MD, Professor of Health Sciences and Epidemiology at Northeastern University and Co-Director of the Harvard Injury Control Research Center

Jonathan Woodson, MD, Lars Anderson Professor in Management and Professor of the Practice at the Boston University Questrom School of Business; Professor of Surgery at the School of Medicine; and Professor of Health Law, Policy and Management at the School of Public Health, Director of the Institute for Health System Innovation and Policy

Cynthia Rodgers, M.S.P.H., Coordinator of the CDC-funded Northeast and Caribbean Injury Prevention Network and Project Specialist for the Children's Safety Network

Melissa Shannon, JD, Vice President for Government Affairs, Boston Medical Center

HONORS AND RECOGNITIONS

The Center values our members' world-class talents and hard work in promoting our mission. It is especially rewarding when the medical world at large also pays tribute to their dedication and successes.

Boston Magazine recently published its annual list of "Top Docs." Of 97 physicians representing BMC, two are members of the IPC: **Alcy Torres, MD, FAAP** (Child Neurology:), and **Peter Burke, MD** (Surgery)

Peter Burke, MD, Chief of Acute Care & Trauma Surgery, has been named 2019 Jerome Klein Award for Physician Excellence recipient. Established in 2010 to commemorate Dr. Klein's 50 years of service to BMC/BUSM, the award is presented annually to a physician who exemplifies Dr. Klein's attributes, including clinical and research excellence, leadership, and dedicated commitment to education and mentoring.

Every year, the department of Surgery presents an employee who has gone above and beyond in caring for trauma patients with the prestigious Hirsch Award, named in honor of Dr. Erwin Hirsch, longtime BMC Chief of Trauma Surgery (1935-2008). This year's recipient, **Rusti Pendleton**, VIAP Supervisor, embodies patient- and family-centered care. Receiving police alerts, Rusti responds to gunshot and stab wound incidents 24/7— often arriving at the same time or before the ambulance. Tasked with talking with family members about their loved one, Rusti's input and availability are immeasurable. He always ensures that patients and families, as well as healthcare providers, feel supported during very difficult times.

Alexander Y. Walley, MD, MSc, received the Association for Medical Education and Research in Substance Abuse Mentorship Award.

Injury Prevention Center

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