

ID: 44333794

Injury, Occupation Health - Host Site Description

Massachusetts Department of Public Health

Assignment Location: Boston, US-MA
Massachusetts Department of Public Health
Bureau of Community Health and Prevention/Office of Statistics and Evaluation/Injury Surveillance Program

Primary Mentor: Samatha Riley, Dr.PH, MPH, MS
Injury Epidemiologist
Massachusetts Department of Public Health

Secondary Mentor: Jeanne Hathaway, MD, MPH
Injury Epidemiologist
Massachusetts Department of Public Health

Work Environment

Hybrid

Assignment Description

The fellow will be a member of the Injury Surveillance Program, in which Drs. Riley and Hathaway work. The Injury Surveillance Program is part of the Office of Statistics and Evaluation (OSE) in the Bureau of Community Health and Prevention (BCHAP). The fellow will also work regularly with staff in the Occupational Health Surveillance Program (OHSP) and Injury Prevention and Control Program (IPCP), which are also part of BCHAP. Within BCHAP, IPCP sits within the Division of Violence and Injury Prevention.

The fellow will work with Drs. Riley and Hathaway and OHSP staff to create a schedule and timeline for the main projects. The fellow's weekly schedule will include dedicated time to focus on fellowship projects, attend regularly scheduled meetings within MA DPH and with external partners, and dedicated time to participate in additional learning opportunities. Approximately 4 hours per week would be dedicated to additional projects related to the fellowship's core competencies, including emergency preparedness work with the MA DPH Office of Preparedness and Emergency Management (OPEM), cluster and outbreak investigations with the ED Syndromic Surveillance (EDSyS) team, and COVID-related activities with the COVID-19 Community Impact Survey (CCIS) team. An additional 2-3 hours per week will be dedicated to additional learning opportunities, such as meeting individually with MA DPH staff from other programs, participating in health and racial equity trainings and workgroups, attending webinars and trainings, and other professional development activities. Dr. Riley will also work with the fellow to identify state and national conferences of interest, help identify funding and necessary approvals to attend conferences as per MA DPH guidelines, and facilitate the completion of documents required for travel by state employees.

The fellow will meet weekly with Drs. Riley and Hathaway throughout the fellowship and weekly with OHSP staff while working on the Surveillance Activity of enhancing surveillance of motor vehicle crash injuries to workers. As an integrated member of the ISP and OHSP teams, the fellow will participate in weekly meetings of the MA CRISS Team, bi-weekly meetings of ISP & IPCP staff and the Transportation Safety Team, monthly meetings of ISP, OSE, and DVIP staff, and the CSTE Injury Surveillance workgroup, and quarterly meetings of MA DPH Injury Epidemiologists, MA DPH Epidemiologist Community of Practice, BCHAP staff, Mass Prevent Injuries Now Network (MassPINN), the MA Traffic Safety Coalition (MATSC), and Northeast and Caribbean Injury Prevention Network (NCIPN). The fellow will also be invited to attend OHSP staff meetings, two annual meetings of the CSTE Occupational Health Subcommittee, CSTE Occupational Health Indicators and BRFSS workgroups, and quarterly meetings of the OHSP Advisory Board. Currently, these meetings are all virtual, but some may transition to in-person meetings over the course of the fellowship. There are also regular virtual "hangout" sessions for ISP, IPCP, and BCHAP colleagues to meet informally and help build

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community in a hybrid work environment. Based on their interests, the fellow may also choose to attend additional meetings with internal and external partners, as described above in “Descriptions of Partnerships and Collaborative Efforts”.

Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

As an integral member of the Injury Surveillance Program, the fellow will be exposed to a broad range of data sources through the Injury Surveillance Program, the Occupational Health Surveillance Program, and the Division of Violence and Injury Prevention. The MA Crash-Related Injury Surveillance System (MA CRISS) includes crash, driver license/history, hospital casemix (hospital discharge, observation stay, and emergency department discharge), trauma registry, and emergency medical services data. ISP also manages surveillance data in the MA Violent Death Reporting System, Overdose Data to Action Program, and Weapon-Related Injury Surveillance System, and has full access to Vital Records and Statistics (death) data and survey data from the MA Behavioral Risk Factor Surveillance System, MA Youth Risk Behavior Survey, and MA Youth Health Survey. In addition, the Occupational Health Surveillance Program has access to state workers’ compensation claims data.

The fellow will be provided with an account to use the cloud-based SAS Enterprise system. MA DPH offers several SAS training courses (for example, SAS Programming 2: Data Manipulation Techniques, SAS Macro Language 1: Essentials, Multivariate Statistics for understanding complex data) on an ongoing basis. Besides Microsoft 365 software the fellow will have access to Tableau, PowerBI, NVivo, and ArcGIS. MA DPH has several resource groups that the fellow will have access to, including a Community of Practice (CoP) for epidemiologists, a SAS Users group, and a GIS Users group.

Projects

Surveillance Activity Title: Enhanced Surveillance of Work-related Motor Vehicle Crash Injuries and Deaths

Surveillance Activity Description:

In the Surveillance Activity, the fellow will work with the MA Department of Public Health (MA DPH) Occupational Health Surveillance Program (OHSP) and Injury Surveillance Program (ISP) to improve statewide surveillance of fatal and nonfatal motor vehicle (MV) crash injuries to workers using data from the MA Crash-Related Injury Surveillance System (MA CRISS).

Motor vehicle crashes are the leading cause of fatal work injuries in the U.S. These include injuries to drivers and passengers in a range of vehicles (including commercial vehicles, vehicles for ride-hailing services, and vehicles transporting service workers to a client site), pedestrians (including work zone workers, roadway response workers such as tow operators or police, delivery service workers, and postal carriers), and cyclists (including bicycle courier services). People of color are disproportionately represented among workers for ride-hailing and delivery services. Given the increasing number of roadway infrastructure projects and delivery and ride-hailing services, it is critical for racial equity and public health to improve monitoring of work-related MV crash injuries and deaths in order to better identify opportunities for prevention.

The MA DPH Occupational Health Surveillance Program is a national leader in worker health and safety surveillance and monitors work-related fatalities as part of the National Institute for Occupational Safety and Health (NIOSH) Fatality Assessment and Control Evaluation (FACE) Program and U.S. Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI). Each year in MA 15-20 workers are killed in MV crashes, including operators and passengers of work vehicles and workers on foot that are struck by vehicles. OHSP also monitors nonfatal occupational injuries and illnesses using state workers’ compensation claims, hospital discharge, and emergency department (ED)

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discharge data. Workers' compensation claims data is managed by the MA Department of Industrial Accidents (DIA) and includes claims submitted by employers or workers for lost wages and medical expenses due to work-related illness or injury. In a study of 2014-2016 MA workers' compensation claims, OHSP found an annual average rate of 11 work-related injury/illness claims per 1,000 full-time private sector workers, with rates highest in transportation and warehousing and construction. Within the transportation industry sector, workers in transit, ground, and truck transportation had the highest rates of claims for MV crash injuries.

MV crash injuries to workers are likely under-estimated, however, as there are several barriers to identifying such injuries in existing data sources. First responders and healthcare providers may not be aware that an injury is work-related or may not document this in their records. Workplace safety enforcement agencies also may not have the ability to investigate all work fatalities. Workers' compensation claims only capture severe injuries that result in five or more lost workdays and not all workers are covered by workers' compensation (for example, the self-employed, including most ride-hailing and many delivery service workers). In addition, hospitals sometimes bill other payors rather than workers' compensation for workplace injuries.

In this project, the fellow will work with OHSP and ISP staff to improve statewide surveillance of fatal and nonfatal work-related MV crash injuries using the MA Crash-Related Injury Surveillance System (MA CRISS). MA CRISS, which is managed by ISP, includes multiple linked data sources that may be useful for identifying MV crash injuries to workers. In addition to hospital discharge and ED discharge data, MA CRISS includes crash, driver history/license, trauma registry, observation stay, and emergency medical services (EMS) data. Information in these data sources that may help identify a crash as work-related include work zone-related, vehicle carrier number, vehicle type in crash data, incident location in crash and EMS data, ICD-10-CM diagnosis codes indicating vehicle type and work-related in hospital discharge, observation stay, ED discharge, and trauma registry data, and patient occupation in trauma registry data. Crash reports and EMS data also include narratives of the incident, which may provide information on whether injured persons were working at the time of the crash. Race and ethnicity data in the healthcare-related data sources will also allow us to investigate racial inequities in crash-related injuries to workers.

The fellow will first conduct a review of the literature on crash-related injuries to workers, particularly among ride-hailing and delivery services workers, as well as literature on inequities in the frequency of such injuries. The fellow will then develop and test algorithms using MA CRISS data to identify fatal and nonfatal crash-related injuries to workers for use in ongoing surveillance of such injuries. The surveillance algorithm will use SAS code and be developed through a multi-step process of 1) assessing the quality of fields in MA CRISS data sources that may indicate a crash is work-related, 2) linking known work-related injury cases to MA CRISS to assess the sensitivity of these fields to identify work-related injuries, and 3) assessing the specificity of these fields to correctly identify work-related injuries through cross-tabulations with other variables and review of narratives in crash and EMS data. In cases identified as work-related, the fellow will also assess the quality of fields used as indicators for work-related injuries by the worker's race/ethnicity.

Surveillance Activity Objectives:

The objective of the project is to improve statewide surveillance of fatal and nonfatal work-related motor vehicle (MV) crash injuries using data in the MA Crash-Related Injury Surveillance System (MA CRISS).

Deliverables from this project will include:

- 1) SAS code for the algorithm to identify crash-related injuries in MA CRISS data source
- 2) a written report describing assessment results, strengths and limitations of the algorithm, and recommendations on improving data collection and surveillance
- 3) a policy brief to share with data owners, partner agencies, and other stakeholders summarizing recommendations to improve work-related motor vehicle (MV) crash injury data collection and surveillance
- 4) an oral or poster presentation for a national conference

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Surveillance Activity Impact:

In addition to contributing to surveillance of fatal and nonfatal work-related MV crash injuries in MA and identifying racial inequities in such injuries, this project will contribute to efforts by the National Institute for Occupational Safety and Health and U.S. Bureau of Labor Statistics to identify additional data sources for surveillance for this leading cause of work-related injuries and deaths in the U.S. The Surveillance Activity will help fulfill numerous CSTE AEF competencies.

Surveillance System Evaluation Title: Investigation of Barriers to Linkage between Crash and Hospital Discharge Records in the MA Crash-Related Injury Surveillance System

Surveillance System Evaluation Description:

Overview: In the Surveillance System Evaluation, the fellow will identify barriers to linkage between crash and hospital discharge records in the MA Crash-Related Injury Surveillance System (MA CRISS) through review of medical records, crash narratives, and other analysis of MA CRISS data, and generate recommendations that will lead to improved linkage rates, particularly for people of color, children, motorcyclists, and non-motorists.

MA CRISS is a powerful linked data system that provides information on MV crash contributing factors, circumstances, and health outcomes to occupants, motorcyclists, pedestrians, and cyclists. MA CRISS was developed by ISP in 2016 and currently includes police crash report, driver history/license, hospital case mix (hospital discharge, observation stay, emergency department discharge), trauma registry, and emergency medical services data. Analysis of MA CRISS data has provided important information for traffic safety stakeholders on the role of intoxication in drivers, motorcyclists, pedestrians, and cyclists hospitalized for MV-related injuries; driving history and adjudication of hospitalized driver identified as intoxicated; factors contributing to traumatic brain injury; drivers involved in multiple injury crashes; factors contributing to the healthcare cost of MV-related injuries; factors contributing to day- vs. night-time pedestrian crashes, and persons injured by drivers who crashed while driving on a suspended license.

ISP uses deterministic linkage to link MA CRISS data sources. The primary linkage involves linking MV injury cases in hospital case mix data to crash reports using a combination date of crash/admission, date of birth, person-type (occupant, motorcyclist, pedestrian, cyclist), sex, and residential zip code. Linkage rates for fiscal year 2016-2018 crash and hospital case mix data ranged from 50%-57%, depending on the year and type of hospital case mix data. These linkage rates are comparable to or exceed linkage rates of similar data in other states. Linkage rates were significantly lower, however, for people of color, children ages 0-14, motorcyclists, and non-motorists.

Potential reasons for non-linkage of crash and hospital case mix records include that the crash occurred in another state, the person was transported to a hospital in another state, police were not involved in the crash, police did not submit the report to the state crash data system, the person sought treatment more than one day after the crash or for follow-up care, or missing or incorrect data prevent linkage. A systematic investigation is needed to better understand the relative contribution of these and other potential barriers to linkage, why linkage rates are lower for people of color, children ages 0 - 14, motorcyclists, and non-motorists, and implications of these barriers for policy/decision makers.

The fellow will work with ISP to develop an analysis plan and conduct an assessment of barriers to linkage between crash and hospital discharge data through a review of medical records, crash narratives, and other analysis of MA CRISS data. We will focus on linkage with hospital discharge data, as the medical records for hospitalizations are likely to be more detailed than those for observation stays or emergency department visits. MA DPH has statutory authority to request medical records from hospitals for public health purposes and ISP has conducted numerous medical record reviews in the past. Crash narratives are included with most police crash reports and contain many details about a crash that may not be captured in other data fields. Potential analysis of MA CRISS data that could provide information on barriers to linkage include assessing differences in linkage rates based on geography and number of vehicles and persons involved in a crash. The fellow will also assist with the Institutional Review Board (IRB) application for this study, which

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would need to be approved by the MA DPH IRB. The fellow will write a report summarizing the findings of these investigations and work with ISP, the Injury Prevention and Control Program, and the data owners - the MA Department of Transportation (MassDOT) Registry of Motor Vehicles and Center for Health Information and Analysis (CHIA) - to generate recommendations to address factors contributing to lower linkage rates.

Surveillance System Objectives:

The objective of the Surveillance System Evaluation is to identify barriers to linkage between crash and hospital discharge records in the MA Crash-Related Injury Surveillance System (MA CRISS) and generate recommendations that will lead to improved linkage rates, particularly for people of color, children ages 0-14, motorcyclists, and non-motorists.

The deliverable will be a report summarizing the study findings and recommendations to address factors contributing to lower linkage rates. It may also be helpful to develop brief reports for data owners summarizing barriers to linkage and recommendations for improvements in the data they manage.

Surveillance System Impact:

The 2023 MA Strategic Highway Safety Plan (SHSP) specifically calls for increased research using linked data sources such as MA CRISS to improve understanding of risks related to serious crashes, opportunities for intervention, and evaluation of traffic safety strategies. This project will improve the representativeness of MA CRISS data by improving linkage rates and therefore inclusion of data for people of color, children ages 0-14, motorcyclists, and non-motorists who sustain MV crash injuries. As MA CRISS data is increasingly being used to inform MV injury prevention programs and policies, it is critical that this surveillance system includes data representative of all persons injured in MV crashes in MA.

Stakeholders who will be interested in and benefit from such improvements include MA DPH transportation stakeholders, the MassDOT Highway Division, the EOPSS Highway Safety Division, the MA Executive Traffic Records Coordinating Committee, the MA Traffic Safety Coalition, the MA Prevent Injuries Now Network, AAA-Northeast, the Brain Injury Association of MA, the MA Rehabilitation Commission, Vision Zero Coalition, the MA Motorcycle Rider Education Program, WalkBoston, MassBike, and the Boston Cyclists Union. The Surveillance System will help fulfill numerous CSTE AEF competencies.

Major Project Title: Exploration of Structural, Environmental, Social, and Cultural Factors Affecting Motor Vehicle Crashes in Communities of Color

Major Project Description:

Overview: In the Major Project, the fellow will use focus groups and key informant interviews to explore structural, environmental, social, and cultural factors affecting motor vehicle crashes in communities of color.

In MA, people of color are disproportionately impacted by MV crash injuries. Black, non-Hispanic and Hispanic/Latinx residents have significantly higher rates of nonfatal MV occupant injuries than White, non-Hispanic residents. Preliminary analysis of MA death data found that over one-quarter of Black, non-Hispanic and Hispanic/Latinx MV occupants killed in a MV crash were born in another country compared to less than 10% of White, non-Hispanic occupants. Among MA drivers hospitalized for crash-related injuries, people of color were also more likely to sustain a traumatic brain injury in the crash than White, non-Hispanic drivers.

There are many factors that contribute to these inequities. People in lower income communities tend to driver older cars with fewer safety features. People with lower levels of education have higher MV crash fatality rates per vehicle mile traveled, possibly due to residing in urban areas with higher traffic density. Observational studies in MA have found that Black and Hispanic drivers have lower seatbelt usage rates than White drivers. Among MA drivers hospitalized for crash-related injuries, Hispanic drivers were more likely to be identified as intoxicated by alcohol or drugs at the time of

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the crash than White, non-Hispanic or Black drivers. Surveys of MA middle and high school students have also found lower rates of seatbelt use and higher rates of drowsy driving among students of color.

There is limited research on contextual factors that may affect MV crashes among Black and Hispanic/Latinx populations. Most studies of contextual factors influencing restraint use in communities of color focus on the use of child safety seats. These studies identified practical barriers to car seat use, as well as differences in caregiver's perceptions of laws and benefits of using car seats in different racial/ethnic groups. Social and cultural factors that appear to influence drinking and driving in communities of color include limited understanding of impaired driving laws and enforcement, lower perception of the risk of drunk driving, machismo, and fatalism (belief that one does not have control over events). Many of these studies are older, were conducted in other parts of the U.S., and focused on social and cultural rather than structural and environmental factors.

To gain a better understanding of the structural, environmental, social, and cultural factors affecting MV crashes among communities of color in MA, the fellow will conduct a project involving key informant interviews and focus groups in selected communities. The fellow will first conduct a review of existing literature on what is known about upstream factors affecting MV crash risk behaviors, barriers to adopting safer driving practices, and interventions that have been implemented to address these influencing factors and barriers. ISP will work with other MA DPH programs, such as Mass in Motion, the Child and Youth Violence Unit, the Bureau of Substance Addiction Services, and the Division of Community Health Planning and Engagement, to help the fellow identify organizations that serve communities disproportionately affected by MV crash injuries. With support from ISP and relevant MA DPH programs, the fellow will work with these organizations to design, implement, interpret findings from, and generate recommendations based on the key informant interviews and focus groups that will ultimately help reduce MV crashes injuries in these communities. If resources are available for translation of documents and multi-lingual facilitators, it will be helpful to conduct some focus groups in other languages, such as Spanish, Portuguese, Haitian Creole, and Cape Verdean Creole. The fellow will also develop the Institutional Review Board (IRB) application for this study, which would need to be approved by the MA DPH IRB.

Major Project Objectives:

The objective of the Major Project is to identify structural, environmental, social, and cultural factors affecting communities of color disproportionately impacted by MV crash injuries and generate recommendations for policies, practices, or changes to the built environment that will ultimately help reduce MV crashes injuries in these communities.

Deliverables will include:

- 1) a written report summarizing the findings from key informant interviews and focus groups and recommendations regarding prevention policies and practices or changes to the built environment
- 2) one or more presentations summarizing key informant and focus group findings for community organizations and traffic safety stakeholders
- 3) a manuscript for a peer-reviewed journal focused on traffic safety, public health, or racial equity.

Major Project Impact:

This project has the potential to make a significant contribution to traffic safety efforts in Massachusetts. Communities of color have been disproportionately impacted by MV crash injuries and deaths for many years and traditional public awareness campaigns have done little to improve seatbelt usage, impaired driving, and drowsy driving in these communities. The 2023 Massachusetts Strategic Highway Safety Plan (MA SHSP) incorporates equity into all its goals and specifically calls for partnering with communities in top-risk areas to advance systemic safety improvements. The fellow's main project will specifically support this goal, as well as MA SHSP's goal to develop new approaches to improve the public's adoption of social norms and behaviors that reduce the risk of serious crash injuries. Stakeholder groups that will be particularly interested in these findings include the MA DPH's transportation stakeholder workgroup, the MA

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Department of Transportation Highway Division, the Executive Office of Public Safety and Security Highway Safety Division, the MA Transportation Safety Coalition, the MA Prevent Injuries Now Network, AAA-Northeast, the Brain Injury Association of Massachusetts, and the MA Rehabilitation Commission. Some findings will also be relevant to other non-traffic related stakeholder groups. For example, findings regarding how work schedules affect drowsy driving would be relevant to various labor and occupational health stakeholders. The Major Project will help fulfill numerous CSTE AEF competencies.

Additional Project #1 Title: Advanced Analysis of Linked Driver Data in MA CRISS

Project #1 Type: Surveillance Activity

Project #1 Description:

One of the most unique aspects of the MA Crash-Related Injury Surveillance System (MA CRISS) is the inclusion of driver license/history data in the linked data system. The MassDOT Registry of Motor Vehicles (RMV) provides ISP with driver data for MA and, when available, out-of-state drivers involved in a crash, referred to as the “index” crash, in linked MA CRISS data. ISP requests records based on the drivers’ license numbers for all drivers involved in these “index” crashes, whether the driver themselves was injured in the crash or not. Driver data includes information on at-fault crashes, violations for which drivers were convicted, sanctions, and remedial driving courses completed. As ISP receives up-to-date driver data from the RMV, ISP is able to analyze driver’s at-fault crashes, violations, and sanctions both before and after the “index” crash. A recent analysis of linked driver data in MA CRISS found that only 10% of hospitalized drivers identified by healthcare providers as intoxicated at the time of the crash admitted to or were convicted of operating under the influence of alcohol or drugs (OUI) for that crash, although 26% of these drivers had one or more at-fault crashes in the previous 5 years.

Project #1 Objectives and Expected Deliverables:

Assessing results by race/ethnicity and other demographic characteristics is integral to most analyses. It may be necessary to use advanced statistical techniques, such as the Cox Proportional Hazards model, time series analysis, or logistic regression in the analyses. The fellow would work with ISP, IPCP, and appropriate stakeholders to interpret the results and develop recommendations. The deliverable would be a presentation summarizing findings and recommendations to be provided to the relevant stakeholders. This project would advance traffic safety in MA by providing information about a priority topic raised by MA traffic safety stakeholders.

Project #1 Impact:

ISP regularly engages with traffic safety stakeholders to identify priority issues which could be addressed using analysis of linked driver data in MA CRISS. ISP is not always able to complete all the analyses requested, however, given time and resource limitations. In this additional project, the fellow would select one of the priority issues suggested by a traffic safety stakeholder and work with ISP staff to plan and complete an analysis of the topic using linked driver data in MA CRISS

Additional Project #2 Title: Evaluation of local transportation safety strategies using IMPACT:

Project #2 Type: Surveillance System Evaluation

Project #2 Description:

The MA Department of Transportation (MassDOT) maintains a public website with MV crash data called the IMPACT crash data portal. The portal includes interactive data dashboards and tools for data query, visualization, mapping, reporting, safety analysis, and exporting. IMPACT includes data from over 100,000 MA police crash reports per year, including those involving injuries or property damage over \$1,000. Data are available from 2015 to present. Although data in the most recent years are not final, electronic crash reports are uploaded into the system daily, so the data are virtually real-time. IMPACT may be a more useful tool for evaluating transportation safety initiatives in local

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communities than linked MA CRISS data, as IMPACT includes a larger number of crashes per year, more recent data, and user-friendly mapping tools.

Project #2 Objectives and Expected Deliverables:

The objective of this project would be to evaluate transportation safety initiatives in designated communities through analysis of crash data in the IMPACT portal. The deliverables would include a written report, summarizing findings and, if needed, brief presentations for local communities.

Project #2 Impact:

This project would benefit transportation safety in MA by helping identify effective strategies local communities can implement to reduce MV crash injuries and deaths. Evaluation of local transportation safety initiatives would be extremely useful for MA DPH programs, such as MA in Motion, and MassDOT, which fund local communities to implement transportation safety strategies, such as public awareness campaigns and infrastructure changes.

**Additional Project #3 Title: Assess the accuracy of the injury severity field in crash data using Trauma Registry data:
Project #3 Type: Surveillance System Evaluation**

Project #3 Description:

In crash reports, police document whether each person involved in the crash was injured, and if so, the severity of the injuries. This information is captured in the “injury status code” in the crash report. This field is extremely important, as MassDOT uses data from this field in the MA Strategic Highway Safety Plan to set benchmarks for reductions in crashes involving fatal and “serious” injuries. A previous analysis conducted by ISP compared injury status code values to treatment level (fatal after admission, hospital stay, or ED visit) in linked crash and hospital casemix data. This study found that the injury severity level documented by police was lower than expected based on the treatment level in over one-third of cases (for example, documented as “no apparent injury” but received treatment in an ED). This study was limited, however, in that some treatment may have been required for medical conditions other than injuries, such as cardiac and diabetic events, which would not be reflected in the injury status code.

Project #3 Objectives and Expected Deliverables:

In this project, the fellow would design and conduct a study to assess the accuracy of injury status code using Abbreviated Injury Scale (AIS) scores in linked crash and Trauma Registry data in MA CRISS. AIS scores were developed by the Association for the Advancement of Automotive Medicine in 1969 and are one of the most commonly used measures of injury severity. AIS scores describe the type, location, and severity of traumatic injuries using a 7-digit numerical code. The deliverable in this project would be a report summarizing findings from the assessment and recommendations for use of the injury status code as a key benchmark of MV crash deaths and serious injuries.

Project #3 Impact:

This project would benefit traffic safety stakeholders in MA, including MA DPH, MassDOT, and the Executive Office of Public Safety and Security (EOPSS), by providing information and recommendations regarding the accuracy of the current standard indicator for MV crash injury severity in Massachusetts.

Please Describe the Fellow’s Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

IPCP collaborates with the MA DPH Office of Preparedness and Emergency Management (OPEM) on an as needed basis. For example, the MA DPH COVID-19 Data Team at OPEM shares data on pediatric COVID cases with IPCP daily to monitor trends in pediatric infections for the Child Fatality Review program. IPCP works to disseminate educational materials, assess emergency medical providers’ needs, and support Emergency Medical Services-based prevention

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services especially as it relates to the Health Resources and Services Administration (HRSA) funded Emergency Medical Services for Children grant OPEM administers. The fellow will have the opportunity to work with OPEM on existing collaborations or new initiatives as they arise.

OPEM also manages and provides training for several volunteer opportunities through MA Responds, a system to match volunteers with various local and regional emergency service programs. The fellow can volunteer to be part of the local Medical Reserve Corps. During the early stages of COVID Pandemic, some roles of the Medical Reserve Corps included answering phones and emails regarding the pandemic, mask mandates, regulations, and other questions from MA residents.

Time allocation for emergency preparedness and response efforts will depend on the fellow's interest and level of involvement in the activities described. We estimate that the fellow would be able to allocate 1-2 hours per week to work on emergency preparedness activities, which can be adjusted as needed.

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

ISP collaborates with the Emergency Department Syndromic Surveillance (EDSyS) team in the Bureau of Infectious Diseases and Laboratory Sciences (BIDLS) on several projects and meets monthly with the EDSyS team. The EDSyS provides ISP with data to monitor seasonal injuries such as drownings during the summer months and snow- and ice-related falls in the winter months. EDSyS data has also helped ISP and IPCP monitor how the COVID-19 pandemic has impacted injury trends. The fellow will have the opportunity to work closely with Dr. Riley and another ISP epidemiologist to compile and analyze EDSyS injury data to share with IPCP for program planning and policy development purposes.

The fellow would also have the opportunity to co-lead a project to create a cannabis exposure flag for the pediatric population using EDSyS data. Cannabis-related emergency department (ED) visits have been increasing since the legalization of adult recreational cannabis use in MA in 2016. Development of this exposure flag would facilitate quickly identifying clusters and facilities seeing increased ED visits for pediatric cannabis poisoning and to develop a notification system to do outreach to facilities involved in these outbreaks.

The time allocation for work on cluster and outbreak investigations using EDSyS will depend on the fellow's interest and level of involvement in the listed activities. We estimate that the fellow would be able to allocate 1-2 hours per week on this work, which can be adjusted as needed.

Please Describe the Fellow's Anticipated Role in the COVID-19 Response – Include Activities and Time Allocation

In November 2020, MA DPH conducted an online COVID-19 Community Impact Survey (CCIS) to understand the specific needs of populations that have been disproportionately impacted by the pandemic, including social and economic impacts. MA DPH used and shared these data broadly with stakeholders to prioritize the pandemic response and created new, collaborative solutions with community partners.

Currently, MA DPH is in the process of planning for a new administration of CCIS, which includes mixed methods and significant community engagement. The fellow would have the opportunity to work with the CCIS team leads within BCHAP. Activities may include developing analysis plans for a specific content area of interest, data management, analysis, and interpretation. The 2020 CCIS data has been widely presented and published, and the fellow will have opportunities to present the findings from the current survey over the next two years at local, state, and national meetings and conferences.

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The time allocation for work with the CCIS team will depend on the fellow's interest and level of involvement in the listed activities. We estimate that the fellow would be able to allocate 2-3 hours per week to work on CCIS activities, which can be adjusted as needed.

Please Describe Opportunities for Fellows to Work in Health Equity as well as Incorporating Diversity, Equity, and Inclusion into their Work

The Major Project of this fellowship, which involves conducting key informant interviews and focus groups in communities disproportionately impacted by MV crash injuries, will be an excellent opportunity to learn about and integrate the principles of health equity into their work. The fellow will also have the opportunity to participate in the following projects, trainings, and other activities related to promoting health equity and racial justice:

- Massachusetts Pediatric Injury Equity Review (MassPIER): The Child Fatality Review (CFR) program that is co-chaired by the IPCP Director partners with Boston Medical Center's MassPIER project. MassPIER aims to establish a model program for local CFR teams across the country to identify inequities in child fatalities, explore potential structural, environmental, and social contributing factors, and develop recommendations to address these contributing factors to prevent child fatalities and injuries.
- Two-Day Racial Equity Training and Practice Labs: This two-day training program provides a comprehensive baseline of knowledge and understanding about the history of race in America, structural racism, and its ongoing impact. This training is followed by a half-day practice lab to practice the racial equity principles learned from the two-day training and how that can be applied and integrated into the programs and policies at MA DPH.
- Style Guides: BCHAP's Office of Statistics and Evaluation (OSE) has developed style guides for collecting and describing data on specific population characteristics including disability, rurality, homelessness, sexual orientation, sex, and gender identity. The fellow can join OSE's workgroup to learn and contribute to strengthening the existing guidelines and developing additional style guides.
- MA DPH, BCHAP, and OSE Racial equity activities/workgroups: There are several other meetings and workgroups across MA DPH that the fellow will have the opportunity to join. Examples include monthly racial equity "Lunch and Learn" meetings, quarterly racial equity town hall meetings, BCHAP's Racial Equity Movement Blueprint workgroups, and affinity groups based on self-identification.