ID: 76635647
Injury, Injury - Drug Overdose - Host Site Description
State of Alaska

Assignment Location: Anchorage, US-AK
State of Alaska
Department of Health

Primary Mentor: Jared Parrish, PhD
Senior Epidemiologist
Alaska Department of Health

Secondary Mentor: Riley Fitting, MPH
Epidemiology Specialist 2
Alaska Department of Health

Work Environment
Hybrid

Assignment Description

The fellow will work in the Injury Prevention and Surveillance Unit (IPSU) but will also interact frequently with staff from other Units in the Section of Chronic Disease Prevention and Health Promotion (CDPHP), other Sections in the Division of Public Health, and community-based partners. IPSU exists within CDPHP, Division of Public Health, Alaska Department of Health. IPSU is the State of Alaska's injury response from the public health perspective and is responsible for providing data to all state and non-state partners for program development.

The IPSU team is a group of about 10 members who collaborate and appreciate one another's diverse expertise, yet also enjoy quiet time independently studying data and working on projects. The CSTE fellow will have the opportunity to be involved in important work that can help to reduce health disparities and improve understanding of the health status and experiences of all populations in Alaska. The Unit welcomes CSTE fellows as full members of the scientific team, including them in decision-making and strategic planning processes, regular unit meetings and weekly informal team meetings. Fellows are encouraged to identify research needs and independently develop strategies for filling these gaps.

The assignment will provide opportunities to interact with senior epidemiologists and other subject matter experts and to learn about social determinants of health in Alaska and opportunities for prevention. The primary staff the fellow will work with on a day-to-day basis will include the lead IPSU epidemiologist (secondary mentor), the Senior Epidemiologist (primary mentor), the Alaska Violent Death Reporting System epidemiologist, and the substance misuse epidemiologist. The fellow will have the freedom to work on a wide variety of topics of interest and will have access to data from all of Alaska's injury surveillance programs and Health Analytic and Vital Records. Initial work will likely include injury data analysis using death certificate, health facility discharge records, and survey data.

A fellow's day-to-day activities may include designing studies and programs, writing protocols, evaluating databases, writing reports and peer-reviewed manuscripts, attending meetings or teleconferences with partners throughout the state, and contributing to research team meetings. The fellow will participate as a research lead and research team member for multiple projects, which will require the fellow to prioritize tasks, schedule meetings, and multi-task projects to meet deadlines. The fellow will utilize computers regularly for analysis, communication, and document development.

An example of activities for a single day might include running analyses in R, creating interactive data visualizations, building charts or graphs for a presentation or report, attending a staff or other team meeting, and developing novel methods to address a specific data limitation or gap.

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This assignment will also provide the applicant with the opportunity to live in Alaska and explore this magnificent area of the world. The fellow will work in Anchorage, Alaska, central to multiple outdoor and civic/cultural activities. Anchorage is bike friendly with paved and lighted paths, downhill and single-track trails making year-round riding/commuting a pleasure. Every imaginable outdoor activity exists including skiing (downhill and cross-country), climbing, hiking, kayaking/rafting, sailing, photography, birding, camping, hunting, fishing, snow machining, and dog sledding, all within a short distance of Anchorage. The fellow will be encouraged to explore this great state and become connected with people who share these interests. Anchorage also has a large variety of cultural activities including a large and well-supported performing arts center, a local opera company, symphony, and chorus, numerous concert venues, museums, and plenty of niche restaurants. Residents of Anchorage are from around the country and the world, giving the city an international feel. In fact, Anchorage was recognized as having one of the most diverse public school systems of any city in the country and its program for school-aged refugees has gained national recognition. Winters are moderate (average temperature in Anchorage is 20oF), although we do experience periods of temperatures in the single digits usually for a few weeks each year (not consecutive). Many ask about the "long dark winters", but in Anchorage on the shortest day of the year we still enjoy nearly 6 hours of sunlight and in the summer the longest day of the year has 22 hours of functional daylight. This dichotomy results in an always changing landscape to enjoy a variety of different activities.

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

Because IPSU focuses on a multiple injury topics, across all demographic sub-populations, we have access to a wide variety of data. The CSTE fellow will have access to all databases and surveillance systems necessary to accomplish the proposed or self-identified topics, including annually updated vital statistics datasets that include all deaths in the state, Hospital discharge, , and the Overcoming ACEs with Resilience Survey. Analysts in the Unit also have regular and ongoing access to Medicaid billing data (which requires additional nominal training) and can request Behavioral Risk Factor Surveillance System or Youth Risk Behavior System datasets for specific analyses. IPSU staff is skilled with and R, GIS, and SAS for analysis. R is the most heavily used and preferred analysis software, and we can support the R coding needs of a fellow from basic frequency analysis to more complex simulation or statistical modeling. Further we can help support proper data management and assist in avoiding common data management pitfalls. We also routinely use Excel and MS Access for data management, analysis and presentations. Multiple IPSU staff are available to support a fellow in their use of these software and surveillance systems.

ISPU has many skilled methodologists with strong study design and biostatistics backgrounds that can support this fellow. The primary mentor regularly provides methods mentoring to epidemiologists and public health colleagues across the state. The fellow will be encouraged to participate in the monthly R-users group and monthly Epi-methods group (both lead by Dr. Parrish). The fellow will have the opportunity to lead discussions in both groups. The fellow will also be encouraged to take statistical and coding courses on Data Camp as well as obtain training on data visualization using tools such as Tableau, and R markdown and R shiny.

Projects

Surveillance Activity Title: Unintentional Injury Surveillance

Surveillance Activity Description:
Using data from death certificates, hospital discharge records, trauma registry system and other appropriate data sources, this project is to develop and publish automated data profiles on injury topics. Profiles will likely include rates of injuries by demographic subpopulations, identify and describe injury trends, or examine health disparities.

ID: 76635647
Injury, Injury - Drug Overdose - Host Site Description
State of Alaska

Surveillance Activity Objectives:
The objective of this activity is to identify and gather appropriate data from different existing surveillance systems, create data visualizations including tables and figures, identify and discuss emerging trends or disparities, and include data in an informative and concise report or series of reports. These reports may be made in R markdown or R shiny, to serve as lasting codebases for reproducible publications.

This may also involve conducting literature reviews to develop a brief background narrative about the importance of each injury topic, and related equity considerations. Some basic interpretations of the data will be provided, as well as recommendations for addressing any identified issues. In addition, the fellow will need to ensure accessibility checks are completed on the full report for posting as an ADA-accessible document on the IPSU website.

Surveillance Activity Impact:
Increase public health professional and public awareness and understanding of injury trends in Alaska. The publication will also serve as a baseline for future ongoing reports to facilitate monitoring injuries over time.

Surveillance System Evaluation Title: Evaluation of the State Unintentional Drug Overdose Reporting System

Surveillance System Evaluation Description:
The State Unintentional Drug Overdose Reporting System (SUDORS) provides comprehensive information on drug overdose deaths in Alaska. The main goals of this surveillance system are to:
1) Providing a better understanding of the circumstances that surround overdose deaths,
2) Identifying specific substances causing or contributing to overdose deaths, as well as emerging and polysubstance overdose trends, and
3) Improving fatal overdose data timeliness and accuracy.

SUDORS uses data from death certificates, medical examiner reports, law enforcement reports, toxicology reports and hospital records to yield more than 600 data elements in the database.

A fellow might examine the flow of data from the initial death scene investigation to epidemiological use of the database, in order to make quantify and improve the completion, sensitivity and specificity of specific data elements. Additionally a fellow may link SUDORS with death certificates, to identify additional data per record in SUDORS, and automate portions of the SUDORS data abstraction process.

Surveillance System Objectives:
The objective of this project is to evaluate data flow into the surveillance system that may affect the accuracy and generalizability of the data. Deliverables could include a written report or presentation to be shared both with IPSU staff as well as CDC partners/funders, and recommendations for future operational and analytical adjustments.

Surveillance System Impact:
Improving the SUDORS data flow and analyses could have substantial impacts on the State of Alaska's opioid response. Specifically, recommendations made to public health professionals to prevent the upstream causes of substance misuse and addiction. This project will also improve the understanding of SUDORS data among IPSU staff regarding the nuanced limitations and use of the data - which will greatly assist new data users and members of the unit.

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Major Project Title: Understanding motor vehicle and traffic-related injuries in Alaska

Major Project Description:
Alaska experiences some of the highest motor vehicle injuries in the nation, and due to Alaska's unique geography and climate, these injuries require a detailed epidemiological response. This project will use descriptive epidemiology to examine motor vehicle injuries (including pedestrian, bicyclist, highway vehicles, off-road vehicles, boats and snowmachine-related injuries) by demographic subgroups, geographic information, and seasons.

Major Project Objectives:
- Identify any clusters of demographic subgroups or geographies with particularly high rates, and quantitatively examine risk and protective factors in groups, such as road conditions, helmet and lifejacket use, or substance/alcohol use.
- Produce an automated surveillance system for motor vehicle and traffic-related injuries that can regularly query data and produce descriptive statistics.
- Publish a *Recommendations and Reports* publication of motor vehicle and traffic-related injuries in the Section of Epidemiology's Epi Bulletin series.

Major Project Impact:
Motor vehicle and traffic-related injuries impact Alaskan subpopulations disproportionately, with many off-road vehicle and snowmachine-related injuries occurring far away from trauma hospitals. These data can improve public health and safety decision making, that might lessen injury outcome disparities.

Additional Project #1 Title: Interactive data visualization of injury data
Project #1 Type: Major Project

Project #1 Description:
To reduce barriers and increase access to data, this fellow's mentors are advancing multiple projects to develop R Shiny, and other online data visualization projects. A R shiny application is currently being developed to analyze and visualize several survey data. To support these efforts the fellow will take part in further developing R shiny codebase by creating a local or online application that allows a user to visualize injury data through tables and charts, and perform statistical analysis.

Project #1 Objectives and Expected Deliverables:
The fellow will be part of developing novel interactive data visualization using R and R shiny. They will expand these efforts by developing at least 1 R markdown report, and 1 R shiny application that provide context and narrative to high priority injury topics (including but not limited to motor vehicle and traffic-related injuries, drowning, suicide, or poisoning).

Project #1 Impact:
Access to information improves equity. Many organizations do not have the capacity, training, or resources to analyzes injury data. By ensuring these data are made available through online tools the impact of this ongoing surveillance can be more fully realized.

ID: 76635647
Injury, Injury - Drug Overdose - Host Site Description
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Additional Project #2 Title: Public health surveillance special topics
Project #2 Type: Major Project

Project #2 Description:
Under a ranging area of public health surveillance and epidemiology, an injury-focused CSTE fellow will have the ability to study many interesting topics and be able to contribute to program and policy that can have nearly immediate effects on extremely rural populations. Additional potential activities could include:

- Examining animal-related injuries such as bear and moose encounters.
- Describing fishhook injuries as recreational and occupation safety hazard.
- Identifying communities that rely on subsistence hunting and fishing, and experience disproportionate paralytic shellfish poisoning rates.
- Monitoring the impact that leaded small aircraft fuel has on blood lead levels.
- Describing how cultural divides and generational trauma impact rural suicide rates

Project #2 Objectives and Expected Deliverables:
Undertaking any of these special topic projects will lead to national or state conference presentations, or local/academic journal publications. These project outcomes will also be communicated to relevant public health and external partners that can

Project #2 Impact:
Outcomes from projects will impact the data that decision-makers use when implementing new policies or creating guidelines for Alaskans. For example a bear/moose encounter project could inform Anchorage residents where to avoid during salmon spawning season or while recreating on winter trails.

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

The fellow will contribute to the epidemiological approach to injury prevention and surveillance during earthquakes and volcanic eruption in Alaska, including identifying at-risk geographies and surveilling injuries. Identifying at-risk geographies may include using geospatial analysis to map populations centers within the hazard zones of active volcanoes, and assess population vulnerabilities including age, evacuation/transportation routes, and access to protective equipment. The fellow will assist in developing the surveillance framework for earthquake-related injuries such as falls, being struck by objects, and TBIs; and volcano-related injuries such as falls, burns, ocular injuries and respiratory complaints due to ash.

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

Despite being an injury-focused fellowship, the fellow will have the ability to conduct an outbreak investigation. This investigation might involve responding to a paralytic shellfish poisoning outbreak in an isolated rural village, or examining youth suicide clusters to identify commonalities and precipitating stressful events.