ID: 34990405
Occupation Health, Injury - Host Site Description
Minnesota Department of Health

Assignment Location: Saint Paul, US-MN
Minnesota Department of Health
Health Promotion and Chronic Disease/Center for Occupational Health and Safety

Primary Mentor: Erik Zabel, PhD, MPH
Epidemiologist and Program Director
Minnesota Department of Health

Secondary Mentor: Kari Gloppen, PhD, MPH
Epidemiologist Supervisor
Minnesota Department of Health

Work Environment
Hybrid

Assignment Description

The Fellow will join the Center for Occupational Health and Safety (COHS) team at the MDH offices in downtown Saint Paul (possibly working virtually due to the COVID-19 pandemic). The COHS supports programs that help reduce the risk of work-related illness and injury and violence and leads the surveillance of occupational health and safety for the state. The larger division, Health Promotion and Chronic Disease, monitors and reduces the risk of chronic conditions such as diabetes, heart disease, asthma, and cancer, and includes the Environmental Public Health Tracking program. The Fellow will be mentored by the occupational health epidemiologist and the supervisor of the Surveillance, Epidemiology, and Analysis Unit within HPCD. The Fellow will have the opportunity to work with colleagues within MDH, including the State Epidemiologist, as well as numerous other state and local partners.

Depending on remote work status, the Fellow will have his/her own cubicle equipped with a laptop and docking station, two large screen monitors, phone, file cabinets and office supplies. If remote work is necessary, computer equipment will be provided to equip a home office setup. Communal access to printers, copiers, fax machines and a fleet of vehicles are available for business use. The fellow will have access to a wellness area, nursing/lactation room, workout facility, and employee breakrooms. MDH offices are in downtown St. Paul, which provides access to restaurants, eateries and small businesses. IVPS has two staff dedicated to providing clerical and administrative support. The state provides information and technology support to MDH staff through a centralized IT department, which is easily reached via phone or Internet.

We anticipate the Fellow's anticipated day-to-day activities to include:

- Attending internal and external committee/workgroup meetings.
- Meeting with mentors and project teams.
- Staying current on project issues by reading journal articles, attending webinars and other training activities. MDH has an epidemiology community of practice where the Fellow can join other staff in sharing their work, getting comments and input, and learning about other work happening throughout the agency.
- Developing analysis plans; devising study methodology; collecting, editing and revising data; conducting analyses; writing, publishing and presenting reports; and submitting plans for potential program and policy change at the local, state and organizational levels.

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

The Fellow will have access to the MN Violent Death Reporting Database (MNVDRS), syndromic surveillance, MN Hospital Discharge Data, workers' compensation claims data, previously collected datasets, and other databases as the Fellow's projects develop. The Fellow will also have access to SAS, R, SPSS, ArcGIS, Tableau, and other software as needed. There are active communities of R, SAS and Tableau users at MDH who can help assist the Fellow with learning and development of these resources.

The Fellow will also be able to work with Anna Gaichas, MS, biostatistician in the Injury and Violence Prevention Section at MDH. Ms. Gaichas regularly works with interns and new hires to get them up-to-speed on specialized software, and further assists them in working through complex coding issues and analytical problems.

Projects

Surveillance Activity Title: Assess and develop new data sources for occupational health and safety surveillance of underserved workers

Surveillance Activity Description:
The Fellow will review available data sources at MDH and other state partners to determine their appropriateness for studying health and safety concerns among underserved workers such as contract workers, temporary employees, and gig economy workers. The goal of this project is to assess, utilize, and increase industry and occupation data collection in a variety of data systems, including injury, suicide and drug overdose surveillance, and motor vehicle crash data. This project will increase the ability to accurately track occupational health and safety indicators using datasets already collected for other purposes to provide consistency over time and the most efficient use of surveillance efforts. New datasets used for occupational health and safety surveillance will be evaluated using the same criteria as established systems.

There are several potential opportunities for expanding occupational health surveillance of underserved workers. Some of the most important current and potential data sources are listed here. The Fellow will work to catalog the characteristics of these data systems, including their strengths and weaknesses for conducting ongoing and consistent occupational health and safety surveillance.

A first step in this project is to define how gig economy workers will be categorized. To achieve that the fellow will study which industries and occupations potentially meet the gig economy definition. This will entail a literature search for how to characterize gig economy workers and meeting with epidemiologists in other NIOSH-funded states. The final product of this effort will be a draft document outlining the specifications for tracking the number and rate of work-related injuries, illnesses, or deaths for underserved/uncounted workers. Examples of health concerns for surveillance are motor vehicle injuries, assaults by the public, and behavioral/chemical/mental health concerns such as suicide or drug overdoses. Following is a non-exclusive list of potential datasets that contain industry and occupation data that may inform this project.

Data Sources:

- BRFSS: The Industry and Occupation optional module has been included in the Minnesota Behavioral Risk Factor Surveillance System (BRFSS) since 2013. We will continue our collaboration with the BRFSS program at MDH to preserve or retain the inclusion of the module in the state's BRFSS survey. Industry and occupation data from BRFSS are annually coded by NIOSH into standardized codes.

- Violent Death Reporting System Data, including death certificates: The Violent Death Reporting System (VDRS) is housed in the Injury and Violence Prevention Section (IVPS) at MDH. MDH staff who work with this system, which includes suicide surveillance, have ongoing access to and experience with Minnesota death certificates. Death certificates in Minnesota include industry and occupation fields, and these fields have a high completion rate. For data collection in the VDRS and drug overdose surveillance systems, IVPS staff conduct record abstraction at hospitals and medical examiner's offices. Industry and occupation fields have already been added to the RedCAP data collection tool used by the abstractors. Currently these fields are usually blank. We will work with IVPS abstractors and epidemiologists toward increasing the completion rate of these fields.
- CODES data: To begin studying gig economy workers that are primarily drivers (such as Uber, Lyft, restaurant delivery, and grocery delivery), we will survey the available traffic injury and motor vehicle crash data that IVPS has access to. We will determine whether an indicator of crashes occurring while driving for work may potentially be developed. We will initially focus on the Crash Outcome Data Evaluation System (CODES) project, which links crash data from the Minnesota Department of Public Safety (DPS) with hospital and ED discharge data, death certificates, and the statewide Trauma Registry (including the Traumatic Brain Injury-Spinal Cord Injury registry). Eventually CODES will also include emergency medical system (EMS) data. CODES data include vehicle characteristics, driver characteristics and a worker's compensation field. We will analyze these fields, ICD-10 codes from the hospital discharge data, and other fields from the CODES database to determine whether each case was work-related. In future years we will link CODES with workers' compensation claims to help determine job-related crashes.
- Workers' Compensation claims: While underserved workers such as rideshare or app-based delivery drivers are not likely to be included in the workers' compensation system, this dataset may help provide background data on injuries in other driving-focused occupations for comparison with gig economy workers. Our program has statutorily mandated access to these data from the Department of Labor and Industry.
- Law enforcement data on assaults: Our program has not worked with this dataset previously. However, the CSTE fellow will have the option to explore this dataset by determining whether there is any information on industry or occupation of victims. If any information is available, we will document whether gig economy workers can be defined in the dataset to track the number of assaults in this group.

Surveillance Activity Objectives:
Project objectives:

- Review existing and potential data sources for use in occupational health and safety surveillance.
- Document characteristics of each data source, including the available information, completeness, timeliness and potential working populations impacted.
- Prepare a report on the surveillance systems and data sources for utility in occupational health surveillance, with a special focus on underserved workers.
- Build skills in evaluating data sources and build relationships with other public health and surveillance programs across MDH and other organizations.
- Build experience writing surveillance data reports.

Project deliverables:

- Report on data sources and their utility for occupational health surveillance. Includes initial data analysis of available fields and populations of interest. Report to be published to MDH web site.
- Presentation, including slides, of the results, for the Center for Occupational Health and Safety staff members, the program's advisory workgroup, and the annual CSTE conference.

Surveillance Activity Impact:
There is a large group of workers who have not been traditionally represented by occupational health and safety programs (such as workers' compensation and OSHA regulations) and are often missing from datasets and surveys used

for occupational health surveillance. These include young workers, older workers, non-English speaking workers, migrant workers, temporary workers, "gig"/online platform workers, other independent contract workers, and workers in high-risk industries or occupations. We seek to address the health and safety concerns of these workers. Many datasets already being collected at MDH and partner organizations potentially have useful data components for surveillance of occupational health and safety concerns. A systematic review of these datasets for Minnesota has not yet been performed. Ultimately, the surveillance findings will allow for the design of workplace interventions and policy initiatives to impact worker health and safety, especially for underserved working populations.

Surveillance System Evaluation Title: Evaluate the Minnesota Syndromic Surveillance System for use in tracking work-related risks in Minnesota.

Surveillance System Evaluation Description:
The Fellow will conduct a targeted evaluation of the MDH syndromic surveillance system, to include developing a definition of work-related illness or injury and measuring the completeness and accuracy of the data. CDC guidance will be the main resource used to plan the evaluation. The Fellow will report on the evaluation findings. The overall evaluation goal is for continuous quality improvement of the program. This activity will give the Fellow hands-on experience in program evaluation.

The growing syndromic surveillance system in Minnesota is based in the IVPS section along with the COHS and is currently used to identify drug overdose trends. Syndromic Surveillance uses near real-time pre-diagnostic data from hospitals and statistical tools to detect and characterize unusual activity for further public health investigation. The COHS plans to work with the syndromic surveillance coordinator in IVPS to improve reporting and increase the utilization of industry and occupation information by hospitals. This will lay the groundwork for using this system to conduct surveillance for occupational injuries and diseases.

The COHS previously developed a draft indicator for determining work-related illnesses and injuries in hospital discharge data using ICD-9CM codes. As part of this evaluation project the Fellow will work to update this draft indicator using ICD-10CM codes. These codes are available in the syndromic surveillance data along with open text fields from the medical records. Using a variety of statistical and epidemiologic analyses, the Fellow will assess the completeness and accuracy of this occupational health indicator once it is developed. The Fellowship primary mentor has regularly attended national meetings with occupational health epidemiologists from other states who are working with syndromic surveillance data. This group has begun creating their own definition of work-related illnesses and injuries and will serve as a helpful resource for the Fellow in conducting this evaluation. Syndromic surveillance is likely to be most helpful for surveillance of specific work-related conditions. Some examples to pursue are work-related heat injuries, silicosis, or infectious diseases.

The evaluation should rely extensively on the CDC Evaluation Framework for Program Evaluation for designing the evaluation plan. With the COHS' focus on surveillance, a major consideration in evaluation will be assessing this data source for completeness, accuracy, timeliness, consistency, usefulness, and any limitations. As new data sources such as syndromic surveillance data are developed, evaluation should include aspects of CDC's Updated Guidelines for Evaluation of Surveillance Systems to specifically evaluate the data components of the program. While these guidelines are most appropriate for active surveillance, they contain important considerations for passive surveillance systems as well.

The evaluation project may include a timeline in the form of a Gantt chart to track success in meeting deadlines for obtaining data, analyzing data, summarizing findings, producing products, and effectively disseminating information. The timeline sections will be based on the specific aims of primary grant funding sources. The timeline will include milestones for meeting with partners both within the state and nationally. We will rely on our partners, primarily

through the advisory committee and other collaborative groups, to gather feedback for measuring the utility of the syndromic surveillance data.

Reporting on the evaluation findings will be organized along CDC guidelines. The Fellow will prepare a report annually on the use of syndromic surveillance data for occupational health surveillance. The summary section of the evaluation report should include recommendations for improving the program's use of the data. Where possible, these recommendations will be incorporated into program activities as new activities are planned, new partnerships are formed, and other new data sources are evaluated. Evaluation reports will be shared with our partners and MDH leadership for their input in revising program activities to achieve maximum impact on occupational health and safety.

Surveillance System Objectives:
Project objectives:

- Define work-related injury and illness from data available in the Syndromic Surveillance System.
- Collect initial data on numbers of cases that meet the new definition.
- Develop potential denominator sources.
- Develop a plan to perform the system evaluation. This includes working with advisory workgroup partners, national partners in other states, and internal MDH partners.
- Perform initial evaluation following CSTE and CDC guidelines.
- Gain experience in completing an evaluation of a surveillance system.
- Gain experience with administrative data systems.
- Gain experience working with an advisory workgroup.
- Gain experience presenting findings in oral and written forms.
- Project deliverables.
- Written evaluation report, describing findings and recommendations for improving data and program activities for optimal occupational health and safety surveillance.
- Presentation of the evaluation and results for the Center for Occupational Health and Safety team members and the program's advisory workgroup.

Surveillance System Impact:
Evaluation of new occupational health surveillance data sources is necessary to continually improve the program's ability to serve the people of Minnesota through effective public health surveillance. In addition, evaluation is a required component of our NIOSH grant funding. Activities and data sources need to be reviewed and evaluated for effectiveness according to systematic guidance from CDC. Measures of effectiveness include completeness, accuracy, useability, feasibility, and cost-benefit analysis when available.

Major Project Title: Develop surveillance methodology to measure COVID's long-term impact on Working Populations.

Major Project Description:
The goal of the major project is to measure the long-term impact of COVID-19 on working populations in Minnesota. The Fellow will systematically develop and use methodology to assess the long-term COVID-19 outcomes for all occupations and industries using case data linked with available data sources. We plan to investigate disparities in the COVID-19 experience by occupation and industry groups. Some groups, such as barbers and cosmetologists, food processing workers, and agricultural workers have more people of color and potentially fewer workplace protective factors, and in some instances may not be eligible for workplace programs such as OSHA oversight and worker's compensation. The Fellow will help develop a methodology to track these workers' COVID-19 outcomes over time in comparison with lower-risk groups. This activity will involve collaboration with the Minnesota Department of Labor and Industry (DLI) and MDH Infectious Disease programs.

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There are two main components.

1. Identify the differences in long-term workers' compensation claims between confirmed COVID-19 cases and non-cases and between industry and occupation groups. MDH has statutory access to workers' compensation data in Minnesota from the Department of Labor and Industry. COVID-19 case data will be linked to these workers' compensation data when appropriate and when approval is obtained. Some front-line occupations were eligible for automatic approval of COVID-19 claims during certain periods during the pandemic. Most industry and occupation groups were not eligible. We plan to assess the use of non-COVID-19 workers'compensation claims over time to determine whether COVID-19 infection or documented Long COVID is related to increased rate of future work-related injuries or illnesses. While some of the longest effects of COVID-19 may not be observed during the Fellow's term, we hope to develop a methodology that can be consistently applied to future time periods.
2. Collaborate with the MDH Long COVID team to develop and validate a long-term industry and occupation data collection methodology for long COVID patients and analyze the resulting data by industry and occupation. The detailed implementation of this part of the project is dependent in part on the focus of the Long COVID team and ongoing improvements in collection of industry and occupation data in various data systems at MDH. The Long COVID team has implemented a survey of people with confirmed COVID-19 infections. The survey asked about industry, occupation, employment status, and other impacts of COVID-19 on employment. Initial analysis of the resulting industry and occupation data is currently ongoing to provide demographic information and to evaluate the collection of job-related data. This analysis is expected to result in recommendations for improving collection of job-related data. Using these recommendations, we would expect the Fellow to work with the team to develop a methodology to collect employment or job information from Long COVID patients that are contacted by MDH in the future, and from other linked data sources.

Major Project Objectives:
Project objectives:

- Obtain data sets.
- Perform initial data assessment and cleaning, validation.
- Conduct standardized industry and occupation coding for the purpose of comparing industries and occupation.
- Perform linkage of data sets as appropriate.
- Evaluate industry, occupation, and other work-related questions for collection on surveys of long COVID patients.
- Analyze findings by industry and occupation, with a focus on underserved or disparate working populations.
- Gain experience in collecting data through surveys.
- Gain experience in working with large administrative data sets, including cleaning, validation and linkage.
- Project deliverables.
- Annual report of progress, to be included in the overall annual COHS report.
- Data briefs to be completed as soon as validated data analyses are completed.
- Web page posted to the Center for Occupational Health and Safety's (COHS's) web site devoted to the project. The link will be provided to our group's advisory workgroup and other collaborators.
- Presentation of the findings for the Center for Occupational Health and Safety team members and the program's advisory workgroup.

Major Project Impact:
Many worker populations and industries were heavily impacted by COVID-19. COVID-19 risks evolved over time with reopening policies and implementation of safety measures. Over the course of the COVID-19 pandemic, certain worker groups have been at higher risk of COVID-19 infection and adverse outcomes. This includes groups initially termed "essential", such as health care, food processing, first responders, and grocery employees. These groups may have been

especially at risk before safety measures were implemented, such as Plexiglas shields, rigorous cleaning protocols, mask mandates, and distancing. In the next phase, a wider group of workers was at risk due to reopening policies, such as cosmetologists, construction workers, bar and restaurant workers, and hospitality workers. In more recent phases, virtually all in-person workers have some risk due to removal of most or all restrictions. Further work is necessary to understand the long-term risks and experience of all industry and occupation groups.

Some states passed laws or executive orders that made it easier for some categories of workers to file for COVID-19 related workers' compensation claims. Minnesota House File 4537 created the presumption that COVID-19 is an occupational disease for the following workers: licensed peace officers, firefighters, paramedic or emergency medical technicians, corrections officers and certain other corrections employees, health care providers working with COVID-19 cases, and workers providing childcare to first responders and health care workers. As a result, Minnesota had one of the highest rates of COVID workers' compensation claims in the nation. This proposed project will help study the extent to which workers in these occupational groups used workers' compensation benefits for COVID-19 and will compare their work-related outcomes by looking at their future non-COVID-19 claims.

The lessons learned by this analysis can be applied to reduce future risk of adverse outcomes for workers with Long COVID and understand the risk posed by other communicable diseases, either existing or emerging. At-risk populations (i.e., essential employees or those who cannot work remotely) may especially benefit if we can link the findings with implementation of safety measures to evaluate their impact over time.

Additional Project #1 Title: Validate, analyze, and disseminate consistently trackable indicators of farm-related injuries.
Project #1 Type: Surveillance Activity

Project #1 Description:
This activity will develop, analyze, and disseminate consistently trackable indicators of farm-related injuries using Minnesota health datasets to measure the impact of state laws and injury-prevention programs. The primary data set used will be hospital discharge data available from the Minnesota Hospital Association. The injuries to be studied include general farm injuries, tractor rollover injuries, and grain bin injuries. Initial indicators for general farm injuries have been developed but not tested or validated. Specific indicators for grain bin and tractor rollover injuries have not been developed yet. This activity will include collaboration with the Minnesota Department of Agriculture and the University of Minnesota through participation in the Farm Safety Working Group.

The Fellow will help with development and validation of farm-related injuries using hospital discharge data.

General Farm Injuries. The IVPS has ongoing access to hospital discharge data (HDD) through a data contact with the Minnesota Hospital Association (MHA). Draft farm injury indicators based on ICD-10CM codes have been developed from these data, which contains both inpatient and outpatient (emergency department) hospital admissions. This proposed indicator has two main categories, "probable" farm-related injuries and "possible" farm-related injuries based on different types of injuries and locations where injuries occurred.

Tractor Rollovers and Grain Bin Accidents. To track the impact of new state laws and programs, two new farm injury categories will need to be developed, tractor rollovers and grain bin injuries. In consultation with researchers at the University of Minnesota and MDA, we will determine more specific ICD-10CM codes and injury locations for more closely tracking these types of injuries from hospital discharge data. We will investigate using the statewide trauma registry for specificity in identifying non-fatal tractor rollover and grain bin accidents. We will also explore using media reports to track the number of fatal rollover and grain bin injures. We will use the occupational health and safety

indicators developed by CSTE as a model for development and documentation of tractor rollover and grain bin accident indicators.

Project #1 Objectives and Expected Deliverables:
Project objectives:

- Become familiar with the draft indicators, proposed new indicators, and hospital discharge data.
- In collaboration with the COHS epidemiologist and outside partners, develop new grain bin and tractor rollover indicators.
- Perform initial analysis of new grain bin and tractor rollover indicators.
- Develop a summary report of draft indicators and plan for testing and validation of the indictors.
- Present initial data to the Farm Safety Working Group and COHS.
- Prepare aggregated data for the Minnesota Injury Data Access System (MIDAS) module.
- Gain experience working with external partners.
- Gain experience developing new indicators.
- Gain experience preparing data for public release.
- Gain experience writing surveillance data reports.
- Project deliverables.
- Specification document for new farm injury indicators.
- Report, fact sheet, or other data products as determined in collaboration with partners. We will share the reports for cross-posting to any MDA or other state agency sites.
- Peer-reviewed publications as data are available.
- Aggregated data posted to the occupational health module of the Minnesota Injury Data Access System.
- Web page posted to the Center for Occupational Health and Safety's (COHS's) web site devoted to the project. The link will be provided to our group's advisory workgroup and other collaborators.

Project #1 Impact:
Agriculture is one of the most dangerous professions; a farmer is 800% more likely to die while working than people in other jobs. Agricultural workers face additional risks because they are often not covered by occupational health programs such as OSHA and workers' compensation and include both younger and older workers who may be more susceptible to injury. Workers may be performing their job part time, adding further injury risk.

Agriculture is not well-represented among the worker's compensation and survey data used to calculate the routinely collected Occupational Safety and Health indicators. In 2015 the COHS developed an indicator for farm injuries, using hospital discharge data and International Classification of Diseases, Ninth Revision (ICD 9) codes to determine whether serious injuries occurred on a farm. The indicator needs to be updated to use ICD 10 coding. In recent years the Minnesota legislature has passed new laws implementing programs to help prevent farm injuries. These include reimbursement for the addition of rollover protection structures (ROPS) to older tractors and cost-sharing to assist installation of grain bin safety equipment. These new interventions need to be evaluated to help support their continuation in the face of tight state budgets.

Additional Project #2 Title: Disseminate surveillance data and findings to appropriate audiences.
Project #2 Type: Surveillance Activity

Project #2 Description:
In this activity the Fellow will develop reports and oral presentations to disseminate occupational health and safety surveillance data and other findings to target audiences. The Fellow will also prepare surveillance data for inclusion in online tools or data portals. Dissemination and utilization of occupational health surveillance data will begin with the

process of working with the providers and users of the data and our advisory group. Several strategies will be used to broaden access to the data as well as to define priorities and drive health-promoting activities. The Fellow will help develop audience-specific educational materials, outreach, and other resources for optimizing their uptake or adoption/adaptation for protecting workers. This activity will allow the Fellow to increase his or her understanding of communicating data and surveillance findings to stakeholders for improving the health of the public. It will allow the Fellow to develop skills using Tableau for data visualization.

The Fellow will help with development and maintenance of an occupational health and safety module in the Minnesota Injury Data Access System (MIDAS) platform for interactive data display and reporting.

- MIDAS: A web-based mechanism for dissemination of data and reports will be the IVPS's Minnesota Injury Data Access System (MIDAS). Utilization of the MIDAS system will enhance the ability of the COHS to disseminate the occupational health indicators and related information. IVPS provided resources for the development of a publicly accessible web portal that provides access to data, maps, and information on a wide range of injury data. Currently the Tableau-based MIDAS contains modules for drug overdose (fatal and non-fatal), alcohol, injuries, violence data, and motor vehicle crash data. Occupational injuries are currently included in the injury module. We plan to develop an occupational health-specific module. Once developed we will use this module to disseminate findings from all the COHS's projects, including standard OHIs, farm mental health and suicide indicators, farm injury indicators, COVID-19 special project results, and any other analytic findings.

The Fellow will help disseminate surveillance findings in reports, data briefs, peer-reviewed publications, and in-person and virtual presentations. For some reports the Fellow will take the lead, and for others will provide a supporting/reviewing role.

Project #2 Objectives and Expected Deliverables:
Project objectives

- Help revise and update the COHS website.
- Assist with annual surveillance report.
- Help with MIDAS occupational health module development.
- Help prepare fact sheets and peer-reviewed publications on surveillance findings.
- Prepare and present findings in oral presentations, either virtually or in-person.
- Gain experience preparing data for public release.
- Gain experience writing surveillance data reports.
- Gain experience writing peer-reviewed publications.

Project deliverables

- Updated COHS web site, including data resources.
- Annual surveillance report.
- MIDAS module populated with occupational health indicator data.
- Fact sheets or peer-reviewed publications on surveillance findings.
- Oral presentations at conferences or webinars, including the CSTE annual conference.

Project #2 Impact:
Surveillance data are of little value if they are not ultimately used to monitor rates and trends, establish priorities, and determine the impact of intervention activities. The COHS currently collects 25 occupational health and safety surveillance measures, with many more planned for the coming years. The COHS needs to get its data out to stakeholders using the most up-to-date and effective methods. These stakeholders can then use the data to implement

or evaluate prevention programs and safety efforts. The COHS has several current and planned ways to disseminate surveillance and study findings, in a variety of formats.

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

The Fellow would have several opportunities to become involved in emergency preparedness efforts. Specifically, IVPS provides staffing for the Long-Term Surveillance (LTS) Annex, a team of injury and chronic disease MDH staff which stands ready to provide expertise for responding to the long-term surveillance needs in emergency responses. The LTS Annex was activated in 2020 to track long term impacts of COVID, including surveillance of long COVID. More than 15 investigation topics have been identified so far. The primary mentor for this Fellowship is a member of the LTS Annex. If the LTS Annex is activated for another emergency response, the Fellow would have the opportunity to participate. Additionally, when the LTS Annex resumes meeting to prepare for unknown future responses, the Fellow will be included. Further training on emergency preparedness may also be used to fulfill the Fellow's needs for emergency preparedness experience.

Time allocation: 0.3 FTE, primarily in conducting investigation into COVID-19 and workplace risk factors, and long COVID's impact on workers and workplaces.

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

Dr. Ruth Lynfield, our state epidemiologist, will assist with connecting the Fellow with a cluster/outbreak investigation. Potential activities include developing a working case definition, identifying cases in a systematic way, conducting case investigation interviews, and developing and testing hypotheses about transmission within the outbreak. If new work-related clusters or outbreaks of COVID-19 cases or other infectious diseases are detected, we would expect the Fellow to be involved in the investigation. The COHS has begun working with the zoonotic and vector borne disease programs on risks to workers, and in the case of outbreaks of these infectious diseases among workers, the Fellow would be included. Time allocation: 0.1 FTE, to be spent on potential workplace outbreaks or COVID-19, or other infectious diseases such as zoonotic diseases.

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

Although the state emergency authorization has ended and MDH is no longer using the incident command structure for COVID-19, many areas of MDH are actively working on COVID-19, including the COHS. We know that work is a major risk factor for COVID-19, and COHS will continue to investigate the disparities in COVID-19 outcomes by industry and occupation. As described in the major project above, the Fellow will use existing COVID and other datasets (e.g., hospital discharge data, syndromic surveillance, workers' compensation claims) to conduct community-level surveillance, assessing the regions and communities particularly hard hit by COVID. The fellow will also have the opportunity to continue ongoing investigation into the relationship between employment and Long COVID. Findings will be summarized in reports, and recommendations will be developed for state and local organizations to address the long-term impacts of COVID, particularly among communities at greatest risk. A manuscript describing the findings will be drafted for peer-reviewed publication. Time allocated will be .15 FTE.

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

There are numerous health equity-related projects currently ongoing at MDH. There is a relatively new health equity community of practice, which comes together monthly with staff from different areas of MDH presenting and discussing equity-related work they are doing. The MDH Center for Health Equity is developing standards related to demographic data collection and use to ensure that all programs are collecting demographic data in ways that can help us understand and address inequities in our state. Both the IVPS and the division it sits in, Health Promotion and Chronic Disease Prevention, have health equity workgroups that are very active at both the level of promoting equity and inclusion within our workplace, as well as in how we work with partners, communities, and present our data. We approach all our work using a health equity lens and remain mindful of how the ways we do our work can impact equity and inclusiveness. Work as a risk factor for illness and injury disproportionately affects populations of color and women. The MDH COHS is focused on helping underserved worker populations, and we have emphasized these groups in our work. The experiences planned for the Fellow provide opportunities to work in furthering health equity, including the surveillance project, surveillance evaluation, major project, and additional projects.