

Example – CSTE Applied Epidemiology Host Site
Maternal and Child Health - Host Site Description
State of Alaska

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Disclosure: This is an example of a past host site projects proposal and is not intended to be an available host site location. This is posted for example purposes of the projects and activities a host site can propose for the fellow.

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

Work Environment
Hybrid

Assignment Description

The fellow will work in the Maternal Child Health (MCH) Epidemiology Unit but will also interact frequently with staff from other Units in the Section of Women's, Children's, and Family Health (WCFH), other Sections in the Division of Public Health, and community-based partners. MCH Epi is a Unit within WCFH, Division of Public Health, Alaska Department of Health. WCFH is Alaska's Title V agency, responsible for improving the health of all mothers and children in the state, including children with special health care needs, through provision of gap-filling direct services as well as infrastructure-building, population-based, and enabling services. The MCH Epi Unit provides the backbone of data that assists with evaluation, planning, and quality assurance for many programs in WCFH.

The MCH Epidemiology team is a group of about 15 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 maternal and child 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 Epi Bashes. 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 MCH Epi Unit Manager (secondary mentor), the Senior Epidemiologist (primary mentor), the PRAMS Coordinator/Epidemiologist, and the Maternal Child Death Review program staff.

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 MCH surveillance programs and Health Analytic and Vital Records. Initial work will likely include analysis of PRAMS survey data and birth and death certificate 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.

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

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, 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, and plenty of niche restaurants. Residents of Anchorage are from around the country and the world, giving the city a quasi-international feel. In fact, it was recognized as having the most languages spoken in the public school system 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 20°F), 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 MCH Epidemiology focuses on a specific population, as opposed to a specific topic, 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 births and deaths in the state, Alaska PRAMS and CUBS (3-year follow-up to PRAMS), the Maternal Child Death Review, the Alaska Birth Defects Registry, Hospital discharge, and the Alaska Child Abuse and Neglect Linkage project. 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. MCH Epidemiology staff is skilled with and use the following statistical software for analysis: SAS, SUDAAN, SPSS, and R. We can support the 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 MCH Epidemiology staff are available to support a fellow in their use of these software and surveillance systems.

The MCH Epidemiology Unit 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. 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, Power-BI, and R shiny.

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Projects

Surveillance Activity Title: Women's Health Monitoring in Alaska

Surveillance Activity Description:

Using data from Pregnancy Risk Assessment Monitoring System, vital records, the Behavioral Risk Factor Surveillance System, and other sources, this project is to develop and publish a comprehensive women's health publication or series of publications. Key data points will likely include percent of women with a past year preventive health visit, unintended pregnancy, breast and cervical cancer screening rates, and key risk factors for maternal morbidity and mortality. These indicators will be stratified by relevant demographic categories, which may include region of residence, age, and race.

Surveillance Activity Objectives:

Currently, there is no single place where health program managers or others can go to find public health data on women's health. The objective of this activity is to identify and gather appropriate data from different existing data collection or 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. This may also involve conducting literature reviews to develop a brief background narrative about the importance of each indicator or measure, and equity considerations related to the indicator. 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 MCH Epi website.

Surveillance Activity Impact:

Increase provider and public awareness and understanding of key risk factors affecting women's health in Alaska, and current practice recommendations for improving Alaska women's health. The publication will also serve as a baseline for future ongoing reports to facilitate monitoring women's health over time.

Surveillance System Evaluation Title: Evaluation of the Alaska Pregnancy Risk Assessment Monitoring System (PRAMS)

Surveillance System Evaluation Description:

Multiple components of Alaska PRAMS have need for in depth evaluation, with upcoming opportunities related to the transition to the Phase 9 questionnaire and a new web component for completing the survey, both starting with 2023 births. A fellow might analyze the impact of these changes on the overall response rate as well as sub-population response rates. The PRAMS response rate has been declining for many years. The fellow could examine past trends in response rates by a variety of demographic groups (including mapping respondents using geocoded data) and look at how these might differ by mode of response or other operational factors. This would be used to inform and implement a stratification change to the sampling of births for Alaska PRAMS. Finally, accuracy of survey responses could be evaluated by linking PRAMS responses to other databases available to the MCH Epi Unit, including Medicaid, vital records, the Alaska Birth Defects Registry, or Maternal Child Death Review program data, to compare information from multiple sources on the same individual.

Surveillance System Objectives:

Currently, there is no single place where health program managers or others can go to find public health data on women's health. The objective of this activity is to identify and gather appropriate data from different existing data collection or 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. This may also involve conducting literature reviews to develop a brief background narrative about the importance of each indicator or measure, and equity considerations related to the indicator.

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Surveillance System Impact:

The PRAMS project has been ongoing in Alaska for over 30 years. The goal of PRAMS is to improve the health of mothers and infants by reducing adverse outcomes such as low birth weight, infant mortality and morbidity, and maternal morbidity. This project will improve the understanding of Alaska PRAMS staff of how recent trends in response rates and upcoming operational changes may impact the quality of PRAMS data, and where adjustments may need to be made to enable the program to continue to serve as the premier source of data on perinatal issues in the state and nationwide.

Major Project Title: Understanding Preterm Birth in Alaska

Major Project Description:

Similar to nationwide trends, preterm birth rates in Alaska have been increasing for the past decade, with particularly sharp increases among residents of some regions of the state. This project would take a holistic and multi-methods approach to understanding preterm birth in Alaska and possible reasons for the increase as well as longer-term disparities in rates.

Major Project Objectives:

- Identify any clusters or communities with particularly high rates, and qualitatively examine potential factors in those places, such as losing access to primary food source, no running water, etc.
- Stratify rates by race for the Anchorage region and consider how the experiences of Alaska Native birthing people in urban settings may differ (or not) from those in rural communities.
- Examine how preterm birth may present differently in more historically oppressed populations.
- In addition to age at time of preterm birth, also examine maternal age of first birth and pregnancy spacing.
- Examine how the COVID pandemic may have impacted preterm birth in Alaska. This could include linking birth certificates with COVID testing or vaccination data, Medicaid, or exploring other opportunities.

Major Project Impact:

The reasons for preterm birth are not always well understood or easy to identify. This project would attempt to work with community members to identify and address their concerns related to preterm birth and their ideas about what might be needed to lower rates and achieve equity.

Additional Project #1 Title: Birth Factors associated with birth outcomes

Project #1 Type: Major Project

Project #1 Description:

Description: Following established methodology conduct a probabilistic data linkage between statewide birth and Medicaid records. Using R, the linkage project will involve identifying and reviewing matches, documenting linkage rates, and assessing potential linkage bias. The Medicaid source will be queried for specific birth outcomes and connected to linked births, resulting in a final analysis dataset. Using basic frequency statistics and regression methods, factors associated with birth outcomes will be identified, documented, and written up as an epidemiology bulletin or other state publication.

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Project #1 Objectives and Expected Deliverables:

This project will conduct data linkages to create a research dataset that can be analyzed. The process implemented will be documented to facilitate ongoing annual replication and monitoring to evaluate changes over time. Key information products/deliverables will include scientific and non-scientific presentations and publications.

Project #1 Impact:

Improved recommendations for pre-birth care, delivery, and post-partum care towards targeted populations with increased risk of negative health outcomes. Ultimately the impact will improve birth outcomes for children born in Alaska.

Additional Project #2 Title: Online data visualization of PRAMS data
Project #2 Type: Surveillance Activity

Project #2 Description:

To reduce barriers and increase access to data, the MCH-Epidemiology Unit is 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 PRAMS data. To support these efforts the fellow will take part in further developing this by expanding the PRAMS phases included and adding R Markdown reports that can be generated to provide more comprehensive descriptions of specific indicators for high priority topics related to maternal health. Integrating these documents with the R Shiny application will result in a rich resource center for users across the state.

Project #2 Objectives and Expected Deliverables:

The fellow will be part of developing novel interactive data visualization using R. They will expand these efforts by developing at least 2 R markdown indicator reports that provide context and narrative to high priority topics. The template developed will be used for additional indicator reports and set the standard.

Project #2 Impact:

Access to information improves equity. Many organizations do not have the capacity, training, or resources to analyze complex survey weighted data. By ensuring these data are made available through online tools the impact of this ongoing surveillance can be more fully realized.

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

The fellow will be invited to participate in any MCH/Emergency Response training or learning collaborative that may arise during the time of their fellowship. These types of opportunities have been more frequent lately, and our Section is committed to engaging more with the Preparedness and Emergency Response groups in our Division. If a new public health emergency arises, the fellow will be invited to assist with response as needed. If possible, they will participate in any role playing preparedness activities that may be conducted during their fellowship period.

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

As an MCH-based fellowship, cluster and outbreak investigations will not be a primary focus or activity for the fellow. However, due to our close relationship and physical location in the same building as the Section of Epidemiology, the two mentors will reach out to coordinate having the fellow participate in a cluster or outbreak investigation with staff from the section of Epidemiology as appropriate. It is anticipated this might be an activity that would take place over a

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few weeks to a couple of months' period during the fellowship, with up to 50% of the fellow's time during the course of the investigation.