

ID: 87390521

Maternal and Child Health - Host Site Description

Arizona Department of Health Services

Assignment Location: Phoenix, US-AZ
Arizona Department of Health Services
Division of Prevention - Bureau of Assessment and Evaluation

Primary Mentor: Martin Celaya, DrPH, MPH
Bureau Chief
Arizona Department of Health Services

Secondary Mentor: Glenda Ramirez, MPH
Maternal and Child Health Epidemiologist
Arizona Department of Health Services

Work Environment

Hybrid

Assignment Description

The fellow will be placed with the Bureau of Assessment and Evaluation (BAE), Population Epidemiology and Evaluation Team (PEET) and will be mentored by a maternal health epidemiologist and by the BAE Chief. The fellow will work in partnership with both PEET and the Office of Fatality Review where the Maternal Mortality Review Committee and Severe Maternal Morbidities surveillance are housed in BAE.

The Fellow will have a significant role in efforts to improve surveillance of maternal deaths and severe maternal morbidity. In summary, the Fellow's assignment will involve:

- 1) Developing Arizona Perinatal Trust (APT) facility-level community profile reports for all APT-certified facilities.
- 2) Evaluating the current methods of analyzing false negative and false positively identified maternal deaths.
- 3) Developing a public-facing Maternal Mortality dashboard using Power BI with the data set(s) provided by the MCH epidemiology team
- 4) Engage community partners on data dissemination activities

The Fellow's day-to-day activities will be similar to those of agency-hired epidemiologists. The activities are as listed in no order of importance or ranking:

- Conduct data management and analysis needed for epidemiologic reports and investigations that focus on the prevention of maternal mortality, severe maternal morbidity, and other adverse maternal health conditions
- Designing and preparing reports from analyses of surveillance data, literature reviews
- Participate in training as necessary in Power BI, SAS, etc.
- Collect, manage, and analyze data in order to design a public-facing dashboard for Maternal Mortality and/or Severe Maternal Morbidity
- Collaborate with epidemiologists and program managers across the agency to develop joint analyses and reports focused on maternal and child health, health equity, and health improvement
- Identifying, analyzing, and reporting public health issues and problems
- Designing, manipulating, and using databases for the analysis of health problems to assess the potential public health impact
- Conducting literature reviews for program planning, preparation of publications, and evaluation
- Attend nationwide and statewide meetings on maternal health and maternal mortality initiatives

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

The fellow will be provided access to SAS and PowerBI to support assigned activities. They will have access to Google and Office Suite of products. They will be provided access to hospital discharge data (HDD), vital records, and all other necessary data systems necessary to complete assigned tasks.

Projects

Surveillance Activity Title: Maternal Mortality Dashboard

Surveillance Activity Description:

ADHS is statutorily required to produce a report every two years describing maternal mortality trends in Arizona. These reports are often complicated to produce and lengthy. A public-facing dashboard would alleviate some of the time spent to produce these reports and allow internal and external partners to focus on the pieces of data that are most relevant to them and their work.

MCH epidemiologists are currently developing data set(s) that would contain all the data needed for a potential future maternal mortality dashboard. This would be beneficial to both partners within and outside of the agency, given the high demand for maternal health data and given the high amount of detailed maternal mortality data available.

Surveillance Activity Objectives:

Develop a public-facing Maternal Mortality dashboard using Power BI with the data set(s) automated and provided by the MCH epidemiology team

With support and guidance from the MCH epidemiologist(s), the CSTE Fellow would conduct the following activities:

- Study and understand the maternal health data set(s); identify and understand what content is available in the data set(s) provided, how the data is structured, etc.
- Create additional variables as needed to create the dashboard views requested by CSTE mentors.

With support and guidance from mentors, the CSTE Fellow would conduct the following activities:

- Develop a template for the visual layout of the dashboard. This will include, but not be limited to, identifying and documenting the selected fonts, colors, and sizing, etc., of the dashboard structure.
- Develop the data content layout for the dashboard. For instance, this will include activities such as deciding what data metrics will be important to include, highlight, and summarize in the dashboard, and which data metrics to use as slicers.

Both MCH epidemiologists and CSTE mentors will provide technical guidance and support. However, depending on the CSTE Fellow's Power BI experience, independent training and additional guidance may be needed. This could include completing online trainings/courses on Power BI during the fellowship, seeking technical support from the agency's Business Informatics Office, and other activities for professional development.

The expected final deliverable will be a public-facing Power BI dashboard that displays maternal mortality data from the Arizona Maternal Mortality Review Program

Surveillance Activity Impact:

Developing this dashboard would enable quick and easy access to maternal mortality data for public health practitioners. Additionally, this dashboard would give stakeholders from a wide range of specialized areas (e.g.

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education, clinical, policy development) a robust amount of data to guide their efforts to improve maternal mortality and, ultimately, maternal health in the state.

Surveillance System Evaluation Title: Evaluating Maternal Deaths for False Negative and False Positive Cases

Surveillance System Evaluation Description:

MCH epidemiologists have developed a case identification method for maternal deaths in Arizona. The current method primarily uses vital records death certificates, but also uses information from vital records live birth certificates, vital records fetal deaths certificates and the hospital discharge database to gather additional information that can be used to identify potential maternal deaths. Given the multiple data sources and the AZ-MMRP's current involvement with the NAPHSIS case identification activities, an evaluation of the case identification protocols would be beneficial to ensure that false positives & negatives are minimized and true positives and negatives are maximized. Existing SAS programs that identify potential maternal death cases would be shared with the fellow to facilitate the evaluation process.

Surveillance System Objectives:

The fellowship goal for this project would be to conduct an evaluation of the Arizona maternal deaths case identification system by comparing current and previous case identification processes. Additionally, a portion of the evaluation can be to conduct a sensitivity analysis based on the pregnancy checkbox field within the vital records death certificate database.

With support and guidance from MCH epidemiologist(s), the CSTE Fellow would conduct the following activities:

- Create an action plan for conducting the evaluation of the MMRP case identification protocols and associated data sources..
- Draft an evaluation study design for this project.
- Create a report template summarizing the evaluation methods and results.
- Create a SAS program and workflow to conduct the statistical analysis needed for this project.

With support and guidance from mentors, the CSTE Fellow would conduct the following activities:

- Monitor the timeliness of activities and due dates.
- Edit and format the final product summarizing the results of this project.

The expected final deliverable will be a PDF report, along with a summary presentation, explaining the results and providing suggestions for next steps at the conclusion of the evaluation.

Surveillance System Impact:

Conducting this evaluation would ensure that both optimal and feasible operations are in place to gather as many true positive cases of maternal deaths in Arizona as possible. Ultimately this would improve reporting quality of maternal deaths, increase trust in the identified cases around maternal deaths, and improve surveillance data results which are to be used to improve maternal health in Arizona.

Major Project Title: Arizona Perinatal Trust (APT) Community Profiles and Automation

Major Project Description:

ADHS provides the Arizona Perinatal Trust (APT), a perinatal quality collaborative, with an annual report of births in Arizona, focused on births occurring at APT-certified hospitals. Almost all birthing hospitals in Arizona are APT-certified. The report presents descriptive statistics on demographics and other characteristics of births in Arizona. The report could be automated or turned into a dashboard to streamline future APT Community Profiles.

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The ADHS Bureau of Assessment and Evaluation annually develops facility-level community profile reports for all facilities certified through the Arizona Perinatal Trust (or “APT” the Arizona perinatal quality collaborative). Almost all birthing hospitals in Arizona are APT-certified. The report presents descriptive statistics on demographics and other characteristics of births in Arizona. Previous MCH epidemiologists have developed a workflow to create these reports using the Vital Records Live Birth Certificates data and a SAS program to execute a query for this data output. Although this workflow currently exists to create future reports, it could be enhanced through automation techniques and/or turned into a dashboard to streamline the development of future APT Community Profiles and to conduct potential future analysis based on APT certification levels.

Major Project Objectives:

- Utilize SAS code and protocols developed by MCH epidemiologists to generate summary tables for APT-certified hospitals for 2025 births.
- Perform quality assurance on each hospital report using Excel.
- Either use SAS to automate the report generation process, or use PowerBI to create a dashboard for APT staff to view future reports.

The expected final deliverables are the following:

- 2025 APT Community Profiles Reports for all APT-certified facilities.
- A SAS program for efficient report generation and/or a PowerBI dashboard to view select perinatal health outcomes stratified by APT levels and by facilities.

Major Project Impact:

The completion of this project will improve timeliness of data dissemination to both APT partners and facility-level partners who could use this data to guide intervention efforts and improve quality of health care services for maternal and child health populations.

Enhancing the reporting techniques will also facilitate potential epidemiological investigations based on APT certification status of Arizona facilities, ultimately functioning to improve maternal and child health outcomes.

Additional Project #1 Title: Maternal Safety Readiness and Response Survey Analysis

Project #1 Type: Other

Project #1 Description:

The Arizona Department of Health Services (ADHS), in partnership with the Arizona Perinatal Trust (APT), the Arizona Hospital and Healthcare Association (AzHHA), and the March of Dimes (MOD), distributed a survey to Arizona birthing hospitals in 2025 to improve maternal care practices in Arizona. Survey responses help guide the state’s efforts to reduce maternal morbidity and mortality through the Maternal Health Innovation Program (MHIP) and the Arizona Alliance for Innovation on Maternal Health (AIM). The survey includes questions regarding quality improvement, care coordination, protocols for obstetric emergencies, and other policies in the Labor & Delivery (L&D) Department, Postpartum Care Unit, and Emergency Department (ED). This survey was last distributed to facilities in 2020. The fellow will work in collaboration with the Maternal Health Epidemiologist/ MHIP Program Evaluator.

Project #1 Objectives and Expected Deliverables:

- Analyze survey data using SAS and/or Excel.
- Link survey data with the 2025 Arizona Live Birth Records to add contextual information.
- Write a summary of survey results to be distributed to Arizona birthing facilities, ADHS/ MHIP, APT, AzHHA/ AIM, and MOD.

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Project #1 Impact:

- Inform maternal morbidity and mortality prevention efforts in Arizona and identify the existing and needed resources among Arizona's birthing facilities to allow for better support for these facilities in the future.

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

BAE programs are often involved in state-wide emergency responses (e.g., COVID-19, infant formula shortage). The fellow will be integrated into the data analysis arm of the HEOC structure and will assist with epidemiologic data analysis (as requested). No COVID response expected at this time.

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

From 2018-2019, mental health conditions were identified as the underlying cause of approximately 32% of pregnancy-related deaths in Arizona. Given the continuing concern for mental health disorders throughout the perinatal period and the limited available resources and services to address these concerns, investigations regarding maternal mental health clusters could prove beneficial for guiding interventions and the provision of services throughout Arizona.

The fellow would have an opportunity to initiate this investigation and would like to account for approximately 10% of the fellow's time allocation. However, this may vary depending on the fellow's interest(s) and agency needs, given the public health responsibilities and priorities during the time of the fellowship.