Host site: Minnesota Department of Health Infectious Disease Epidemiology, Prevention and Control

Assignment Location: St. Paul, MN

Primary Mentor: Stephanie Meyer, MPH

Secondary Mentor: Beth Gyllstrom, PhD, MPH

Agency Description:

Minnesota’s public health system is known as one of the best in the nation. It is built upon a strong partnership between the Minnesota Department of Health (MDH), local public health agencies, tribal governments and a range of other organizations. The department’s mission is to protect, maintain and improve the health of all Minnesotans. It has about 1,500 employees and an annual budget of approximately $500 million in state, federal and fee-based funds.

MDH is organized into four Bureaus, comprised of 12 divisions and offices. The Infectious Disease Epidemiology, Protection and Control (IDEPC) division is housed within the Health Protection Bureau, which also contains the Public Health Laboratory (PHL) and Environmental Health (EH) divisions. In addition to a strong mission statement, MDH also identifies the following organizational values: integrity, collaboration, respect, science, and accountability.

MDH prides itself on taking an evidence-based approach to program development and implementation. Most of the professional employees at MDH have advanced degrees, either at the masters or doctoral level. The work culture is one of collaboration and collegiality, with work accomplished in a team-based approach. An overarching priority, which cuts across all aspects of MDH work, is to advance health equity and address challenges faced by our most vulnerable populations.

The MDH COVID section was formed in January 2021 and is housed within the IDEPC division. Several technology systems are also housed within IDEPC, with Minnesota Information Technology (MN.IT) staff directly assigned to support these systems (though MN.IT is a separate department in Minnesota state government). This organizational structure allows for strong collaboration between subject matter content experts and embedded MN.IT staff. The COVID section is responsible for the epidemiological response to COVID-19 in Minnesota. It was created initially to handle the pandemic response to COVID-19, but also designed to continue to monitor and respond to COVID into the future. Responsibilities of the COVID section include: staffing and operating case intake, case investigation/contact tracing, updating and aligning guidance and documentation, data management, analysis and reporting, special teams follow-up (e.g., K-12 schools, childcare, higher education, corrections, long-term care facilities, and other highly impacted settings), hospitalization/death surveillance, and emerging variants of interest and vaccine breakthrough study and surveillance. In addition, this section works closely with the
MEDSS team and MIIC (Minnesota Immunization Information Connection) on all aspects of COVID-19 data collection and reporting.

Assignment Description:

The CSTE Informatics Fellow will be working in the COVID section. The Fellow will be mentored by the Epidemiology and Data Unit Supervisor and the COVID Section Assistant Manager. The Fellow will be engaged with COVID response projects specific to enhancing the data systems used to support COVID-related monitoring, surveillance, and analysis. Specifically, we hope the fellow can support the work of the team creating an internal COVID dashboard as part of the DSTT program. There will be a large amount of work involved in visualizing the data, making it user friendly, and mapping out aspects of data analysis that occur in different parts of the agency. This would include mapping the ways MEDSS interacts with our immunizations database, public health lab database, our “portal” user interface, and additional whole genome sequencing results that are received, and how all the pieces operate in our cloud infrastructure and data lake environments. This would also include looking for ways to streamline the interactions between all parts of the system and thinking through the best practices to automate processes without losing quality data.

There is an expectation by MEDSS MN.IT staff that each content area within MDH using MEDSS has an epidemiological liaison to bridge content expertise with informatics needs. At this time, the COVID section does not have an individual identified to work in this role. If successful in our application, the CSTE Fellow would take on the liaison role between COVID section content experts and MEDSS informatics staff. One specific project in this area is related to disease reporting. Currently, a number of COVID reports come from non-HL7 reporting routes. We hope to move them all into a system called RePortal that routes these disparate reports through Rhapsody and into MEDSS. The fellow would be responsible for helping to define the data set, think through formatting needs, and helping to test the RePortal build out as well as the Rhapsody route to transfer data into our MEDSS system. This will provide an excellent learning opportunity around disease reporting and the differences between HL7 and non-HL7 reports and the chance to build streamlined processing of data on a large scale.

In addition, there will be opportunities for the fellow to work to strengthen interactions between the COVID section, our vaccine preventable disease section, which administers MIIC (immunization registry), and MEDSS. There may be additional work to support connections between MEDSS and REDCap, as needed.

Preferred Background & Skills:

Candidates with a good understanding of disease reporting would be preferred. Experience with ELR and eCR is not required but would be helpful in understanding the flow of information. Any background in
laboratory work or reading laboratory results is helpful but can also be learned on the job. Candidates who have knowledge and skills with Tableau and SAS will be able to lend their expertise to our work. Additional knowledge of SQL or Python could prove helpful as we navigate our data lake solutions and new ways to automate and streamline our data systems. Candidates who have worked on COVID during the pandemic would also be ideal. It is helpful to have a background in COVID and an understanding of the changes that have taken place over the course of the pandemic.

What can the fellow expect to gain from 2 years at this host site?

If selected as a host site, MDH can provide a holistic governmental public health experience to the fellow. This includes: --hands on experience working with surveillance data (lab and epi-based) --understanding the strengths and limitations of data collected and analyzed at MDH --developing skills to help bridge the work of IT teams and subject matter experts --increasing data visualization and presentation skills --skills related to data linkages and optimization of data sets

Potential Projects include:

Host sites have listed up to 5 projects

Project 1: MDH COVID Dashboard Development

Streamline and support the data infrastructure needs of the COVID section; Design mapping tools for future strategic planning around disease surveillance; Documentation and ongoing identification of processes that would enhance and improve the MDH internal COVID-19 dashboard.

MDH has tremendous amounts of COVID-19 data, all of which is packaged and presented to various stakeholder audiences. This is incredibly staff intensive and currently fairly static data reports. The ability to create a dynamic COVID data dashboard will improve data quality and timeliness, while also providing a valuable tool both for internal decision-makers, as well as the Governor's Office.

Project 2: MEDSS Data Mapping Project

The fellow would map all the ways MEDSS interacts with these applications – including our immunizations database, public health lab database, our "portal" user interface, and additional whole genome sequencing results that are received and how all the pieces operate in our cloud infrastructure and data lake environments. Part of their role would also include identifying ways to streamline the interactions between all parts of the system and thinking through the best practices to automate processes while keeping data quality in mind. Mapping document that outlines the applications that interface with MEDSS and the side projects and analyses that occur with relation to COVID-19

The ability to link and maximize interactions between various COVID-related databases is critical to the future work of our section. As we move to a phase where we can better analyze and describe our data
from multiple data systems, we will have better information with which to inform stakeholders, policy makers and the general public.

Project 3: RePortal/Rhapsody Data Project

We hope to move all non-HL7 reports into a system called RePortal that routes them through the Rhapsody Integration Engine and into MEDSS. The fellow would be responsible for helping to define the data set, design formatting needs, and help test the RePortal build out as well as the Rhapsody route to transfer data into our MEDSS system. Ideally the fellow would help to streamline data processes on a large scale for application to other infectious diseases beyond COVID and develop skills in the processing of all laboratory data through a centralized disease reporting system. Design documentation for the transfer of non-HL7 based reports to be routed through RePortal

There is an ongoing need for informatics support and thoughtful planning and design implementation. This would benefit the agency and would give the fellow hands-on experience in an agency with a reputation for excellence and high-functioning systems. As with all public health infrastructure around the country, MDH has lagged behind in updating its data and informatics structures. This is an excellent opportunity for a fresh perspective on the work we do and thinking through a strategic plan for the future of informatics at the state level.

**Additional information about the placement:**

Nothing additional to share at this time.