ID: 59525662
Infectious Diseases - Host Site Description
North Carolina Department of Health and Human Services

Assignment Location: Raleigh, US-NC
North Carolina Department of Health and Human Services
Division of Public Health

Primary Mentor: Carrie Blanchard, PharmD, MPH
Immunization Branch Director
NC DHHS/DPH/Immunization Branch

Secondary Mentor: Jenny Myers, MPH
Continuous Improvement and Data Analytics Manager
NC DHHS/DPH/Immunization Branch

Work Environment
100% Virtual

Assignment Description

The Fellow will be housed in the Immunization Branch, which is one of four branches comprising the Epidemiology Section of NC DHHS's Division of Public. The Immunization Branch has a mission to promote public health by reducing or eliminating vaccine-preventable diseases. The Immunization Branch aims to protect the health, safety and well-being of all people in North Carolina by ensuring equitable access to vaccines and empowering partners with trusted, reliable information and support services in the ongoing fight against vaccine-preventable disease. There are seven units that comprise the NC Immunization Branch including Vaccine Systems, Operations, Provider Operations, Provider Clinical Services, Continuous Improvement and Data Analytics, Education Communication and Outreach, and Equity. These units work collaboratively to support the Branch's mission and purpose. The Fellow's primary mentor serves as the Immunization Branch Director whereas the secondary mentor is responsible for the management and oversight of the Continuous Improvement and Data Analytics Unit. Along with the primary and secondary mentors, the Fellow will work closely with various unit managers to perform work supportive of their respective unit. A varied approach to work assignments is intended to give the Fellow a well-rounded experience and enable them to gain a broad understanding of programmatic activities and deliverables. Staff of the Immunization Branch are committed to ensuring that the Fellow receives appropriate training and is fully prepared to enter into an applied epidemiology position following completion of this fellowship.

The proposed projects will be focused primarily on program evaluation and implementation planning with a focus on data structures, quality, and standardization. The Fellow will be immersed into the many programs operating within the Immunization Branch as well as various Epidemiology Section workgroups including the Epidemiology Section Data Workgroup and Epidemiology Section Equity Workgroup. There will be opportunities for collaboration with individuals across the section and the Fellow will also have the option of potentially pursuing specific projects of interest that contribute to the Immunization Branch's mission and purpose.

Day-to-day activities
The CSTE Fellow will be invited to attend and participate in all applicable day-to-day activities, including team meetings, workgroup meetings, CDC calls, webinars, and external partnership meetings. The CSTE Fellow will function as a fellow team member within the Immunization Branch and Epidemiology Section and will work very closely with the primary and secondary mentors as well as other team leads across the Branch. Given the projects and secondary mentors role, the Fellow will be an embedded member of the Continuous Improvement and Data Analytics Unit. This team consists of the 3 other epidemiologists as well as 7 regional immunization consultants that lead the quality improvement program with providers.

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Weekly mentorship meetings as well as project-specific meetings will take place to support the Fellow's needs and allow for mentors to provide feedback and guidance. The Fellow will be given the opportunity to lead multiple projects within the Immunization Branch, with guidance from team leads and others across the Epidemiology Section. Assignments will vary by topic and will offer a wide variety of programmatic exposure aimed at increasing the Fellow's understanding of how applied epidemiology and data is used to drive public health practice.

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

Various databases, platforms, and surveillance systems will be made available to the Fellow to support completion of their projects and understanding of the Immunization Branch programs and operations. The Fellow will be granted access to the following: North Carolina Immunization Registry (NCIR), Client Services Data Warehouse Business Objects, REDCap (CDC and NC), the North Carolina Electronic Disease Surveillance System, Annual Childcare/School/College Immunization Compliance Reporting Databases, NC Perinatal Hepatitis B Databases, Power BI, Tableau, applicable Microsoft Teams Channels, and others as deemed appropriate.

Projects

Surveillance Activity Title: Development of a School Immunization Data Quality Assessment Program

Surveillance Activity Description:
The North Carolina Immunization Branch collects immunization data from over 3000 public, private and charter schools annually as required by North Carolina immunization law. This data is self-reported from schools, typically by school nursing staff. The Immunization Branch would like to design and implement a data quality assessment program to validate the accuracy of data reported. This data quality assessment program should describe a sampling methodology used for selecting participating schools as well as a plan for sampling immunization records. The assessment should also include strategies to address data discrepancies found, including training, review of the school's reporting process, and follow up.

Surveillance Activity Objectives:
Deliverables include the following: 1) development of a sampling methodology to select schools for data quality assessment and for sampling immunization records, 2) Creation of a data verification tool, 3) development of a program calendar, including school contact, visit, and follow up visits; 4) develop a statistical analysis plan, and 5) provide an improvement plan aimed at addressing most commonly found reasons for discrepancies in data.

Surveillance Activity Impact:
This project will enhance the quality and accuracy of immunization data for school-aged children in North Carolina, leading to improved estimates of vaccine coverage and exemption rates. This project also aims to increase school level compliance with immunization regulations, as data quality visits and follow-up increase awareness and motivate schools to adhere to NC immunization rules and laws.

Surveillance System Evaluation Title: Develop an Implementation Plan for future IIS (Immunization Information System)

Surveillance System Evaluation Description:
The Immunization Branch is currently in the process of procuring a new Immunization Information System (IIS) to replace the current North Carolina Immunization Registry (NCIR). This new system is planned for full implementation by Summer 2025.

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Successful migration requires significant effort and input from many sources who know and understand data structures, processes and usage. Data volumes, data complexity, availability of standard IIS data load programs, legacy data tables/fields, field attributes, and properties including data type and length need to be considered. In preparation for this release, there is a critical need to develop a comprehensive implementation plan that addresses the following challenges: interoperability, data quality, data validation, data storage, security and privacy, standardization, usability, internet connectivity, infrastructure, workflow, funding, government regulations, awareness, public confidence, computer literacy, planned system integrations, and staff-related challenges. This plan must also include strategies for maintaining/supporting the current system and users while also planning for and implementing significant changes in technology and workflows. This project will also include an integration component aimed at developing and implementing processes to improve connections between the IIS and other surveillance systems, such as the North Carolina Electronic Disease Surveillance System. Completion of this project will require a full evaluation of the existing NCIR as well as stakeholder attitudes and desires to identify existing strengths and weaknesses. The proposed implementation plan will include strategies and recommendations to address each challenge, as well as timelines and specific action steps needed to achieve optimal use and data collection.

Surveillance System Objectives:
A comprehensive implementation plan for the development of a new immunization information system (IIS) in North Carolina by 12/31/2025.

Surveillance System Impact:
The public health community continues to look to the IIS to forge new ground with both clinicians and public health professionals, leading the way and showing agencies what can be done with data. Over time, IIS projects have become more tightly integrated with immunization programs. IIS are ultimately about use of immunization information, and the technology behind an IIS is about how that information is managed to enable its effective use in decision making. Therefore, an IIS rises and falls on the quality and completeness of its data. Modernization of the IIS will create value in the form of dynamic, real-time information that will result in action and more directly support program needs, including Vaccine for Children (VFC) program accountability, the Immunization Quality Improvement for Providers (IQIP), vaccine recall response, outbreak/pandemic management, and vaccine ordering and distribution.

Major Project Title: IQIP Custom Strategy Evaluation

Major Project Description:
The North Carolina Immunization Branch received CDC approval in Spring 2023 to implement a new IQIP strategy titled, *Address Health Disparities in Immunization Coverage*. IQIP is CDC's national, Vaccines for Children (VFC) provider-level immunization quality improvement (QI) program. IQIP serves to assist and support health care providers by identifying opportunities to improve vaccine uptake. This new strategy utilizes IIS (immunization information system) childhood and adolescent immunization coverage data to identify and address health disparities by race and ethnicity. The purpose of this project is to develop and execute a formal evaluation of the impact that this strategy has had on North Carolina's IQIP program. The evaluation plan should include the definition, standardization, and evaluation of key metrics including strategy uptake and utilization among providers, provider-level familiarity/knowledge/ability/motivation regarding health equity and efforts aimed at addressing health equity, as well as changes in immunization coverage and IIS data quality.

Major Project Objectives:
The objective of this project is to understand the impact that a custom, equity-based strategy has had on North Carolina's IQIP program and state and county-level immunization coverage levels. The deliverables of this project are 1) the development of a formal evaluation plan, and 2) the evaluation of data measuring the impact of this strategy on North Carolina's IQIP-participating providers and North Carolina immunization coverage and demographic data.

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Major Project Impact:
This project will contribute significantly to North Carolina and CDC's current understanding of how a quality-improvement based approach can be used to address health equity in regards to childhood and adolescent immunization coverage levels. This project will help inform best practices and recommendations for utilizing state-based IQIP programs to identify and address health inequities in the future. If found to be an effective strategy for addressing health equity, this evaluation also has the potential to inform national-level strategy for addressing health inequities. Findings from this study may be submitted as a manuscript for potential publication.

Additional Project #1 Title: Develop a Formal Structure for Post-COVID Equity Data Reporting
Project #1 Type: Surveillance Activity

Project #1 Description:
This project will be dedicated to the development of a formal structure for reporting equity data for all vaccines across the lifespan. Both the COVID-19 pandemic and Mpox outbreak highlighted the need for enhanced data transparency as it relates to disparities in immunization coverage. This knowledge underscores the need to establish a standardized and structured approach to identifying and communicating health disparities in immunization coverage.

Project #1 Objectives and Expected Deliverables:
The objective of this project is to create a standardized method, potentially through a custom dashboard, for communicating immunization equity data moving forward. The expected deliverable includes a template that can be used to report on equity data for all vaccines and ages as well as noted limitations and considerations for reporting equity data to external partners and the public.

Project #1 Impact:
This project is intended to help inform the Epidemiology Section Equity Team's approach to outreach strategies for immunization partners. A formal, standardized structure for reporting vaccine equity data will also help guide a longer-term project aimed at developing an equity roadmap, which is intended to provide a guide for how the Epidemiology Section will work to address health equity across the four branches over time. This work has the ability to impact both routine and outbreak-related vaccine responses and has the potential to help inform division and department-level approaches to addressing health equity.

Additional Project #2 Title: Perinatal Hepatitis B (PHB) Surveillance System Evaluation and Improvement Plan
Project #2 Type: Surveillance System Evaluation

Project #2 Description:
North Carolina's Perinatal Hepatitis B (PHB) Prevention Program currently utilizes data extracted from the North Carolina Electronic Disease Surveillance System to populate a Microsoft Excel database intended to aid the PHB Coordinator in identifying infants in need of follow-up. This report is also used to analyze and summarize data required for the Annual CDC PHB Report. This current mechanism for tracking and reporting of data is tedious and time-consuming, which has highlighted the need to explore alternative methods for the collection and reporting of data. The purpose of this project is to evaluate the strengths and weaknesses of the current reporting mechanisms and identify potential solutions for improving the staff-to-time ratio for maintaining a database, utilizing the data for necessary tracking, and reporting of data to CDC.

Project #2 Objectives and Expected Deliverables:
The objective of this project is to describe the current strengths and weaknesses of the current PHB reporting structure. The expected deliverable is a formal evaluation of the current mechanisms for PHB data collection, analysis and reporting, including a proposed improvement plan by December 31, 2025.

If the Fellow has the capacity, another potential deliverable is the development of a new, more efficient database for data tracking, visualization, and reporting.

Project #2 Impact:
This project has the potential to improve the accessibility, quality, accuracy, and completion of data collected as part of the Perinatal Hepatitis B Surveillance Program in North Carolina. Improving these metrics has the potential to improve outcomes of infants born to Hepatitis B-positive women in North Carolina.

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

The Fellow's anticipated role in preparedness and response is to assist all units of the Immunization Branch with data-related needs to support vaccine ordering, allocation, and reporting. This may also include supporting CDC or state-led vaccine-effectiveness studies. The activities and time needed will vary depending on scale of outbreak and branch data needs, but are expected to range from 5-15 hours per week.

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

The Fellow's anticipated role in cluster and outbreak investigations is to assist all units of the Immunization Branch with data-related needs to support vaccine ordering, allocation, and reporting. The fellow will assist the communicable disease branch in at least one outbreak investigation of a reportable disease. This may involve field work including supporting local health departments, interviewing cases and contacts, and supporting control measure implementation. The fellow may also support CDC or state-led vaccine-effectiveness studies. The activities and time needed will vary depending on scale of outbreak and branch data needs, but are expected to range from 5-15 hours per week.