Host site: Virginia Department of Health Center of Public Health Informatics (CPHI) and Office of Epidemiology, Division of Informatics and Information Systems (DIIS)

Assignment Location: Richmond, Virginia

Primary Mentor: Tim Powell, MPH

Secondary Mentor: Rebecca Early, MPH

Agency Description:

Site description: The Virginia Department of Health (VDH) is headquartered in downtown Richmond, Virginia. The office is within walking distance of Virginia Commonwealth University (VCU), Capitol Square, and popular eating, shopping and festival destinations. The Richmond metropolitan area is home to more than 1.3 million residents, the capital of Virginia, and one of the fastest growing metro areas in the United States. Richmond is located on the beautiful James River, features many outdoor activities in and around the river, and burgeoning arts, food and music scenes. The city is within two hours of Washington, D.C. to the north, Shenandoah National Park to the west, and Virginia Beach to the east.

Culture: Office culture allows individuals to choose their work style, whether in-person or teleworking. Pandemic trends have seen most of the VDH workforce teleworking. Mentors have an open-door policy, and are available for questions and consultation via messaging, email, Zoom calls or in-person touch bases, depending on the fellow’s preferred communication style. Mr. Powell and Ms. Early will establish routine 1:1 meetings with the fellow to provide coaching and guide projects. The fellow will also work closely with Ms. Merylyn Huitz, DIIS Messaging Manager, and Mr. Steven Barber, DIIS eCR Coordinator, experienced public health informaticians that lead a team of messaging specialists. VDH features a positive culture that fosters collaboration and honest communication, teamwork, and growth.

Organization: VDH functions in a centralized manner, with policies made by the Health Commissioner and other leaders, and implemented locally. The Central Office is organized into twenty-four offices that oversee different aspects of health. Across the state, VDH comprises 35 health districts that form five health planning regions (North, Northwest, Central, Southwest and East). VDH information systems and informatics initiatives are administered by the Central Office. The Center for Public Health Informatics, which Mr. Powell leads, reports directly to the Health Commissioner. The Division of Informatics and Information Systems (DIIS), which is led by Ms. Early, is located within the Office of Epidemiology (OEPI). The OEPI also includes the Divisions of Surveillance and Investigation (DSI), Immunization (DOI), Disease Prevention (DDP) (HIV, STIs), Clinical Epidemiology (TB, HAI, MDROs), and Pharmacy Services.

The agency has an Informatics Advisory Council (IAC) with representation across the agency. There is also an Informatics Work Group, with representation across divisions that helps foster collaboration and
cross-pollination of informatics projects. The fellow would be involved with the Advisory Group and the Workgroup, and will have opportunities to be directly involved in projects related to agency-wide informatics efforts such as the cloud-based Enterprise Data & Analytics Portal.

Agency Priorities: VDH’s vision is “The healthiest state in the nation,” and its aim is to become this through being a data-driven organization with a modernized data and informatics infrastructure. The VDH Data Modernization Plan addresses initiatives across the agency that align with the overall CDC Data Modernization Initiative (DMI) activities. Nearly all of those initiatives have strong informatics components.

Assignment Description:

The Virginia Department of Health (VDH) has embarked on a multi-year data modernization effort, with key components of this effort being electronic case reporting (eCR), visioning toward a Next Generation Surveillance System, and improved interoperability through use of FHIR (Fast Healthcare Interoperability Resources). The two-year program with VDH for the Applied Public Health Informatics Fellow (APHIF) will include all three projects. This will give the APHIF a holistic view of electronic messaging from receipt of raw messages to epidemiologic use. The eCR component will focus on a scientific evaluation and likely publication of the completeness, timelines and impact of eCR (DMI Tier 2, Strategy 6, Activity 1). This will leverage the CDC evaluation framework for eCR and comparison of eICRs with manual case reports and lab reports, partnering with healthcare organizations. The second project will be a comprehensive evaluation of the agency’s primary surveillance system, VEDSS (Virginia Electronic Disease Surveillance System), in its current state, including feedback from the technical, informatics, and user communities. The project will build on VDH’s participation in the United States Data Service (USDS) common data model project (summer 2022), recent systems requirements gathering sessions (2020-2021) with external collaborators, and a 2018 VEDSS user satisfaction survey and analysis. Finally, the APHIF fellow will leverage results of VDH’s DMI Assessment for planning and implementation of a broader agency strategy for API and FHIR use. The APHIF will be incorporated into DMI projects in general, with opportunities for involvement from promoting interoperability to assisting in the expansion of the new enterprise data & analytics platform (EDAP) on Google Cloud (GCP).

Preferred Background & Skills:

The fellow would ideally have the following background (preferred not required): Familiarity with public health reporting for infectious diseases and with electronic data systems used for infectious disease surveillance; familiarity with electronic data standards, such as HL7 and xml that will support work on eCR and ELR; and familiarity with Excel, SQL, R and Tableau.

What can the fellow expect to gain from 2 years at this host site?
After two years at VDH, the Fellow will have: Extensive applied knowledge of production electronic surveillance data, and public health informatics experience based on the proposed projects; A thorough understanding of the status of electronic messaging today and the direction it is headed with the evolution of FHIR in the health system space; A better understanding of STLT (state, tribal, local and territorial) activities, and challenges and operations with regard epidemiology and informatics; Stronger data analytic skills and familiarity with SQL and Tableau; and Experience with Google Cloud Platform (GCP) which is being implemented for our enterprise data & analytics portal.

**Potential Projects include:**

*Host sites have listed up to 5 projects*

**Project 1: Evaluation of Electronic Case Reporting (eCR) in Virginia**

Project 1 Objective: To analyze eCR data and develop an assessment report using the CDC evaluation framework. Project 1 Deliverables: 1) Develop project plan for eCR evaluation consistent with the CDC framework; 2) Recruit a health care partner for the project (VHC is a likely candidate); 3) Create a tool for eCR validation with DIIS Messaging to improve data quality, integrity and completion; 4) Work with DIIS Messaging Teams to create Tableau dashboard to assist with monitoring and assessing eCR volume; 5) Develop analytic report that will be publishable and present findings.

Project 1 Public Health Impact: The eCR evaluation will result in identified pathways for eCR improvements with other hospital systems, and for conditions beyond COVID-19, thus improving the data received, and enabling epidemiologists to respond more effectively to eCR reports of communicable disease, preventing additional cases and improving population health.

**Project 2: Surveillance System Evaluation and Requirements Gathering**

Project 2 Objective: A comprehensive evaluation of the VEDSS system, accounting for the lessons learned through the COVID-19 response. Project 2 Deliverables: 1) Develop a project plan for the surveillance system evaluation; 2) Provide an executive summary of past evaluations; 3) Gather and provide documentation of comprehensive system requirements from relevant stakeholders; 4) Provide an analytic report and presentation of findings; 5) Create a draft roadmap for improvements by VDH and CDC informaticians and developers.

The roadmap for improvements to the NBS system will allow VDH and CDC developers to identify timelines for improvements that will provide efficiencies leading to a Next Generation Surveillance system that will ultimately provide a means for timely and accurate data to respond to reports of infectious disease more efficiently, thus preventing additional cases and improving health outcomes.

**Project 3: Enterprise Assessment, Planning, and Implementation of FHIR**
Project 3 Objective: Work directly with OIM/Director to engage with staff and programs across the agency to assess the comprehensive opportunities available for utilization of FHIR. Project 3 Deliverables: 1) Maintain and update plan for staff and program engagement; 2) Develop an evaluation report identifying and prioritizing opportunities for utilization of FHIR at VDH; and 3) Develop architectural diagram(s) with deficiencies and opportunities identified where FHIR can be used.

Identification of new and updated interoperability opportunities for FHIR will allow VDH to move forward in a more strategic manner with modernization activities, ultimately enabling VDH to have more impactful and comprehensive data for public health decision-making.

Additional information about the placement:

VDH has a robust plan for authoring all reporting conditions for eCR by mid-2022, and is working with subject matter experts (SMEs) to ensure the RCKMS reporting requirements are accurate. An eCR Field Advisory Team is being established with representation from VDH field (district, region) epidemiologists. Involvement in this advisory group will provide additional learning in terms of applied ep