

Leveraging GitHub in chronic disease surveillance workflows and production



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Washington State Department of Health used web-based collaboration and community tools to support modernization of chronic disease surveillance workflows. This new approach to doing business has sparked creativity, encouraged innovative thinking, and inspired the exploration of new data tools and modernization opportunities.

The “What”

Chronic disease epidemiologists in public health departments are often trying to find ways to work smarter, faster, and with minimal resources to quickly make sense of data and deliver insights to partners and the public. Making this more difficult is the fact that data projects commonly evolve in complexity, change hands over time, and frequently involve multiple contributors along the way. This can easily lead to inconsistencies and inefficiencies in maintaining and updating data processes, analytic code, and product development. To address these issues, Washington State Department of Health (WA DOH) epidemiologists are using GitHub, a powerful, web-based collaboration and communication platform, to modernize chronic disease surveillance workflows and production.



The Epi Coders GitHub at WA DOH was built by and for epidemiologists, informaticians, and IT staff collaborating on analytical projects and tools. [GitHub](#) offers a centralized, accessible, and secure place to preserve, collaborate, organize, and manage project workflows, code, and documentation and share them with multiple collaborators more efficiently. This platform is especially valuable for chronic disease surveillance projects, where multiple staff across different programs and divisions regularly inform and collaborate on the work or require specific deliverables.

With the introduction of the WA DOH GitHub, chronic disease epidemiologists saw an opportunity to streamline traditional workflows and production processes. They applied this approach to a comprehensive project aimed at enhancing, analyzing, interpreting, and visualizing [CDC PLACES](#) data for Washington State.

To efficiently manage all project tasks, the following steps were taken to establish a GitHub repository:

- Upskilled Team on GitHub: Participated in training and used [RStudio](#) as our Git client, enabling both R code development and GitHub integration in one application.
- Evaluated Project Workflow: Reviewed each stage, from data processing to production, while considering the needs of various users, including epidemiologists, other analysts, new hires, non-coders, supervisors, and program staff. *(continued next page)*



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- **Designed an Organized Repository:** Developed a structured file system and project workflows to efficiently manage data pipelines, code scripts, required inputs, analytical documentation, and final outputs.
- **Created User-Friendly Documentation:** Used [Quarto](#) documents that combined [R](#) code and documentation in one file, breaking work into manageable sections with clear instructions and helpful links—making projects accessible even to those with basic analytical skills.
- **Automated Key Processes:** Developed scripts to generate various project outputs automatically, such as technical documentation, measure summary tables in preformatted Excel files, spatial analysis data inputs, and HTML content for web-based products.
- **Built Collaborative Relationships:** Engaged project collaborators to review the repository, make changes, and suggest improvements for enhanced functionality.
- **Stronger Knowledge Preservation and Sharing:** Standardized processes ensure projects can be easily maintained and shared, even when staff changes or new employees join.
- **Greater Workforce Capacity:** Routine updates and data requests are automated and integrated with other tools, saving significant time and effort.
- **Enhanced Skills Development:** Epidemiologists gain valuable experience by collaborating with peers and accessing diverse project examples in one central location.
- **Stronger Analytical Partnerships:** Strengthens collaboration between internal analytical teams (such as the Chronic Disease Assessment Team and Informatics & Advanced Analytics Unit) by offering direct access to training and project-focused support.
- **Increased Project Visibility:** Epidemiologists, supervisors, program teams, and leadership can easily track project progress, understand key steps, and better allocate resources.
- **User-Friendly Documentation:** Quarto documents break down code into manageable sections, include clear instructions, and provide useful links, making projects accessible even to those with basic analytical skills.
- **More Focus on High-Priority Work:** By efficiently managing routine data tasks, GitHub frees up epidemiologists to spend more time interpreting data and communicating insights that drive better public health decisions.

The “So What”

By using GitHub to manage chronic disease surveillance projects, several key benefits have already been realized:

- **Streamlined Workflow:** Analytical tasks are completed faster, code is well-organized and reliable, and scaling projects is easier.

The “Now What”

Due to the success of the initial project, plans are already underway to create another GitHub repository to streamline data processing and production of chronic disease surveillance data dashboards. This new approach to doing business has sparked creativity, encouraged innovative

thinking, and inspired the exploration of new data tools and modernization opportunities. Ultimately, this type of platform enhances an epidemiologist’s capabilities to make data insights more timely, accessible, and useful for a wide range of audiences with different needs.

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