

Texas State Health Analytics and Reporting Platform (SHARP)



CONTRIBUTOR: *Monica Gamez, Director, Office of Public Health Data Strategy & Modernization, Texas Department of State Health Services*

CATEGORY: **Epidemiology and Laboratory Capacity (ELC)**

CATEGORY: **Enterprise Approach to Data Systems Modernization**

Texas Department of State Health Services (DSHS) was able to implement the State Health Analytics and Reporting Platform (SHARP), a modern data warehouse solution that brings DSHS data from various program areas into a common repository where sophisticated analysis and reporting can occur.

The “What”

Texas Department of State Health Services (DSHS) was able to implement the State Health Analytics and Reporting Platform (SHARP), a modern data warehouse solution that brings DSHS data from various program areas into a common repository where sophisticated analysis and reporting can occur. Epidemiologists across the state of Texas utilize the National Electronic Disease Surveillance System (NEDSS) for disease surveillance and case management. Although NEDSS stores a tremendous amount of



operational data (7.5 terabytes for Texas), it is not designed for data analysis or to provide complex reporting.

The “So What”

With Centers for Disease Control and Prevention’s (CDC) partnership and necessary funding, DSHS was able to implement the State Health Analytics and Reporting Platform (SHARP) which is a modern data warehouse solution that brings DSHS data from various program areas into a common repository where sophisticated analysis and reporting can occur. At the heart of SHARP, is the Snowflake data warehouse engine – a high-performance data warehouse tool that is designed to consume and analyze very large data sets (often referred to as “big data”). SHARP also consists of data pipelines that extract data from various program areas and structure that data into meaningful relationships within the Snowflake data warehouse where users can see latitudinal views of health information between lab reports, cases, immunizations, providers, and vital statistics data, as an example. SHARP also provides various ways to analyze and present data. Popular analytical tools such as SAS, PowerBI, and R Studio can be directly connected to SHARP to support epidemiological analysis. Presentation tools such as Tableau can be connected to support data visualization, dashboards, and reporting. In addition, SHARP maintains a multi-level security model that tightly controls access to information on the platform.



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The “Now What”

SHARP makes it easier for jurisdictions to retrieve and analyze health data. It provides the ability to retrieve large amounts of data much more quickly than was previously available. Additionally, it provides the benefit of aggregating and relating data from various program areas into a single view, which was not available until now. Data can be accessed via visualization and analytical tools that support ODBC (Open Database Connectivity) connections so that jurisdictional users can leverage tools they currently use to analyze epidemiological data. In addition, SHARP provides the ability for applications to connect directly to the Snowflake data warehouse through Application Programming Interfaces (APIs) so that program area applications can easily obtain relevant data and make that available to system users. DSHS plans to continue expanding SHARP’s capabilities and will port data from TB/HIV/STD into SHARP to assist with the data migration from TB/HIV/STD Integrated System (THISIS) to NEDSS. This will also allow jurisdictional users to access and analyze THISIS data on a toolset that is purpose-built for sophisticated data analysis and reporting.

From its initial launch, SHARP became a hit with epidemiologists across the state. They were finding that they could obtain lab results and case line lists much easier than extracting through NEDSS. Epidemiologists saw a substantial performance boost as SHARP provided the needed data over three times faster than obtaining through NEDSS. In addition, epidemiologists now have the ability to connect their analytical tools of choice to SHARP and perform complex data analysis. Since launching in October of 2022, DSHS has seen 3,287 downloads and 308 staff access SHARP through their analytical tools of choice, some popular examples include SAS, PowerBI, R Studio, and Tableau. Epidemiologists are realizing high value from the current solution, which is early in the journey. As more data are added from various program areas, SHARP will allow for the connection of data that is currently in stand-alone silos. By connecting lab results



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and cases to Vital Statistics, immunization data, and providers, epidemiologists will be able to have a broad latitudinal view of patients' health histories and be able to conduct analyses that are currently not possible. In addition to bringing siloed data together, SHARP's technology allows for better data analysis, reporting, and data visualization. There are ongoing efforts to establish an electronic Initial Case Report (eICR) data feed in SHARP to improve reporting for the Texas Birth Defects Epidemiology and Surveillance Branch with plans to add Newborn screening, Texas Cancer Registry, and Environmental Surveillance in the future.

DSHS is developing a custom portal for users that easily allows them to find relevant data for disease surveillance analysis and case management. They will be able to select data sets of interest and view reports and dashboards on that data. In addition, the portal will facilitate applying analytical tools (such as SAS, R Studio, PowerBI, etc.) to these data sets for deep data analysis. Also, the portal will provide a list of helpful resources and training material to help users understand how to get the most out of the SHARP platform.

DSHS plans to provide greater capability to the jurisdictions and is evaluating supplying them with Tableau or PowerBI so that they can develop their own dashboards and data visualizations.

Key contributors to this project include Tim Ratliff, Jessica Romano, Jesse Sharp, Kenzi Guerrero, Justin Sterkel (HHS IT), Orlando Perez (HHS IT), with the Texas Department of State Health Services; and Deloitte.