Statement of Support for Use of NIST Tooling

The purpose of this statement is to provide support for the use of tools developed by the National Institute of Standards and Technology (NIST) as part of the Measurement and Improvement (M&I) Initiative. The Centers for Disease Control and Prevention (CDC) funds both NIST and the American Immunization Registry Association (AIRA) to create tooling to support measurement of immunization information systems (IIS) for standards alignment.

One area of measurement within M&I is called Data at Rest (DAR), for which tooling has been developed to measure the completeness, validity, and timeliness of data residing in an IIS regardless of how it arrived. NIST has created tooling to allow jurisdictions to provide aggregate counts of data to AIRA for measurement. The qDAR Command Line Interface (CLI) is the tool that jurisdictions use to aggregate IIS-extracted data for submission to AIRA. The qDAR CLI is a self-contained executable JAR file that operates without requiring internet access or database connectivity. The qDAR CLI also includes the Message Quality Evaluator (MQE) tool, which is used to identify data quality detections that provide the "aggregate counts" that AIRA needs for measurement.

The qDAR CLI must be downloaded from the AIRA website and placed on a machine that has Java installed and has access to the IIS-extracted Patient and Immunization files. More information about the process and these file extracts can be found on the AIRA website here.

The qDAR CLI follows a specific workflow: it iterates through IIS-extracted patient records, retrieves their corresponding IIS-extracted vaccinations, and consolidates them into a comprehensive "Patient Vaccination Record." This record is then processed by MQE, which aggregates data quality detections across the entire IIS-extracted data set. Additionally, the qDAR CLI aggregates counts of vaccination events based on CVX codes and other coded values (e.g., gender, MVX, etc.). The results from the qDAR CLI are stored in an aggregate detections file (ADF), which is encrypted using qDAR's public key for security. The encrypted ADF is uploaded to AIRA for analysis. Secondarily, plain text ADF and summary files are provided for jurisdictional staff to review and are not uploaded to AIRA. As of May 2023, 13 IIS have already installed these tools and uploaded their data to AIRA for measurement in DAR.

For more detailed information about Data at Rest including background, jurisdiction participation, and other technical specification documents, visit our website here. Specific questions can be submitted through the AIRA technical assistance form for here.