



Epidemiologist

Sample role description



June 2023

This sample role description identifies typical duties and responsibilities of an immunization information system (IIS) epidemiologist and indicates sample competencies of a person fulfilling this role.

Note: Actual position descriptions should include only the information applicable for the specific position or role. Depending on staffing levels, several roles may be combined within a single position, or several positions may fill the same role.

Summary

The IIS epidemiologist is responsible for analyzing, evaluating and presenting IIS data to describe patterns and characteristics of immunization coverage in the jurisdiction to inform the immunization program, agency leadership, public health partners and the public. The epidemiologist analyzes immunization coverage by geography, immunization provider and other factors to identify low coverage areas and providers for program interventions to increase equitable immunization coverage and control the spread of vaccine-preventable diseases. The epidemiologist uses IIS data to support immunization program activities, e.g., management of the Vaccines for Children (VFC) and adult vaccination programs, prevention of perinatal hepatitis B, response to outbreaks, and compliance with immunization requirements in childcare and school settings.

The person in this role may collaborate with the IIS manager as well as jurisdiction legal counsel and information technology (IT) staff to develop, implement and update standard operating procedures (SOPs) for IIS data access and use and to facilitate the execution of data use agreements with the Centers for Disease Control and Prevention (CDC) and other partners. This role is responsible for working with the IIS manager to meet CDC and jurisdiction IIS data reporting requirements.

Alternate role titles

- Data analytics coordinator/manager
- Data assessment coordinator
- Data scientist
- Research scientist

IIS core competencies

This role description is based on PHII's [IIS Core Competency Model](#), which provides functional, behaviorally-based tasks or processes that can be observed or measured and are required at an organizational level for the successful, high-performing functioning of an IIS. Major duties and responsibilities below are organized into the applicable domains from the model.

Primary duties and responsibilities (as applicable within jurisdiction)

Duties may include but *are not limited* to:



Leadership and management

- Provide leadership in collaboration with the IIS manager to staff tasked with promoting data quality and data use; lead routine and ad hoc data quality meetings in collaboration with the data quality analyst and other staff.
- Work with the IIS manager to establish strategic priorities for advancing the IIS that align with the immunization program, health department leadership, external partners and IIS team.
- Work with the IIS manager to establish and monitor performance targets for achieving immunization program and IIS priorities.



Law and policy

- Collaborate with the IIS manager, jurisdiction legal counsel and IIS technology partners to develop, implement and update SOPs for internal and external data access and use based on applicable laws, policies and best practices.
- Collaborate with the IIS manager and jurisdiction legal counsel to develop (when appropriate), execute, monitor and enforce data use agreements with CDC and other external partners.
- Ensure data use agreements are executed prior to data access, sharing or use and are maintained per record retention requirements.
- Understand and communicate to internal and external partners the laws and regulations related to IIS participation (e.g., data access and use, patient opt-in/opt-out, requirements for providers to report to the IIS, data sharing consent requirements, redisclosure limits, emergency powers, etc.).
- Work with the IIS manager to develop and implement confidentiality and security policies to protect the privacy and maintain the trust of the individuals whose data is in the IIS and those organizations that submit data.



Communication

- Keep the IIS manager, other IIS staff and partners well-informed of activities and challenges.
- Use data visualization tools (e.g., Tableau, Power BI) and dashboards to explain immunization data trends to IIS and immunization program staff and partners.
- Prepare abstracts, presentations and articles for publications, conferences and meetings to share lessons learned and contribute to the IIS and immunization program body of knowledge.
- Serve as a subject matter expert on national workgroups convened by CDC, the American Immunization Registry Association (AIRA), PHII and other partners to assist in developing standards and best practices for IIS data extraction, analysis, validation, presentation and use.



Data use

- Create and implement a protocol to document, evaluate, prioritize and manage data requests in a manner that increases IIS utility and credibility while adhering to jurisdictional and national laws and policies and data sharing agreements.
- Plan and manage complex analytical projects to identify trends in immunization data and their potential impact on immunization program goals.
- Use data models and data dictionaries provided by IIS technology partners to support effective querying and interpretation of IIS data.
- Write and document programs and code for efficient queries to extract IIS data for reporting, program evaluations and public dashboards.
- Analyze and validate IIS data using sound, reproducible methods; document results to communicate methodology, findings and limitations to peers and partners (e.g., CDC, AIRA, PHII).
- Collect, compile, analyze, interpret and report statistical data.
- Supply IIS data to the CDC's National Immunization Survey (NIS) to improve NIS estimates in accordance with jurisdictional policy; compare NIS coverage rates to IIS coverage rates to assess IIS data completeness.
- Ensure patient privacy by applying appropriate controls on data access such as masking/suppressing identification data to ensure patient privacy when sharing IIS data.
- Collaborate with IIS technology partners to extract and submit high-quality data to meet CDC and jurisdiction reporting requirements; ensure compliance with file specifications and frequency of submissions.
- Use IIS data to identify and map geographic areas or population subgroups with low vaccination rates, i.e., pockets of need (see AIRA Analytic Guide for Assessing Vaccination Coverage Using an IIS), and inform interventions to increase equitable coverage.
- Use data to assess provider coverage rates and support quality improvement in clinical practice, as per the CDC's Immunization Quality Improvement Program (IQIP).
- Use data to support immunization program activities, e.g., management of the VFC and adult vaccination programs, prevention of perinatal hepatitis B, surveillance of vaccine-preventable diseases, response to outbreaks, reminder/recall, recall of vaccine products, investigation of vaccine adverse events, and compliance with immunization requirements in childcare and school settings (such as sharing data with schools, enabling parental access to immunization records and providing reports for monitoring).
- Contribute data, metrics and other content to the jurisdiction's CDC Cooperative Agreement and Component Application work plans and reports, other CDC-required reports and data requests, and the IIS Annual Report (IISAR); collaborate with CDC on IISAR pre- and post-submission quality control activities to verify responses.



Data quality

- Regularly review the CDC IIS Data Quality Blueprint, data quality reports and IIS dashboard, along with the jurisdiction's CDC Cooperative Agreement work plans and reports from the AIRA Measurement and Improvement Aggregate Analysis Reporting Tool (AART), to identify and assist with prioritizing IIS enhancements to improve alignment with CDC IIS Functional Standards and IIS community best practices.
- Regularly review data exchange and data quality processes and collaborate with IIS technology partners to modify processes as needed to improve data quality.

- Collaborate with the data quality analyst, other IIS staff and technology partners to investigate and recommend action to resolve data quality issues that arise in the course of data use.
- Solicit feedback from IIS data users on data quality; act on feedback to resolve data quality issues.
- Use recommended tools and services to improve the accuracy and validity of the jurisdiction's active population (size, demographics) and patient addresses for geographic analyses, e.g., third-party data enrichment vendors (e.g., LexisNexis) to validate addresses and identify people who have moved or gone elsewhere and Smarty for formatting, validating and geocoding addresses to USPS standards.

Interoperability

- Collaborate with internal and external technology and program partners to assist with establishing and maintaining CDC standards-based interfaces between the IIS and vital statistics (to capture births, deaths and adoptions) and the IZ Gateway (to obtain immunization data from other IIS and federal agencies).

Information systems management

- Collaborate with IIS technology partners to build and enhance capacity to generate vaccination coverage and line list reports based on user-defined parameters, e.g., patient age, ZIP code.
- Research and recommend optimal tools that can be used to analyze, produce and display data.
- Follow standard protocols and recommend if and when data can be deleted or archived in compliance with the immunization program and health department or other agency policies.
- Support user acceptance testing to ensure IIS enhancements are functioning as required.
- Participate in CDC, AIRA, PHII and IIS technology partner consortium activities to keep abreast of, and provide input into, improved methods for data extraction, analysis, validation and presentation.

Change management

- Identify opportunities for improvements in IIS policies, processes and/or technologies and communicate the case for change to relevant internal and external partners.
- Contribute to the development and implementation of change management plans for internal and external IIS partners to build support, communicate, train and/or provide technical assistance.

Training

- Provide training, support and technical assistance to IIS and immunization program staff and partners for extracting and interpreting data.
- Collaborate with training staff to develop technical training and technical assistance materials to ensure authorized access and use of data by internal and external partners.

Evaluation

- Design and implement studies to measure the effectiveness of immunization program policies and activities aiming to increase immunization coverage (e.g., reminder/recall).
- Use a structured approach to plan and implement evaluations, e.g., CDC Framework for Program Evaluation.
- Design, implement and evaluate methods to assess vaccination coverage and accountability for publicly purchased vaccines based on best practice guidance (e.g., AIRA Analytic Guide for Assessing Vaccination Coverage Using an IIS).

Background and qualifications

Successful candidates should have:

- Master's degree (preferably in public health or other relevant field) with a minimum of 2 years of data analysis experience in public health, information technology, epidemiology or a related field
- OR
- Bachelor's degree (preferably in public health or other relevant field) with a minimum of 3 years of data analysis experience in public health, information technology, epidemiology or a related field

Preferred knowledge, skills and abilities include:

- Strong data management, analysis and visualization skills
- Ability to interpret, communicate and present data analysis results and translate them into actionable information
- Strong oral and written communication
- Ability to plan and manage complex analytical projects
- Ability to understand, communicate and apply national and local laws and policies to protect the confidentiality of IIS data
- Ability to effectively manage multiple data requests from various partners
- Proficiency in Microsoft Excel, Word, statistical software (e.g., SAS, R, SPSS), SQL query tool, and data visualization tools such as Tableau and Power BI
- Ability to work independently and well in a high-pressure environment
- Understanding of data sharing/informatics standards, e.g., Health Level 7 (HL7)
- Ability to develop and maintain constructive and cooperative relationships among staff and partners