Immunization Information System (IIS) Data Quality Analyst

Role Description

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Informed decisions. Healthier populations.

Note: This role description is meant to offer sample language and a comprehensive list of potential desired responsibilities with corresponding knowledge, skills and abilities (KSAs). Actual position descriptions should filter out information that is not applicable for a 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. The term "Immunization Information System" or "IIS" may be replaced with "Registry" within position titles in some jurisdictions.

Data Quality Analyst

IIS Data Quality Analyst is a role typically found in an experienced, advanced analyst series. It is a role heavily focused on research and process.

Scope

The person fulfilling this role is responsible for providing both corrective and preventive data quality interventions on incoming and existing data in the IIS. The person in this role develops, implements, maintains and updates data quality protocols for the IIS, and oversees data modifications to correct errors. The person in this role often drafts or oversees the development of Standard Operating Procedures (SOPs) for manual patient or vaccine deduplication and other data cleansing tasks, and also contributes subject matter expertise to the development of automated data cleansing procedures or algorithms. This role often serves as a liaison between the databases' back-end tables where data quality issues are researched and pinpointed, the electronic and manual data sources where data quality issues often originate, and the user interface fields where changes can be made by less technical staff.

Budget Authority

This role may offer input into budget issues or contribute to grant writing or reporting efforts that involve current or future funding.

Position Titles

The following example job titles were gathered from existing positions at state and local health agencies:

- Data Quality Coordinator
- Data Assurance Specialist
- Research Analyst
- Continuous Quality Improvement Coordinator

Relationship

The person in this position typically reports to the IIS Manager. Internally, this position works very closely with the rest of the IIS team, as well as the vaccine management team, particularly related to inventory data elements and accountability of public vaccine. In addition, this position coordinates work with the Interface Manager to address data quality issues through interfaces and source data. This position may also work closely with the vendor/implementer/IT support that is supporting/maintaining the IIS to address systemic data quality issues or coordinate back-end data quality interventions.

Decision Making Authority

This position exercises considerable independent judgment in carrying out responsibilities within a highly collaborative environment. Decision making generally requires substantial negotiation and compromise with a variety of considerations, including the context imposed by applicable laws, statutes, rules, interests of stakeholders, available data, and resources. Decision making authority is commonly characterized as follows:

- Applies laws, rules, policies and best practices to develop data quality protocols

- Applies data quality protocols to correct errors in data

- Determines and recommends high-priority data issues in need of intervention

- Oversees and authorizes additional data quality interventions performed by other staff.

Major Duties and Responsibilities

This list contains examples of duties and responsibilities that may be associated with an IIS Data Quality Analyst role. This list offers many possible duties and responsibilities from which to select in order to create a position most appropriate to your program needs and your human resources requirements.

Data Quality Coordination:

- Plan and develop data quality and operational improvement projects for IIS, including coordination of quality control reports.

- Evaluate program operations, data; recommend actions to improve completeness and accuracy of data and to streamline operational processes.

- Plan operational improvement projects; identify project scope, required training and resources.

- Identify potential risks and difficulties in applying data quality interventions, and design strategies to mitigate or avoid them.

- In consultation with IIS cross-functional teams, identify areas of need.

- Establish procedures to verify the quality of data and the results of projects.

- Test, audit and validate system improvements to implement performance measures.

- Track and monitor operational results from measurements.

- Design and document data quality protocols.

- Quantifiably document the results and outputs of data quality interventions on incoming and existing data.

Systems Analysis:

- Collaborate with the IIS vendor, Immunization Program staff and managers, and outside partners to evaluate the existing system and plan enhancements.

- Develop long-range objectives and short-term operational goals to impact and improve data operations based on in-depth program knowledge.

- Recommend interventions to improve data quality.

- Propose system enhancements based on evaluation.

For more resources, information and training related to workforce development, please refer to informaticsacademy.org and phii.org/resources.

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- Oversee bug, maintenance and feature requests, UAT and regression testing and product releases with staff and IIS vendor.

Technical Assistance/Training:

- Provide tier 3 support and technical assistance to Immunization Program partners and internal immunization program staff regarding high quality data submission and processing within the IIS.

- Clarify technical specifications with partners when needed.

- Interpret and assist in the implementation of grant objectives.

- Collaborate with the vendor, immunization program staff and outside partners to evaluate incoming data and plan enhancements to outreach and training strategies based on evaluation.

- In collaboration with training staff, design training and training materials for clinics, vendors and health systems regarding their data submission to the IIS and use of data from the IIS to assure proper implementation of program objectives.

- Train internal users on data quality and systems reporting issues.

- Collaborate in the development and presentation of local, statewide, and national trainings and presentations.

- Serve as a subject matter expert on IIS data quality and analytic issues both locally and nationally as needed and by request.

Project Lead and Coordination

- Provide team leadership and coordination to IIS data quality team to meet program and grant goals.

- Coordinate with other IIS workgroups and Immunization Program cross-program groups as needed.

- Develop and maintain Standard Operating Procedures (SOPs) and data exchange specifications.

Standard Setting, National Involvement

- Engage and provide input to the development of national standards and best practices regarding data exchange, with particular emphasis on HL7 and Web Services standards.

- Represent IIS at national meetings and conferences.

Functioning within an interdisciplinary team environment

- Consistently treats customers, stakeholders, partners, vendors and co-workers with dignity and respect.

- Creates and maintains a work environment that is welcoming and respectful of diversity.

- Sets clear guidelines and models expected professional behaviors.

- Other tasks as assigned.

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Data Quality Analyst Competencies

This list contains the key competency areas with corresponding examples of knowledge, skills, and abilities that may be associated with the IIS Data Quality Analyst role. It is not all inclusive and may vary from position to position.

Standards and Interoperability

Applies informatics standards to ensure interoperability between disparate information systems.

Knowledge Statements:
- Knowledge of immunization terminology and practices, and the data elements that support them.
- Knowledge of relevant IIS standards, including HL7 2.x and SOAP/Web Services.
- Knowledge of IIS best practice documentation developed by the Modeling of Immunization Registry Operations Workgroup (MIROW).
- Knowledge of national initiatives such as Meaningful Use, and their impact on IIS and health information exchange.
- Knowledge of standardized IIS business rules and best practices.
- Knowledge of public health reporting standards.

Abilities Statements:
- Ability to apply local and national standards consistently.
- Ability to quickly learn data fields commonly used in clinic practices to record vaccination encounters
- Ability to quickly learn new terminology.

Project Management

Practices project management and program management techniques to engage stakeholders and team members in achieving goals and expectations.

Knowledge Statements:
- Knowledge of principles, methods and standards of project management.
- Knowledge of diverse IIS stakeholders and funding mechanisms.

Skills Statements:
- Skill to develop specific goals and plans to prioritize, organize, and accomplish work.
- Skill to document status and outputs of projects and processes.
- Skill to engage in testing of information solutions using appropriate methodologies and techniques.
- Skill in coordinating diverse activities to ensure completion of projects, tasks and assignments.
- Skill to apply fact-finding and work measurement techniques to organization systems.
- Skill to synthesize diverse facts, opinion and materials into usable work plans.

- Skill to apply quality management and improvement tools and processes to operational problems.

Abilities Statements:
- Ability to balance multiple, competing program demands.

- Ability to establish long-range objectives and specify the strategies and actions to achieve them.

- Ability to synthesize voluminous and diverse facts, opinions, and materials into usable work plans.

Information Systems

Applies fundamental knowledge of hardware, software (including business rules and algorithms), and network infrastructure essential to ensuring that public health requirements are met.

Knowledge Statements:
- Knowledge of health information systems.

- Knowledge of large databases and database functions/utilities.

- Knowledge of electronic data transfer methods.

- Knowledge of automated software applications such as IIS.

- Knowledge of relevant software and computer query and reporting tools, such as SQL, Crystal Reports, Business Objects or Excel to run reports.

- Knowledge of testing and troubleshooting techniques.

- Knowledge of information system analysis, design and data management concepts.

- Knowledge of health related vendor products such as EHRs.

Skills Statements:
- Skill in use of common software products such as Word, PowerPoint, Excel.

- Skill to adopt complex, modern information technology and communication tools.

- Skill in drafting end user and technical documentation.

Abilities Statements:
- Ability to solve complex issues requiring coordination, technical ability, and knowledge of computer and information systems to evaluate alternatives.

Policy

Ensures that information projects adhere to relevant laws, rules, policies, procedures, and regulations.

Knowledge Statements:
- Knowledge of applicable laws, statutes, policies and procedures regarding public health and health information.

- Knowledge of types of agreements such as data use agreements and memorandums of understanding that govern data access and sharing.

- Knowledge of policies and Standard Operating Procedures (SOPs) specific to IIS operations.

- Knowledge of records management.

- Knowledge of recommended schedules.

Skills Statements:
- Skill in appropriately applying IIS policies and procedures to specific situations

- Skill to use relevant information to determine whether events or processes comply with laws, regulations, standards or procedures.

- Skill to develop standard operating procedures

- Skill in interpreting laws, rules, policies and procedures and applying interpretations to specific situations.

Abilities Statements:
- Ability to apply public health laws, regulations, and policies specific to the Immunization Program.

- Ability to quickly learn processes, and practices.

- Ability to recommend modifications or enhancements to systems and policies.

- Ability to establish procedures for diagnosing and solving technical problems.

- Ability to use relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.

Communication

Practices active, effective communication between IT, public health, and other relevant stakeholders.

Knowledge Statements:
- Knowledge of methods and procedures of technical report writing.

- Knowledge of methods for presenting statistical, demographic, programmatic and scientific information to professional and lay audiences.

Skills Statements:
- Skill in use of phone, email, FAX, text messaging, instant messaging, and other telecommunications methods.

- Skill in communicating in writing, orally, electronically and in person with linguistic and cultural proficiency.

- Skill in applying effective communication and group dynamic strategies in interactions with individuals and groups.

- Skill in communicating the role of public health within the health system and community to diverse audiences.

- Skill in effectively communicating the capabilities and limitations of information systems.

- Skill in collaborating with a wide range of internal and external stakeholders including policy makers, health care and social services, end users, agency leaders, and community.

Abilities Statements:

- Ability to build mutual trust, respect and cooperation among team members.

- Ability to communicate effectively to technical and non-technical audiences in both written and oral methods.

- Ability to contribute as a strong member of a self-directed work team.

- Ability to develop constructive and cooperative working relationships with others, and maintain them over time.

- Ability to effectively express ideas orally and in writing using appropriate language and organizing ideas in an objective manner.

- Ability to translate or explain what information means and how it can be used.

- Ability to effectively communicate the capabilities and limitations of information technologies.

- Ability to represent the Program as a staff person for project, advisory, or technical committees.

- Ability to work effectively with senior-level decision-makers and their immediate staff members.

Analysis, Visualization & Reporting

Translates data to information and knowledge that leads to action using consistent analytic and reporting tools and techniques.

Knowledge Statements:

- Knowledge of techniques sufficient to collect, analyze, interpret and summarize data in a narrative or graphical format.

- Knowledge of the methods for analyzing and proposing system development tasks.

- Knowledge of business process analysis.

- Knowledge of standards and precedents for data design and formatting.

- Knowledge of public health sciences, including behavioral, social sciences, biostatistics, and epidemiology.

Skills Statements:

- Skill to analyze business needs and product requirements to create or design a system enhancement.

- Skill to determine how a system should work and how changes in conditions, operations and the environment will affect the outcomes.

- Skill to analyze business needs and product requirements to create or design a system enhancement.

- Skill in writing clear and concise narratives and statistical summaries.

- Skill in use of database analysis software and applications.

- Skill to conduct statistical analyses of program data and interpret the results of the analyses.

Abilities Statements:
- Ability to apply general rules to specific problems.

- Ability to exercise appropriate judgment in determining when an issue or problem needs referral to management or other staff.

- Ability to combine pieces of information to form general rules or conclusions.

- Ability to analyze, evaluate and solve procedural problems

- Ability to interpret technical materials to evaluate alternative technical solutions to address agency needs.

- Ability to research and design the techniques, methods, and principles used in complex data analysis.

- Ability to understand the implications of new information for both current and future problem-solving and decision-making.

☑ Evaluation

Applies rigorous methods to evaluate the effectiveness of workflows and information technology.

Knowledge Statements:
- Knowledge of general data quality concepts.

- Knowledge of detailed quality assurance and improvement methodology.

Skills Statements:
- Skill to identify complex problems and review related information to develop and evaluate options and implement solutions.

- Skill to identify measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.

Abilities Statements:
- Ability to evaluate information against a set of standards of information integrity and comparability.

- Ability to use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

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👤 Principles & Strategy

Applies informatics principles, strategic thinking, and leadership techniques to public health information needs.

Knowledge Statements:
- Knowledge of the development of IIS systems over time.

- Knowledge of the multiple purposes and audiences that leverage IIS data and functionality, and the methods by which they access IIS data.

- Knowledge of the basic concepts of vaccine management, such as inventory and accountability.

- Knowledge of healthcare systems and practices.

Skills Statements:
- Skill to monitor or assess performance of other individuals or organization systems to make improvements or take corrective action.

Abilities Statements:
- Ability to work independently with little or no supervision.

- Ability to work well in a high-pressure environment.

- Ability to apply high attention to detail to work products.

- Ability to use independent judgment, decision making and problem resolution to perform technical, operational, or administrative functions.

- Ability to learn the organizational structures, roles, and interrelationships of local public health agencies, private health care organizations, private practices, school health, and health plans.

- Ability to correctly assess the political and institutional environment in which decisions are made and implemented.

Training

Effectively applies concepts of adult learning theory to educating a broad range of technical, programmatic and clinical audiences.

Abilities Statements:
- Ability to prepare, present, and train on highly complex technical material and issues to non-specialists.