New Mexico Statewide Immunization Information System (NMSIIS)

Data Quality Improvement Plan
(March 2022)

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Overview

NMDOH is committed to a quality improvement (QI) program as a proven way to enhance our organization's performance and achieve desired results. A high-performing organization actively changes the way business is done by:

- Using data to analyze problems and performance
- Actively engaging employees in quality improvement activities
- Engaging customers and stakeholders.
- Developing solutions and improvements based on analysis.
- Implementing improvements based on data.
- Monitoring and evaluating performance.
- Engaging in ongoing quality improvement.

Quality Improvement is a continuing cycle of measurement, analysis, and improvement. This plan builds on efforts at the NMDOH. This plan provides a framework to assess the progress the agency has made, reinforce what's working well, and improve in those areas that aren't working well.

Current Statistics

Each year, approximately 28,000 children are born in New Mexico. Every one of these children needs 18-22 immunizations by age six to protect them from debilitating, life threatening diseases. Keeping track of immunizations can be challenging for health care professionals, parents, child care centers and schools.

The average family relocates multiple times over the course of a lifetime, frequently leaving medical records and valuable immunization information behind. As many as 25% of children visit two or more providers for immunizations before their third birthday.

- NMSIIS currently has over 1500 providers participating in the IIS,
- ~400 VFC and ~600 Data Exchange,
- 2.2 million populations in New Mexico
    - More than 700,000 immunization records for patients age 0-18 years
    - More than 1,920,000 immunization records for patients over 19 years
- More than 22,000 active users
- Nearly 32,000,000 immunizations records in registry

Responsibility

New Mexico Legislation requires that the Department of Health, in conjunction with the Human Services Department, shall establish and maintain a state immunization registry. The registry shall be a single repository of accurate, complete and current immunization records to aid, coordinate and promote effective and cost-efficient disease prevention and control efforts. **[NMSA 24-5-7]**

Access and Sharing

Access to the information in the registry shall be limited to primary care physicians, nurses, pharmacists, managed care organizations, school nurses, and other appropriate health care providers including nurse practitioners and physician assistants, or public health entities as designated by the secretary of health. A managed care organization may only access information for its enrollees. Requests for access to the registry shall be made by a provider in writing to the

division and access shall be determined by the division. No person or automated system may access or attempt to access the registry without approval from the division. At the division's discretion, access may be modified. A patient, or a patient's parent or guardian if the patient is under the age of 18, may access the patient's records.
[NMAC 7.5.5.13]

Additionally, in July 2019, our program has implemented a new public portal for parents, guardians and patients to access their immunization records, called **VaxViewNM** (www.vaxviewnm.org) The public portal is very convenient, eliminates the need to carry multiple or aged documents, and is accessible on multiple portable devises including computers, laptops, tablets, and phones. It allows access for a previous NM resident who has moved to a new states and has the capability for screenshot, sharing, upload, or printing. The process for accessing the portal is very easy – the user just needs the patient's demographic information (first name, last name, date of birth, gender, and phone number or email address). After submitting that information, a authentication code is sent to the phone number or email address used. By using this two-factor authentication via text messaging or email to validate patient, parents or guardian information, the public portal remains secure and confidential. After three unsuccessful attempts to find a vaccination record, the system locks the user out for thirty (30) minutes. We have found the public portal to be an excellent time-saving benefit for administrative users, providers/clinics, schools, and the public.

Data Quality Issues and Data Issue Management

Profiling and other forms of assessment will identify unexpected conditions in the data. A data quality issue is a condition of data that is an obstacle to a data consumer's use of that data -- regardless of who discovered the issue, where or when it was discovered, what its root cause(s) are determined to be, or what the options are for remediation. Data Quality Issues and Data issue management is a process of removing or reducing the impact of obstacles that prevent effective use of data. This process includes identification, definition, quantification, prioritization, tracking, reporting and resolution of issues.

Data Quality and Data Issues

This section shall be updated annually to ensure data quality issues and information is accurate, applicable and current.

1. **Duplicates**
   a. **Background:** Immunization Information Systems (IIS) have an endemic problem of duplicate patient record creation and propagation for a simple reason: there is no unique identifier associated with any given patient which can be used for positive identification. Instead, identification and selection of patient records for update is dependent on searching existing records for a match using other attributes (such as names, date of birth, gender), and depending on the completeness and consistency of both the existing data and incoming search criteria, search reliability can vary wildly. In the end, though, if a high-confidence match cannot be made, a duplicate must be created to avoid corruption of PII and PHI.
   b. **Quantification:** In 2019, with the change to the algorithm and diligent manual de-duplication efforts, the NMSIIS program successfully eliminated the long-standing

duplicate records in the system (for reference, in 2018, the number of duplicates in the IIS exceeded 80,000)

c. **Prioritization:** Due to the impact of immunization rates this issue is a **<u>HIGH</u>** priority.

d. **Identification:** In April 2018 we lowered the threshold in the algorithm, from 90% match to 80% match, criteria evaluating our processes for deduping records, this allowed the system to identify potential duplicates based on fewer key identifying factors.

e. **Tracking:** The number of duplicate instances will be evaluated through the NMSIIS duplicates module.

f. **Reporting:** The NMSIIS program manager is responsible for reporting the number of duplicate instances in the registry to the Immunization program manager on a quarterly basis.

g. **Resolution:**
   i. Develop a reporting infrastructure to track the trend of duplicates created in the system, to determine the efficacy of changes made over time;
   ii. Align the processes used for search in the user interface, the HL7 engine, and other data feeds so that matches are performed consistently;
   iii. Implement a standardized approach (implemented in the v18.1 release) for handling special characters in names during search;
   iv. Implemented an address matching algorithm, SmartyStreets, based on geo-coordinates rather than text values; which aligns addresses with USPS recommendations,
   v. Create a parameterized version of the current duplicate scoring algorithm so it can be modified by jurisdiction staff;
   vi. Create a mechanism for jurisdiction staff to modify the sensitivity for duplicate detection, and to clear suspect duplicates globally between runs;
   vii. Create an audit trail infrastructure for granular tracking of the changes to a patient record, so that every change can be tracked back to its source, and further training and/or discussion will occur to reduce the likelihood of the creation of a duplicate record,
   viii. Leverage the revised matching criteria to automatically merge and clean up the duplicates in the IIS data,
   ix. Beginning in the fall of 2020, NMSIIS will incorporate the v20.6 WebIZ patch which will include the A+B=C patient matching and deduplication process (see QRG for additional information)

2. **Newborn Generic Patient Place Holder Records**
   a. **Identification**: New born patient records are being created within the registry under false/ place holder names and the registry is not able to match to the vital records feed.
   b. **Background:** New Mexico's birth cohort is ~28,000 annually with a live feed from the New Mexico Bureau of Vital Records and Health Statistics. A live feed of new births reported to the New Mexico Bureau of Vital Records and Health Statistics is received by the registry on a weekly basis. Once the registry receives the feed it will evaluate all patient records to identify a match within the system. If a match is found the registry will update the record as necessary. If no match is found, the registry will create a new patient record. In certain instances, due to internal provider practices, newborn names are not entered in to the EHR or the registry. Instead these practices will create the newborn

patient record with a generic name i.e. "Baby Boy" or "NBG Simpson." As a result, when the feed from the New Mexico Bureau of Vital Records and Health Statistics is received at the registry there is insufficient matching criteria available for the system to match and the registry will inevitably contain multiple patient records for the same patient.

    c. **Quantification:** As of 05/12/2020 there were 13,000 records that contained a generic "Baby" name or acronym.

    d. **Prioritization:** Due to the impact of child immunization rates this issue is a HIGH priority.

    e. **Tracking:** Ad-hoc reports will be requested from the NM DOH data base analyst (DBA) on a monthly basis.

    f. **Reporting:** The NMSIIS Program Manager is responsible for reporting the number of generic names in the registry to the Immunization Program manager on a quarterly basis.

    g. **Resolution:** Once a patient record is identified with a generic name the NMSIIS staff will, through a manual searching process, seek to identify the correct patient name and merge the records.

3. **Vaccine School Exemptions**

    a. **Identification:** Annual and state reporting was impacted due to an inability to match exemption and school records**.**

    b. **Background:** As of 2016, the adoption of a new IIS includes functionality to capture immunization exemptions for school reporting. Previously, an Access database was used to capture immunization exemptions. Following the first year in the new registry there were limitations in the reporting dependencies between the immunization exemption module and the education module.

    c. **Quantification:** This impacted the analysis of approximately 4,000 immunization exemptions per year.

    d. **Prioritization:** Moderate priority

    e. **Tracking:** Custom data extracts were created in the report module of NMSIIS which allowed the tracking of immunization exemptions at individual schools to be identified and merged/corrected as needed. These reports are run on a quarterly basis and reported annually

    f. **Reporting requirements:**

        i. Federal reporting on an annual basis

        ii. State reporting on an annual basis

        iii. Other reporting upon request

    g. **Resolution:**

        i. Custom data extracts were created from the reporting module of NMSIIS and manual merging was required to track immunization exemptions at individual schools.

        ii. In 2018, modifications were made to NMSIIS which will allow immunization exceptions to be linked to an education record.

            1. Front end modifications were completed

            2. Improved ad hoc reports were created and are run on a quarterly basis

4. **User Account Maintenance**
   a. **Identification:** The need exists to maintain user account status' and create a uniform identifier to differentiate between user types
   b. **Background:** "User Accounts" are created in the registry for multiple purposes including users actively participating in submitting, viewing, maintaining patient and immunization records, providing access to EMR/EHR HL7 reporters, assigning non-users as prescribers or administers of vaccine. Failure to maintain access points to the registry may impact data integrity and patient information.
   c. **Quantification:** There are over 22,000 active user accounts in the registry with limited ability to differentiate between actual users, reporters or non-users.
   d. **Prioritization:** Moderate Priority
   e. **Tracking:** The number of "User Accounts" will be evaluated through the NMSIIS Users report on a monthly basis.
   f. **Reporting:** The NMSIIS program manager is responsible for reporting the number of user accounts in the registry to the Immunization Program Manager on a monthly basis.
   g. **Resolution**
      i. Define user types: global user, basic user, read only user
      ii. Utilize existing reports to identify potential identifiers that can be used to differentiate between user types (basic user, read only user, etc.)
      iii. Procedure for inactivating an account: Search for user, inactivate user, delete provider/clinic associations, save.

5. **Data Exchange Provider Management**
   a. **Identification:** The need exists to ensure that data exchange providers are actively maintaining their connection to the registry.
   b. **Background:** To be truly interoperable with other information systems, such as other IIS or electronic health records (EHRs), three layers—the application layer, data exchange layer and messaging layer—must be in place and use well-defined and accepted standards. Providers with electronic systems that are compatible with the division's data exchange program may request to receive approval to utilize the compatible system for reporting the required data elements to the IIS. Providers using data exchange reporting must utilize the file format approved by the division and are responsible for all associated costs. Providers using data exchange reporting must update their systems to maintain compatibility with the division's data exchange program as necessary to maintain the integrity of the data transfers.
   c. **Quantification:** There are currently over 700 providers participating in data exchange including various EMR/EHR platforms and versions.
   d. **Prioritization:** Moderate priority
   e. **Tracking:** The data exchange coordinator will be responsible for creating the tracking method to ensure all data exchange providers are maintaining their connection to the registry. Tracking includes checking feed for new providers in production for a minimum of one week; monthly emails with HSD for any new data exchange providers, searching for "fake" or inaccurate provider names, and communicating with providers as needed based on the occurrence of issues or feed disruption.

f. **Reporting:** The NMSIIS Program Manager is responsible for reporting the number of data exchange providers maintaining their connection to the IIS to the Immunization Program Manager on a quarterly basis.

g. **Resolution:** It is the responsibility of the data exchange coordinator to ensure the data exchange feed is up and stable while working with many participants to sure the future of data exchange successes.

h. **Data Quality**

    i. Conduct traffic analysis within the NMSIIS HL7 module on a daily basis, which provides an overview on the progress of data exchange processing.

    ii. Provide specific details via email for the data exchange providers regarding data quality issues and suggest steps to correct inaccurate data.

    iii. HL7 monitoring for providers and EHR's (see tracking):

    iv. Provide scorecards upon request for data exchange locations. This includes information on the number of queries received and messages sent through NMSIIS as well as how many errored, failed and were successful. Scorecards are only provided using information from the production environment.

i. **Onboarding:**

    i. Effective May 2020, NMSIIS will offer a customizable onboarding process for HL7 providers, including registration, training, tracking and implementation of data exchange processes

    ii. Onboarding forms will be completed during the registry process and submitted electronically, reducing the burden on NMSIIS staff as well as eliminating the use of paper documents

    iii. This new onboarding process allows providers/clinics to be more autonomous in tracking their progress in data exchange as well as gathering their own information. By encouraging the providers/clinics to be more independent in this process, we are also removing the burden from the NMSIIS Data Exchange Coordinator as the sole source for data exchange information and feedback.

Retention

Records retention and disposition schedules are established at the agency level. They enable state agencies to systematically manage their records and information by specifying how long state records must be maintained and their final disposition. The retention schedules are developed by using the data compiled in the records inventory, researching legal sources such as state and federal statutes, and discussing the records and information needs of an agency with its records custodians, staff, and legal counsel. The scheduling process is ongoing and involves the cooperation of an agency's records custodian, liaisons, and legal counsel.

Data Use and Privacy

NMSIIS data is confidential under both state and federal law including the Health Insurance Portability and Privacy Act (HIPAA) and the Health Information Technology for Economic and Clinical Health Act (HITECH). Breach of confidentiality requirements may subject the organization and/or user to termination from participation in the NMSIIS and may result in civil or criminal penalties for improper disclosure of health information. Protecting the privacy of individuals and the security of information contained in the NMSIIS is a high priority. The information contained in the NMSIIS shall only be used for the following purposes:

- To ensure that the registrants receive all recommended immunizations in a timely manner by providing access to the registrant's immunization record;
- To improve immunization rates by facilitating notice to registrants of overdue or upcoming immunizations; and to control communicable diseases by assisting in the identification of individuals who are at risk or who require immediate immunization in the event of a disease outbreak. Any other use of NMSIIS data is prohibited and no person shall attempt to or allow another person to access or copy data.
- NMSIIS data shall not be disclosed to unauthorized individuals or entities, including law enforcement, without the approval of the NMSIIS Program Manager. All subpoenas, court orders, and other legal demands for NMSIIS data received by any authorized user or organization must be immediately brought to the attention of the NMSIIS staff.

Storage and Backup

Azure Government Cloud Hosting:
- Azure confidential computing protects the confidentiality and integrity of IIS data.
- A contracted vendor, Envision Technology Partners, Inc. is responsible for managing NMSIIS cloud hosting, system and data backups and securing the necessary software and Azure Government Cloud infrastructure to support four Azure environments and one internal environment for the registry.