Immunization Integration Program (IIP)

## Data Entry Error Guide Template

## About this template

This template is intended for use by immunization information systems (IIS) to develop a short list of errors, and ways to avoid them, that may occur when users enter data into their organization’s electronic health record/health information technology (EHR/health IT) system(s) that interface with an IIS. In addition to a jurisdiction’s implementation guide, this list is shared with provider organizations with, or working to achieve, an interface to an IIS. This data entry error guide may describe HL7 v2 message content requirements, such as business rules, that are not captured well in a local implementation guide which may be focused on message structure. For example, the date of January 1, 2023, is a valid date. However, if the patient’s date of birth is January 1, 2023, and their vaccination date is December 1, 2022, this combination is not valid as a patient cannot be vaccinated before birth. This could indicate an error when recording the patient’s date of birth, vaccination date, or both.

Many of the issues listed in the template are found within [Data Quality Assurance Principles and Business Rules Spreadsheet](https://repository.immregistries.org/resource/data-quality-assurance-in-immunization-information-systems/) created by the American Immunization Registry Association’s (AIRA) Modeling of Immunization Registry Operations Workgroup (MIROW).

## How to use this template

1. The error data generated in this template comes from a battery of test cases sent to the IIS’ pre-production system. These test cases mimic errors that could be seen when users enter data into a source system.
   * The following AART Test Groups were used to generate this template:
     + Bad Messages
     + Data Quality
     + Coded Values
2. Replace the yellow highlighted text with your jurisdictional information as indicated. Remove the yellow highlight formatting.
3. Deduplicate any errors from the AIRA provided template derived from AART. For example, AART uses two test cases to check and see if a patient has an identifier. There’s no reason to repeat this information. For example, AART test cases K.01.06 and DQMQE0116 check for the same thing but are found within different test sections.
4. Keep this document short, no more than five pages.
5. Tailor your IIS’ report to display from most to least frequently occurring issues.
6. Tailor your IIS’ report to your implementation’s requirements and most common issues. For example, how does your system request sex, race, or ethnicity be mapped or what characters may be included in a name?
7. Update [Table 1](#Table1) to reflect your IIS requirements.
8. Does your IIS permit demographic updates only? If not, remove the “demographic only column in Table 1.
9. Does your IIS perform cross-field data validation? If so, modify the contents of Table 2 to include your scenarios.
   * Potential cross-field validation example scenarios:
     + Vaccine code (CVX, NDC, or CPT) vs Manufacturer (MVX)
     + Date of Birth vs Date of Death
     + Date of Death vs Death Indicator
     + Birth order >1 vs Multiple Birth Indicator
10. Include a link to list of codes that are acceptable within your jurisdiction.
11. Catalog issues that will not permit an IIS to create the most basic patient and immunization records. Avoid listing issues that request additional information.
12. Note any cross-field validation where fields from different areas must align such as vaccine trade name / vaccine code and manufacturer or date of birth and vaccination date.
13. Ideally, IIS should keep only the most frequent errors that occur when data is sent to your IIS. For example, vaccination date after a date of death would be less likely than a missing date of birth. Errors should be listed in order of most common to least common. IIS should identify their 10 most common errors or remove errors that push the document to more than five pages.
14. Review yellow highlighted text with information specific to your IIS and remove the yellow highlights. For example, replace “IIS name” with your IIS name. Another example would be reviewing the demographic information required for patients in your IIS – update these as required to match the IIS’ requirements.
15. Review the instructions for provider organizations and modify as needed.
16. Review the strategies for avoiding data entry errors. Add, modify, or delete as needed.
17. Review the implementation considerations to address additional questions about operationalizing use of this template.
18. Publish your final minimizing data entry errors guide online, along with your jurisdiction’s other onboarding and data exchange resources. Ensure cross-linking across these resources.

## Implementation considerations

* Who is responsible for maintaining this document and updating as needed? How often should the form be reviewed for potential changes? Who should be involved in review of changes, and who needs to approve changes?
* For support with usage of this template, please contact [iip@himss.org](mailto:iip@himss.org).

\*\*\*\*\*\*\*Delete the cover page and instructions before publishing to your website\*\*\*\*\*\*\*

## IIS name Data Entry Error Guide

## General strategies to reduce data entry errors

* Talk to your EHR system administrator or vendor about configuring alerts or highlights when potential data entry errors occur.
* Talk to your EHR system administrator or vendor about how your EHR-IIS interface is configured.
* Talk to your EHR system administrator or contact the IIS to determine what codes are accepted.
* Ask users to review data entry resources here.

## Ensure that the following absolute minimum data exist

Table 1. Absolute minimum data elements depending on record type

# 

|  |  |  |  |
| --- | --- | --- | --- |
|  | Demographic-Only | Administered Vaccination Event + Demographic | Historical Vaccination Event + Demographic |
| Vaccinating Organization |  | X |  |
| Recording Organization |  |  | X |
| Submitting Organization | X | X | X |
| Patient First Name | X | X | X |
| Patient Last Name | X | X | X |
| Patient Date of Birth | X | X | X |
| Patient Sex |  |  |  |
| Vaccination Event Date |  | X | X |
| Vaccine Type |  | X | X |
| Administered/Historical Indicator |  | Administered | Historical |

## Ensure that the following data fields align

Table 2. Conditional requirements of data field cross validation

|  |  |  |
| --- | --- | --- |
| Field 1 | Condition | Field 2 |
| Patient date of birth | Must be equal or before | Date of vaccination |
| *. . . add additional requirements* | . . . | . . . |

## Review the following data entry errors that commonly occur

Table 3. Common data entry errors and strategies to avoid them

|  |  |
| --- | --- |
| Error Described in Plain Language | End-user Strategies |
| Include patient identifier information such as name, date of birth, race, ethnicity, address, phone, mother's maiden name. This is sent in a PID segment within an HL7 v2 message. | 1) Verify the patient has key demographic data elements within the EHR  2) Confirm with your EHR system administrator the EHR-IIS interface is sending a patient identifier segment. |
| The patient's record must include an identifier. | 1) Verify the patient has an identifier (e.g., Medical Record Number) within the EHR.  2) Confirm with your EHR system administrator that a patient ID is being sent that meets the IIS' requirements.  3) Note the IIS supports:  MR: provider’s unique  patient medical record number  MA: Medicaid number  SS: Social Security Number  The IIS requires MR. |
| The patient's record must include a first and last name. | 1) Verify the patient has a "primary" or "legal" first and last name.  2) Do not exceed the following lengths: Last name = 40 characters  First name = 20 characters  Middle name = 20 characters Mother’s Maiden Name = 48 characters  IIS provide additional name guidance here: what to do if name is too long (e.g., truncate), are hyphens and apostrophes accepted, are accented characters accepted, are other special charters accepted, will the IIS accept “BABY BOY/GIRL”, what should be done for temporary names? |
| The patient's record must include a date of birth. | 1) Verify the patient's date of birth is entered correctly.  2) Enter January as the birth month if the month is not known for the patient.  3) Enter 1 as the day of birth if the day is not known for the patient. |
| The patient's eligibility for vaccine programs is known to the IIS. | 1) Check with your EHR system administrator or vendor before selecting vaccine program eligibility other than: Not VFC eligible (V01), VFC eligible Medicaid/Medicaid Managed Care (V02), VFC eligible- Uninsured (V03), VFC eligible- American Indian/Alaskan Native (V04), VFC eligible-Federally Qualified Health Center Patient (under-insured) (V05), CHIP (V22), 317 (V23), Medicare (V24), State program eligibility (V25).  2) Make sure that vaccine program eligibility is entered while entering vaccine administration and not just in the patient's demographic or insurance screens within your EHR.  3) Check with your organization's Vaccines for Children Coordinator to learn how to properly screen for and record program eligibility and select the appropriate vaccine. |
| The patient's ethnicity code must be recognized by the IIS. | 1) Verify the patient's ethnicity is set to null/not known, Hispanic, or not Hispanic.  2) Check with your EHR system administrator or vendor to make sure the EHR-IIS interface is configured properly to send ethnicity to the IIS.  3) Inform your IT department or EHR vendor that the IIS only supports: H, N, U, 2135-2,  2186-5 |
| The patient's ID has an identifier type code (e.g., MR = Medical Record Number) | 1) Verify the patient has an identifier type (e.g., Medical Record Number) within the EHR.  2) Confirm with your EHR system administrator that a patient ID submission includes a type (e.g., MR = medial record number; PI = patient internal identifier) that meets the IIS' requirements. |
| The IIS will not accept vaccinations occurring before a patient's date of birth | 1) Verify the patient's date of birth and vaccination date are entered correctly. |
| The patient's date of birth may not be in the future. | 1) Verify the patient's date of birth is entered correctly.  2) Do not use anticipated date of birth. |
| The patient's date of birth occurs after the HL7 message is sent to the IIS. | 1) Verify the vaccination date entered is before or equal to today's date. |
| The patient's record must include a date of birth that is plausible (e.g., January 15, 1895 is not likely to be valid) | 1) Enter the patients date of birth using a four-digit year.  2) Verify the patient's date of birth is entered correctly. |
| The patient's vaccination date must be readable by IIS (e.g., cannot send "SHOT DATE" as patient's vaccination date). | 1) Only enter a complete and valid date as the vaccination date.  2) If month and year of vaccination are known but day is unknown send the15th day of the month along with the actual month and year. |
| The patient's sex may only be "M" (male) or "F" (female) | 1) Check with your IIS to see how to message patients who have gender identities that differ from "male" and "female". |
| The patient's vaccination date may not be missing. | 1) Verify a vaccination date is entered.  2) If month and year of vaccination are known but day is unknown use the 15th day of the month along with the actual month and year. |
| The patient's vaccination date occurs after the HL7 message is sent to the IIS. | 1) Verify the patient's vaccination date entered is before or equal to today's date. |
| The patient's vaccination date may not be in the future. | 1) Verify the vaccination date entered is before or equal to today's date. |
| The patient's vaccination date must be readable by IIS (e.g., cannot send February 30th as patient's vaccination date). | 1) Only enter complete and valid dates within vaccination date.  2) If month and year of vaccination are known but day is unknown use the 15th day of the month along with the actual month and year. |
| The patient's vaccine code (i.e., CVX 03 - MMR) must be present. | 1) Speak with your EHR system administrator or EHR vendor to determine how vaccination codes (CPT, CVX, NDC), are "mapped" in the EHR-IIS interface.  2) Confirm which vaccines are available at your facility with your pharmacy department. |

## Links to list of acceptable coded values

The IIS will only accept codes that are valid and known to it. You can find a list of acceptable codes for common data elements here:

* Vaccine Codes:
  + NDC
  + CVX
  + CPT
* Race
* Ethnicity
* Sex
* Patient identifier types
* Name types
* Financial Status

## Links to implementation guides

Local Guide [insert link]

[National Guide](https://repository.immregistries.org/files/resources/5bef530428317/hl7_2_5_1_release_1_5__2018_update.pdf)