



NEDSS Base System MMG Onboarding Implementation in NBS

Last Updated May 3, 2018

Agenda

- **Pre-Onboarding**
- **Onboarding**
 - Test Messaging
 - Limited Production Messaging
- **Cutover to Production**
 - Year to Date Messaging
- **Production**
 - Production Messaging
- **NBS Supplemental Onboarding Resources**

Phase 1: Pre-Onboarding



Pre-Onboarding

Key Activities

- Condition Code Library Updates
- Page Implementation
- METS/MQF Validation
- Data Porting
- NEDSS.PROPERTIES Updates
- SAMS/MVPS Dashboard
- State-Specific NBS Application OIDs for Each NBS Environment
- Other Pre-Onboarding Considerations

Pre-Onboarding

Condition Code Library Updates

- Prior to engaging in onboarding, jurisdictions should make sure their condition code library aligns with NNDSS for the conditions being onboarded, which may involve:
 - Updating from a locally defined condition code (or a SNOMED code) to an NNDSS code
 - Requires scripts from NBS Support Team
 - Updating condition descriptions
 - Adding new conditions

We frequently see discrepancies in the condition code library, especially for Arboviral. It is important to resolve these prior to onboarding.

Pre-Onboarding

Lab Indicator Flag for NND Messaging

- There is also an indicator flag located in the `condition_code` table in the SRT database that indicates whether to send the lab reports associated to an investigation in the case notification messages.
 - This flag was incorporated into the application in NBS 5.3.
 - The flag is captured in the **lab_report_enable_ind** field.
 - ‘Y’ indicates to include related lab block in NND messages.
 - ‘N’ indicates to NOT include related lab block in NND messages.
 - This flag is defaulted to ‘Y’ in 5.3.
 - This flag is configurable at the condition level.

Pre-Onboarding

Page Implementation: Page Already Implemented

- **If a jurisdiction already has a page builder page in production:**
 - 1. Check Page Versions**
 - Ensure that test and production environments have the same version of pages
 - If this is not the case, you may want to pull page from production as a template into test/staging and create a new page for the purposes of testing.
 - If there are differences between the two, this can cause issues down the road.
 - 2. Check Page & Vocabulary Metadata**
 - Compare metadata between jurisdiction's page(s) and the 'gold standard'
 - Scripts are provided to pull metadata from jurisdiction environment
 - Comparison includes 'question' and 'value set' metadata
 - Discrepancies are resolved

Steps are documented throughout so they can be reproduced in the production environment at the appropriate time.

Pre-Onboarding

Page Implementation: Page Not Implemented

- If a Jurisdiction DOES NOT already has a page builder page in production:
 1. **Create Page**
 - If you have not started working with a previous version of one of these templates, download the latest template:
 - <https://nbscentral.sramanaged.com/redmine/projects/nbspagebuildertemplates/documents>
 - Add jurisdiction-specific questions/values
 2. **Check Page & Vocabulary Metadata**
 - Compare metadata between jurisdiction's page(s) and the 'gold standard'
 - Scripts are provided to pull metadata from jurisdiction environment
 - Comparison includes 'question' and 'value set' metadata
 - Discrepancies are resolved

Steps are documented throughout so they can be reproduced in the production environment at the appropriate time.

Pre-Onboarding – Once PB Page is Completed

METS/MQF Validation

- Test messaging with CDC's test scenarios occurs later in the process, after the page is finalized, porting (if required) has been tested, etc.
- However, there are benefits to creating a few test cases (can be made up by jurisdiction) to see if any updates are needed before going through the data porting process:
 1. Save the current draft of your page as a template
 2. Create a new draft page for testing from your 'template' and associate a new 'dummy' condition to the page.
 3. Publish and enter test cases.
 4. Extract messages and update the condition code in the message to reflect the actual condition code
 - E.g. if dummy condition code = 'Pertussis_Test_Condition', replace that code with the real pertussis condition code (within the message OBR segment)

Pre-Onboarding METS/MQF Validation

- **Validate the Messages**
 - MQF (for arboviral): <https://phinmqf.cdc.gov/>
 - METS (for everything else): <https://mets.cdc.gov/>
- **Validation of test messages at this point is optional**, but provides an opportunity to identify any updates that may be needed to the page **before** going through porting testing (if porting is required).

PHIN Message Quality Framework Release 4.4

Home > Validate Messages

References

- About MQF
- Release Notes
- Supported Specifications

Related Specifications

- Case Notification
- ELR
- Immunization
- PHILIP
- Syndromic Surveillance

User Links

- FAQ
- User Guide

Validate Messages

Selected Project: Case Notification

Load From:

Validation Message:

Instructions

You have selected a Project.

To continue, load a message from one of the following:

- Sample (a pre-defined example message that is built into MQF)
- Cut and Paste Message (a message you Cut and Paste into the Message Validation area)
- File (a message that you browse for and load from your local system or network)

Note: Once MQF has validated the message structurally, continue with the [HL7 Implementation Process](#).

METS (Message Evaluation and Testing Service) METS 2.5.0

References

- Release Notes

NNDSS Resources

- NMI
- NNDSS
- PHIN MS
- Message Mapping Guides

Other Resources

- CDC ELR
- NSSP

Vocabulary Standards

- VADS
- LOINC
- SNOMED

Message Validation

Validate HL7 V2.5.1 Case Notification Messages below

Paste the text of an HL7 message to be validated in the box below or click "Browse" to upload an HL7 message

File types are limited to .TXT and .HL7

Click the "Validate" button to display results

Paste Message Here to Validate

No file selected

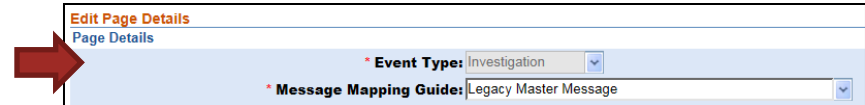
Pre-Onboarding Data Porting

- If the condition is new and does not require porting, this step can be skipped.
- If the condition does require porting, either from a legacy NBS module or from another Page Builder (PB) page, this should be fully tested in staging before porting in production.
- **If data is not ported, issues can not only occur with analysis and data marts, but onboarding can also be impacted.**
 - During onboarding, jurisdictions are required to send open MMWR years in both legacy format and HL7 format.
 - If the conditions are not ported to the new page, this step cannot be completed.
- Any jurisdiction-created reports or data marts will likely need to be updated after data porting has been completed.

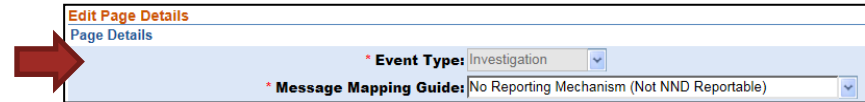
Pre-Onboarding

Data Porting: Message Mapping Guide Configuration

- Once data are ported and pages are implemented in production, depending on the timeline for onboarding, an NBS jurisdiction may need to continue to send **NBS Master Message (MM)** until approved for HL7 case notifications.
 - This setting is configured in the Page Details of the page(s) to which the condition(s) is/are associated.
 - Set Message Mapping Guide to **‘Legacy Master Message’**
 - If the condition is currently reported via other methods (e.g. ArboNet, STD*MIS), the Message Mapping Guide should be set to **‘No Reporting Mechanism’**



A screenshot of a web form titled "Edit Page Details" with a sub-header "Page Details". It contains two dropdown menus. The first, labeled "* Event Type:", has "Investigation" selected. The second, labeled "* Message Mapping Guide:", has "Legacy Master Message" selected. A red arrow points to the form from the left.



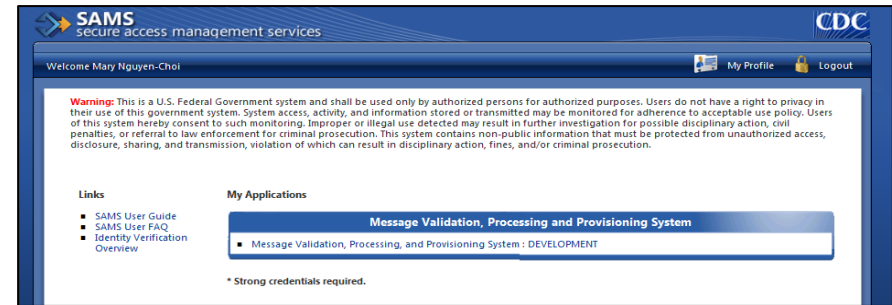
A screenshot of a web form titled "Edit Page Details" with a sub-header "Page Details". It contains two dropdown menus. The first, labeled "* Event Type:", has "Investigation" selected. The second, labeled "* Message Mapping Guide:", has "No Reporting Mechanism (Not NND Reportable)" selected. A red arrow points to the form from the left.

Pre-Onboarding - NEDSS.Properties Updates in Envs Engaged in NND Messaging

- MSG_PROCESSING_ID (sent in MSH-11)
 - This element is used by CDC to prevent test information from getting into production databases
 - Verify that values in your environments involved in NND messaging:
 - P (Production)
 - T (Testing/Staging)
 - D (Development)
- Person (Name and Phone) Reporting to CDC
 - Sent in case notification messages
 - INV190: NEDSS.PROPERTIES:MSG_REPORTING_PERSON_NAME
 - INV191: NEDSS.PROPERTIES:MSG_REPORTING_PERSON_PHONE

Pre-Onboarding SAMS/MVPS Dashboard

- All states should ensure that staff who will monitor the MVPS dashboard have **SAMS Level 2 Access**.
 - To have a new user obtain SAMS access, the Jurisdiction Data Manager that is responsible for adding users to MVPS should submit a request for SAMS access for the new user(s):
 - Send the request to edx@cdc.gov.
 - The name and email of the user(s) must be included in the email request.
 - The new user(s) will receive an email invite to complete the registration process with additional instructions.



Pre-Onboarding SAMS/MVPS Dashboard

- Request access to the following applications:
 - MVPS
 - MVPS-Onboarding
- PowerPoint presentations with additional information on requesting SAMS access and SAMS in general can be found at:
 - <https://www.cdc.gov/nmi/ta-sams.html>



The screenshot shows the CDC website for the NNDSS Modernization Initiative (NMI). The header includes the CDC logo and the text "Centers for Disease Control and Prevention CDC 24/7: Saving Lives, Protecting People™". Below the header is a navigation bar with "MENU", "CDC A-Z", and a "SEARCH" button. The main heading is "NNDSS Modernization Initiative (NMI)". Below this is a breadcrumb trail: "CDC > NMI > NMI Technical Assistance and Training Resource Center". The section title is "Secure Access Management Services (SAMS) Training and Resources". There are social media icons for Facebook, Twitter, and a plus sign. The text explains the goal of the Message Validation, Processing and Provisioning System (MVPS) and mentions that jurisdiction user access to the MVPS Dashboard will be managed by the CDC Secure Access Management Services (SAMS). A graphic of three padlocks (two blue, one red) is shown. Below this, it says "For more information about using SAMS to access the MVPS Dashboard, please refer to the training documents and other resources below." The section "Training Resources for Jurisdictions" lists three items: "Security Training: MVPS Dashboard Access for Jurisdictions—User Has SAMS UserID", "Security Training: MVPS Dashboard Access for Jurisdictions—User Needs SAMS UserID", and "Next Steps After Security Training".

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

MENU CDC A-Z SEARCH

NNDSS Modernization Initiative (NMI)

CDC > NMI > [NMI Technical Assistance and Training Resource Center](#)

Secure Access Management Services (SAMS) Training and Resources

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The goal of the [Message Validation, Processing and Provisioning System \(MVPS\)](#) is to validate and process nationally notifiable disease messages sent by jurisdictions and provision those data to the CDC programs in an automated process. Jurisdictions and CDC programs will have access to transactional message data through the MVPS Dashboard. Jurisdiction user access to the MVPS Dashboard will be managed by the CDC Secure Access Management Services (SAMS).

For more information about using SAMS to access the MVPS Dashboard, please refer to the training documents and other resources below.

Training Resources for Jurisdictions

- [Security Training: MVPS Dashboard Access for Jurisdictions—User Has SAMS UserID](#)
- [Security Training: MVPS Dashboard Access for Jurisdictions—User Needs SAMS UserID](#)
- [Next Steps After Security Training](#)

Pre-Onboarding NBS Application OIDs

- Obtain an NBS application OID for **each of your NBS environments**.
- Update in NEDSS properties for each environment
 - MSG_SENDING_APPLICATION_OID
 - Note that in NBS 5.2 and higher, the NEDSS properties file was moved to the NBS_Configuration table within the ODSE
- Draft email wording for the request and PPT with instructions for updating your environments
 - <https://nbscentral.sramanaged.com/redmine/documents/197>

NBS Training » Case Notification Search: » Case Notification

Overview Activity Issues New Issue Documents Wiki Settings

NBS NMI Onboarding Resources

Knowledge Base (KB)
03/10/2017

This section of NBSCentral contains some additional NMI HL7 onboarding resources for NBS states.

CDC's NNDSS HL7 Case Notification Resource Center (MMGs and related artifacts): <https://www.cdc.gov/nndss/case-notification/>

CDC's NMI Technical Assistance and Training Resource Center Website: <https://www.cdc.gov/nmi/ta-trc/index.html>

METS Message Validation Service: <https://www.cdc.gov/nmi/mets.html>

MQF Message Validation Service (Arboviral 1.3 only): <https://phinmqf.cdc.gov/ValidateMessages.aspx?Act=1&ProjectName=CaseNotification&ProjCode=111>

Template wording for emails to request NBS Sending Application OIDs or Sending Facility OIDs from PHIN DIR.

Jurisdictions most likely already have a sending facility OID for their department of health; however, each jurisdiction should have a separate sending application OID for each instance of NBS involved with case notification messaging to CDC. If you manage your own OIDs (e.g. HL7 OIDs), you will need to provide them to PHIN DIR so they can document them. If you do not manage your own OIDs, you can use the following template wording to sending an email to phintech@cdc.gov to request OIDs. Please note that you can include requests for multiple environments in one email, but you should complete the block of information for each environment (questions 1-10 under application OID). Most jurisdictions already have a facility OID for their department of health, but the template wording is included below in case it is needed.

Once you receive your OIDs from PHIN DIR, or create them if you manage your own OID tree, you will update the OIDs in the NEDSS.properties file for each environment. Below is an power point with information on which properties to update.

Requesting an Application OID from PHINDir

To request an Application OID, please submit a request to the PHIN Tech help desk with the following information for each Application OID requested:

1. Associated Organization/Facility OID
2. Application Name (e.g., NBS, Maven, PHINMS)
3. Preferred Namespace (Format: [System.OrganizationOrState.Environment]) (e.g., 'NBS.ALDOH.Prod')
4. Are you a Public Health Laboratory? (Yes/No)
5. OID Type
 - a. Please select one of the following: Application, Public Health Lab Application, Non-Public Health Lab Application, PHINMS Sender, PHINMS Receiver
6. Environment
 - a. Please select one of the following: Production, Staging, Development, Test
7. Description (optional)
8. Primary Contact's First Name and Last Name
9. Primary Contact's Email Address
10. Primary Contact's Phone Number

Requesting an Organization/Facility OID from PHINDir

Most PHAs are anticipated to already have an Organization/Facility OID. However, in the event that a PHA has not already obtained an Organization/Facility OID, please submit a request to the PHIN Tech help desk with the following information:

1. Full Organization/Facility Name (Current)

Pre-Onboarding

Other NBS Considerations

- Jurisdictions **must be on NBS 5.0 or higher.**
 - Due to PHIN MS service/action pair configuration
 - Configuration is done within a Rhapsody lookup table
- Ensure that your NND Rhapsody route reflects the release you are on.
 - We have observed that Rhapsody is not always fully updated during release upgrades within jurisdictions; it is important that the correct Rhapsody Route version is being used.
- Implementation of specific pages may require a specific release or page updates to align with updated versions of MMGs.
 - Jurisdictions should **always** put a ticket in NBSCentral when they begin work on adoption of a page so that page-specific considerations can be shared.
- In general, a jurisdiction should onboard for all conditions (that are state-reportable) included in an MMG.
 - Exception for Generic V2, CDC requests that a jurisdiction onboard as many conditions as possible, but a **minimum of three** are required.

Pre-Onboarding

Lessons Learned: Page Customization

- State customization of the MMG questions included on the CDC-provided templates can make onboarding challenging.
 - This can result in data element(s) not being able to be sent in the message, which may cause onboarding difficulties.
- To facilitate onboarding (and decrease time/resources required), it is recommended that jurisdictions leave questions/value sets provided on templates as-is, if at all possible.
 - Some edits are okay, but avoid the issues outlined on the next slide.
 - If at all in doubt, ask!
- Page metadata review and harmonization takes up the bulk of time spent onboarding.
 - As more MMG's come out, it will not be sustainable.

WITH
Great
POWER
comes
Great
RESPONSIBILITY

Pre-Onboarding

Lessons Learned: Customization that Causes Issues



■ Examples of Customizations that Cause Issues

- Replacing a standard question on the template with a locally-defined concept that may or may not be the same
 - If the same, the question can be harmonized; other times, it cannot be.
- Replacing the standard value set with a locally-defined value set where the concepts are not/cannot be mapped to the concepts in the MMG
 - This can also cause problems with ETL.
- Removing standard template questions from the page
 - This applies to both system-specific and MMG-specific questions.
 - Questions can be hidden, but verify this doesn't cause issues with saving investigations.
- Changing question format, for example:
 - From coded to text (some changes are okay; check with NBS team if this comes up)
 - From a single-select to a multi-select (or vice versa)
 - From inside of a repeating block to outside of a repeating block (or vice versa)

Pre-Onboarding

Lessons Learned: Out-of-Date Routes & Data



- Ensure your NND Rhapsody route has been fully updated to match your NBS release version.
 - If you do not see the service/action pair lookup table, it is likely that your route is out of date or was only partially updated.
 - It is recommended that the Installation Guide and Release Notes be reviewed for each release to determine if an update to Rhapsody routes needs to be made.
- It is common that jurisdictions miss some of the update scripts/ installation steps provided with NBS releases.
 - These scripts often contain metadata updates that affect NND messaging.
 - Your jurisdiction can verify by running validation scripts provided with releases and contacting NBS support team if issues are found.
 - The Installation Guide published with every release outlines the scripts that need to be run for the release.

Phase 2:
Onboarding: Test and Limited
Production Messages



Onboarding

Test Messaging Activities

- Implementation Spreadsheet
- Test Case Scenarios
- Test Message Validation in METS (MQF, if Arbo)
- Notify CDC
- CDC Onboarding Kickoff Call
- Send Test Messages
- Send Limited Production Messages

Onboarding Implementation Spreadsheet

- An implementation spreadsheet is provided by NMI Technical Assistance (TA) and pre-populated by the NBS team based on the CDC-provided NBS page template(s). It is available in the following location:
 - <https://nbscentral.sramanaged.com/redmine/documents/197>
- Jurisdictions should update the spreadsheet to reflect any changes they made to the questions/values provided in the standard NBS template(s).
 - In the appropriate tab, update columns AA (yes/no/certain conditions) to indicate your usage of the element in the appropriate row.
 - Provide notes in AB, AC, AD, AE as appropriate.

A	B	C	D	E	F	G	H	I	J	K	L	AA	AB	AC	AD	AE
Row	Section	Data Element Category	MMG	Condition	Repeating Block	PHIN Variable	HL7 Message Context	HL7 Segment	Sequence	Data Element (DE) Name	Data Element Description	PHA Collected (Yes/Only Certain Condition/No) *Required*	PHA Mapped Data Element Description (e.g., Label in Surveillance System)	PHA Local Value Set or Collection of Values	PHA Value (Database Column Header and Table Name)	PHA Notes on Mappings (e.g., If Only Collected For Certain Condition(s), Which Conditions, Discrepancy with Multiple Values)
1	MSH															
23		Gen V2	Gen V2			NOT115	MSH-21	MSH	21	Message Profile Identifier	Message Profile Identifiers provide a literal	Yes				
24		Hepatitis	Hepatitis Core			NOT115	MSH-21	MSH	21	Message Profile Identifier	Message Profile Identifiers provide a literal	Yes				
25	PATIENT															
28		Gen V2	Gen V2			DEM197	PID-3	PID	3	Local Subject ID	The local ID of the subject/entity	Yes				
31		Gen V2	Gen V2			DEM115	PID-7	PID	7	Birth Date	Patient's date of birth	Yes				
33		Gen V2	Gen V2			DEM113	PID-8	PID	8	Subject's Sex	Subject's current sex	Yes				
35		Gen V2	Gen V2			DEM152	PID-10	PID	10	Race Category	Race category - Major OMB Race	Yes				
37		Gen V2	Gen V2			DEM162	PID-11.4	PID	11.4	Subject Address State	State of residence of the subject	No				this for GenV2-based messages

Onboarding

Test Scenario Worksheets

- Test scenario worksheets are provided on CDC's Case Notification resource center: <https://wwwn.cdc.gov/nndss/case-notification/message-mapping-guides.html>
- NBS previously provided versions of these worksheets ordered by the NBS page template; however, that is no longer done (except for Arbo).
- Make sure you have the most recent version from CDC before you start entering your test cases.
- Populate this worksheet with what you actually enter into NBS.
 - If a business rule prevents data entry, you can modify what is entered, just be sure to record that in the worksheet.

- Jurisdictions should use cities, counties, and the state specific to your site, and update the spreadsheet for each test scenario.

PHIN Variable	Data Element (DE)		Test Record #1	Test Record #2	Test Record #3	Test Record #4	Test Record #5	Test Record #6	Test Record #7	Test Record #8	Test Record #9	Test Record #10	Test Record #11
	Name		Description of Test Record #1: West Nile non-neuroinvasive disease, pregnant, no neurological symptoms or signs. Serum IgM and PRNT tests confirm the disease.	Description of Test Record #2: Severe Dengue, vector-borne, imported case, severe bleeding symptoms and patient died due to multi-system organ failure. Serum and CSF PRNT greater than 4 fold rise	Description of Test Record #3: Dengue Fever, vector-borne, acquired out of state, IgM and Serum PRNT positive, no bleeding symptoms or major complications	Description of Test Record #4: West Nile Neuroinvasive Disease, PCR and PRNT for Serum and CSF tests confirms the disease.	Description of Test Record #5: St. Louis Encephalitis	Description of Test Record #6: Jamestown Canyon virus	Description of Test Record #7: LaCrosse virus	Description of Test Record #8: Eastern Equine Encephalitis	Description of Test Record #9: Western Equine Encephalitis	Description of Test Record #10: Yellow Fever	Description of Test Record #11: Zika Virus Disease (Sexual transmission), Texas. Pregnant at the time of illness onset, delivered premature baby, imported. Serum and Amniotic Fluid PCR positive, linked with test record #13 (newborn)
INV501	Country of Usual Residence	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES	USA=UNITED STATES
DEM162	Subject Address State	<Use state-assigned value. Sample 48 = Texas>	<Use state-assigned value. Sample 47 = Tennessee>	<Use state-assigned value. Sample 13 = Georgia>	<Use state-assigned value. Sample 48 = Texas>	<Use state-assigned value. Sample 48 = Texas>	<Use state-assigned value. Sample 27 = Minnesota>	<Use state-assigned value. Sample 39 = Ohio>	<Use state-assigned value. Sample 25 = Massachusetts>	<Use state-assigned value. Sample 95 = California>	<Use state-assigned value. Sample 48 = Texas>	<Use state-assigned value. Sample 48 = Texas>	<Use state-assigned value. Sample 48 = Texas>
DEM165	Subject Address County	<Use state-assigned value. Sample 48203 = Harrison>	<Use state-assigned value. Sample 47065 = Hamilton>	<Use state-assigned value. Sample 13139 = Hall>	<Use state-assigned value. Sample 48203 = Harrison>	<Use state-assigned value. Sample 48203 = Harrison>	<Use state-assigned value. Sample 27123 = Franklin>	<Use state-assigned value. Sample 39049 = Franklin>	<Use state-assigned value. Sample 25025 = Suffolk>	<Use state-assigned value. Sample 06085 = Santa Clara>	<Use state-assigned value. Sample 48203 = Harrison>	<Use state-assigned value. Sample 48203 = Harrison>	<Use state-assigned value. Sample 48203 = Harrison>
DEM163	Subject Address ZIP Code	<Use state-assigned value. Sample 75672>	<Use state-assigned value. Sample 37483>	<Use state-assigned value. Sample 30501>	<Use state-assigned value. Sample 75672>	<Use state-assigned value. Sample 75672>	<Use state-assigned value. Sample 55162>	<Use state-assigned value. Sample 43089>	<Use state-assigned value. Sample 03168>	<Use state-assigned value. Sample 95014>	<Use state-assigned value. Sample 75672>	<Use state-assigned value. Sample 75672>	<Use state-assigned value. Sample 75672>

Onboarding

Validate Test Messages

- Entered test scenarios should be extracted from NBS and validated through METS. (MQF, if Arbo)
- Instructions for extracting messages:
 - <https://nbscentral.sramanaged.com/redmine/documents/211>
- If errors/warnings are found, submit a ticket in NBSCentral.
- There are a few 'known' issues that either have a fix, or are scheduled to be fixed in a specific NBS release.
 - Wiki of 'Known Issues':
 - <https://nbscentral.sramanaged.com/redmine/projects/cas/enotification/wiki/Wiki>

Onboarding Message Validation Warnings for NBS Messages

This wiki outlines known warnings that NBS jurisdictions may receive when running HL7 case notifications generated by NBS through CDC's online validation tools (METS and MQF). If there is any action that can be taken by the state to resolve the warning, it is also indicated here.

All HL7 Case Notifications Based on Gen V2 (MVPS)

INV177: Date First Reported to Public Health - Warning: The first component (CD-PH-1,Identifier) of a CE-PH data type is a required data element and must be populated with a standard data element identifier. Please see the MUST statement on CE-PH-1 in the PHIN Messaging Guide for Case Notification Reporting for more information.

INV177 is a calculated field (done in Rhapsody) in the NBS. It takes the earliest of the following 3 dates (on the investigation pages) and puts it in the message: INV111 (Date of Report), INV120 (Earliest Date Reported to County), and INV121 (Earliest Date Reported to State). Even though INV177 is not available for data entry (since it is calculated in Rhapsody), it is in the page metadata. In Gen v1, this element goes in the message as INV177. In Gen v2 and beyond, it goes in the message as a LOINC code (77970-2). In the past, the Rhapsody route did not dynamically define the data element identifier (it was hard coded as INV177). In the future (NBS 5.4) it will put INV177 in the message using the page metadata (INV177 for Gen v1 based messages and 77970-2 for Gen v2 based messages).

In Summary: This issue will be resolved as jurisdictions upgrade to NBS 5.4 to obtain the changes in the Rhapsody NND route. This will not prevent a jurisdiction from onboarding.

Hepatitis Messages (validated in METS)

Perinatal Hepatitis B - MTH386: Relationship to Subject - Warning: MVPS will ignore any NK1 segments that do not contain the expected NK1-3 value of MTH.

When the perinatal hepatitis B template was released, it did not contain a question to indicate the mother's relationship to the infant and to include this in the NK1 segment in the NND message. While this will not prevent a jurisdiction from onboarding, it does affect data quality and should be addressed prior to onboarding, if possible. Instructions to achieve this can be found here:
 ◦ <https://nbscentral.sramanaged.com/redmine/attachments/12363/AddingRelationshipToPerinatalHepb.pdf>. Please note that the field should be added to the page as soon as the jurisdiction can do so, however, it won't be included in the message until the jurisdiction upgrades to NBS 5.3 (which contains updates to the Rhapsody route to fully enable this functionality).

In Summary: Jurisdictions should make the update to the page at the time of onboarding (or prior to) and upgrade to NBS 5.3 to include this information in the message.

Arboviral Messages (validated in MQF)

DEM152: Race Category - Warning: Either the concept code value U or the coding system for the data element DEM152: Race Category is invalid per given valueset code

This is a known issue with NBS. The Arboviral pages (that align with both the 1.2 and 1.3 versions of CDC's MMG) use generic version 1. In Gen v1, the race value in the message is not driven by concept code metadata as it is with Gen v2 and beyond. As such, when the user selects an Unknown race value, the message sends the code of 'U'. CDC updated their processing to expect a code of 'UNK'. At this time, NBS has not been updated to address this case notifications based on PHIN Specification version 2 (which is used by Arbo, Gen v1, TB, and Varicella). There are not plans to update as they conditions will eventually be migrated to MVPS.

In Summary, no action is required by the jurisdiction to address this warning. It does not prevent onboarding and can be ignored.

Onboarding

Notify CDC

- Once the following activities have been completed:
 - Pre-boarding tasks have been completed,
 - Implementation and test scenario spreadsheets have been updated,
 - Test scenarios are completed, and
 - Messages have been validated in METS
- Email edx@cdc.gov to let the team know your jurisdiction is ready to engage in onboarding and that your messages have passed validation in METS.
 - Attach the implementation spreadsheet and test scenarios document
 - CC the NBS Onboarding Team (jennifer.ward@csra.com, akshar.patel@csra.com)
- Note: Do not send the test messages until:
 - CDC has held your Onboarding Kickoff Call
 - CDC has provided the necessary information (service/action pairs)
 - CDC is expecting your messages

Onboarding

CDC Onboarding Kickoff Call

- CDC will contact jurisdictions to schedule an onboarding kickoff call.
 - The NBS onboarding team also attends this call to answer questions about NBS-specific tasks or considerations.
- CDC will provide the correct service/action pair for test messages.
- CDC will also determine the timeline for when the jurisdiction will send the test messages.

SERVICE	ACTION	TOTAL_SERVICE_AC	SERIAL_NUMBER	MESSAGE_PROFILE	CONDITION_CODE	STATUS_CODE	NOTES
NND_Case_Note	send	1	1	Abco_Case_Map_v...		ACTIVE	Aboviral Case Notif...
NND_Case_Note	send	1	2	CRS_Case_Map_v1.0		ACTIVE	Congenital Rubella S...
NND_Case_Note	send	1	3	Gen_Case_Map_v...		ACTIVE	Generic Case Notifi...
MVPS	send	1	4	Generic_MMG_V2.0		ACTIVE	Generic Case Notifi...
MVPSOnboarding	send	1	5	CongenitalSyphili...		ACTIVE	Congenital Syphili...
MVPS	send	1	6	Hepatitis_MMG_V1.0		ACTIVE	Hepatitis Message...
MVPSOnboarding	send	1	7	Mumps_MMG_V1.0		ACTIVE	Mumps Message M...
MVPSOnboarding	send	1	8	Pertussis_MMG_V1.0		ACTIVE	Pertussis Case Notif...
MVPSOnboarding	send	1	9	STD_MMG_V1.0		ACTIVE	Sexually Transmitt...
NND_Case_Note	send	1	10	IPD_Case_Map_v1.0		ACTIVE	Streptococcus Phe...
NND_Case_Note	send	1	11	IPM_Case_Map_v...		ACTIVE	Influenza-Associate...
NND_Case_Note	send	1	12	MAL_Case_Map_v...		ACTIVE	Malaria Message M...
NND_Case_Note	send	1	13	MEA_Case_Map_v...		ACTIVE	Measles Message...
NND_Case_Note	send	1	14	RUB_Case_Map_v...		ACTIVE	Rubella Message M...
NND_Case_Note	send	1	15	TB_Case_Map_v2.0		ACTIVE	TB Case Notificatio...
NND_Case_Note	send	1	16	Var_Case_Map_v2.0		ACTIVE	Varicella Case Notifi...
NND_Case_Note	send	1	17	Varicella_MMG_V3.0		ACTIVE	Varicella Case Notifi...
TOTAL		17					This row is used to l...

NOTE: Information will be requested by the CDC on the timeliness of case notifications going forward; in NBS, this is dictated by how frequently you run msgoutprocessor.bat.

Onboarding

Send Test Messages

- Documentation providing step-by-step instructions for sending test messages:
 - <https://nbscentral.sramanaged.com/redmine/documents/224>
 - Onboarding_PHINMS_MVPS_NBS_5_0_UP_TestMessagesOnly.docx
 - NBS_5.0_Configuring_Service_Action_Pairs.docx
- High-level steps:
 1. Confirm page/condition configurations in test
 2. Update service/action pair in Rhapsody lookup table
 3. Queue notifications
 - Documentation includes specific instructions for sending the update and delete test scenarios.
- This is an iterative process (to resolve any issues encountered).
- CDC will notify jurisdictions when test messages have 'passed' and they can proceed to limited production (sample of production) messaging.

Onboarding

Test Messages Sent to Production PHIN MS Receiver

- The test messages are sent from your test/staging system to CDC's **PRODUCTION PHIN MS Receiver**.
 - This is a change from previous onboarding efforts.
 - Concern has been raised by multiple jurisdictions that other 'test' messages may make it into CDC production accidentally.
 - This can be prevented by updating your properties file for the element sent in MSH-11 (discussed on slide 13) - MSG_PROCESSING_ID
 - In your test or staging system, this should be 'T'
 - It should be 'P' in your production system only

Onboarding

Send Limited Production Messages

- Documentation providing step-by-step instructions for sending test messages:
 - <https://nbscentral.sramanaged.com/redmine/documents/224>
 - Onboarding_PHINMS_MVPS_NBS_5_0_UP_SampleProduction_v2.docx
 - NBS_5.0_Configuring_Service_Action_Pairs.docx
- High-level steps:
 1. Confirm page/condition configurations in production.
 - May involve switching between notification formats (e.g. MM to HL7 to MM).
 2. Update service/action pair in Rhapsody lookup table.
 3. Queue notifications.
- This is an iterative process (to resolve any issues encountered).
- CDC will notify jurisdictions when they have 'passed' this stage and can proceed to the next stage of onboarding (Cutover to Production).

Phase 3:

Cutover to Production: Year to
Date Legacy and HL7



Cutover to Production

Year-to-Date Notifications

- CDC will schedule a 'Cutover to Production' call with the jurisdiction.
 - Updated service/action pairs will be provided.
- Documentation providing step-by-step instructions for sending YTD messages:
 - <https://nbscentral.sramanaged.com/redmine/documents/224>
 - Onboarding_PHINMS_MVPS_NBS_5_0_UP_YTDNotifications.docx
 - NBS_5.0_Configuring_Service_Action_Pairs.docx
 - NBS_NND_Route_Update_For_Batching_During_Onboarding_V1.docx
- This is an iterative process (to resolve any issues encountered).
- CDC will notify jurisdiction when they can move to the next step.

Cutover to Production

Year-to-Date (YTD) Legacy Format

- Jurisdictions are asked to send YTD notifications in legacy format.
 - An exception has been made for hepatitis (not required).
 - For arboviral, unless you were previously onboarded for the prior HL7 version, the data in ArboNet will be used for the 'legacy' format (no legacy format from NBS in this instance).
 - For STD, STD NETSS message is the legacy format and is required.
- For high volume conditions, re-queueing YTD notifications in master message takes a lot of time and is not always feasible.
 - Use Report SR13 to get an idea of YTD case count for open years for the conditions being onboarded.
 - Pull actual message count with the scripts provided in the YTD instructions.
 - Work with the NBS team if the need arises to send legacy YTD in master message format (based on determination by the CDC Program).

Cutover to Production

Year-to-Date HL7 Format

- The same notifications will be sent in HL7 format so that CDC can compare notifications between legacy format and HL7.
- A script is provided to re-queue notifications for open MMWR years.
 - Notification status = 'COMPLETE'
 - Notification type = 'NOTF'
 - Condition Code and MMWR Year from Public Health Case
 - NOTE: There is a defect where MMWR year is not always populated in the notification table, so this data is linked/pulled from the public health case table.
- Any notification sent in legacy format should also be sent in HL7, regardless of case status.
 - If notification status = COMPLETE, the case should be sent in HL7.

Cutover to Production

Year-to-Date HL7 Format

The table shows the expected behavior for Case Status = 'Not a Case' based upon notification status:

Individual Case	Sent in Master Message	Sent in HL7	Outcome
Case Status = Not a Case Notification Status = Complete	Yes	Yes	Case found in both legacy and HL7 (as requested)
Case Status = Not a Case Notification Status = Complete	Yes	No	Case missing from HL7 YTD; flags as discrepancy
Case Status = Not a Case Notification Status <> Complete	No	No	Case found in both legacy and HL7 (as requested)
Case Status = Not a Case Notification Status <> Complete	No	Yes	Case Missing from legacy format; flags as discrepancy

Cutover to Production

Year-to-Date HL7 Format: Batching

- CDC requests that the HL7 messages be batched for the YTD file.
 - Batching is not typically required for arboviral onboarding due to low volume.
- Batching can be put in place for YTD file, but **batching should be removed prior to going into production.**
 - The specifications are different for messages going to MVPS versus messages going to DMB/CDS (Arbo, Gen v1, TB, Varicella) and **master messages should not be batched.**
 - An ER has been created to put long-term batching in place in the NND Rhapsody route, but it isn't available at this time.

Cutover to Production

Year-to-Date HL7 Format

- Note that there is a NEDSS property (**NND_MAX_ROW**) that sets how many messages are processed per run of mgsoutprocessor.bat.
 - To process all of the YTD messages, it will likely require multiple runs of the mgsoutprocessor.bat.
- Typically, the system is taken offline to users while the messages are being re-queued and sent, since the page will be set to send HL7 instead of master message.
 - Once YTD's are sent and receipt is confirmed, the system can be opened back up to users.

Cutover to Production: Freeze Notifications

- After YTD is sent, CDC will request that no new notifications be sent for the conditions being onboarded until the jurisdiction is approved for production.
- This is usually done by turning off msgoutprocessor.bat scheduled runs.
 - Some jurisdictions have elected to use Rhapsody to put a hold on new messages for the conditions being onboarded so they can continue to run msgoutprocessor.bat.
- If the review/correction of production messages takes longer than one week, the NBS team can work with you to send updated notifications by manipulating the notification status and running msgoutprocessor.bat.

After YTD notifications are sent, users can still create and approve notifications in the system while msgoutprocessor is on hold.

Phase 4: Production



Production

Resuming Production

- CDC will notify jurisdictions when they are approved for production.
- Documentation providing step-by-step instructions for resuming production messages:
 - <https://nbscentral.sramanaged.com/redmine/documents/224>
 - Onboarding_PHINMS_MVPS_NBS_5_0_UP_ResumeNotifications.docx
 - NBS_5.0_Configuring_Service_Action_Pairs.docx
- At this time, the batch updates to the NND Rhapsody route must be removed prior to resuming notifications.
- Depending on how many messages were queued up during the freeze, the jurisdiction may need to run msgoutprocessor.bat multiple times to process all messages.

Additional Considerations

- Throughout the entire process, it is important that jurisdictions also monitor transmission status in PHIN MS.
 - Messages can queue to PHIN MS and fail or get hung up there for multiple reasons.
- Any time changes are made to case notification mechanism, be sure you coordinate with NMI and that your CDC Data Operations Team (DOT) contact is aware.
 - E.g. you add more conditions to Generic V2 HL7 messaging after being onboarded.

NBS Supplemental Resources



Resources

- NBSCentral Case Notification Area, which contains:
<https://nbscentral.sramanaged.com/redmine/projects/casenotification/documents>
 - Links to NMI and Technical Assistance (TA) Resources
 - Implementation Spreadsheets pre-populated for NBS
 - Scripts to pull messages
 - Instructions on how to queue messages at each state of onboarding
 - Wiki of known warnings with NBS messages
- CDC-Provided Standard Page Builder Templates
 - <https://nbscentral.sramanaged.com/redmine/projects/nbspagebuildertemplates/documents>
- CDC Message Validation Services
 - MQF (for arboviral): <https://phinmqf.cdc.gov/>
 - METS (for everything else): <https://mets.cdc.gov/>