

National Notifiable Diseases Surveillance System Modernization Initiative Questions & Answers

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GENERAL QUESTIONS

Q: What is the CDC Surveillance Strategy?

A: Launched in February 2014, the CDC Surveillance Strategy (<http://www.cdc.gov/surveillance/>) is a plan to improve the agency’s activities in public health surveillance. The strategy aims to improve CDC’s overall surveillance capabilities and, by extension, those of the public health system at large. The strategy guides efforts to make essential surveillance systems more adaptable to the rapidly changing technology landscape, more versatile in meeting demands for expanding knowledge about evolving threats to health, and more able to meet the demands for timely and population-specific and geographic-specific surveillance information. The strategy will also facilitate work to consolidate systems, eliminate unnecessary redundancies in reporting, and reduce reporting burden.

The three major goals of the CDC Surveillance Strategy are to

1. enhance the accountability, resource use, workforce, and innovation for surveillance at CDC and in support of state, tribal, local, and territorial (STLT) agencies;

2. accelerate the utilization of emerging tools and approaches to improve the availability, quality, and timeliness of surveillance data; and,
3. through cross-cutting agency initiatives, improve surveillance by addressing data availability, system usability, redundancies, and incorporation of new information technologies in major systems or activities.

The National Notifiable Diseases Surveillance System (NNDSS) Modernization Initiative (NMI) is one of four initiatives to address goal number three.

Q: What is the NNDSS Modernization Initiative?

A: With the evolution of technology and data and exchange standards, CDC is strengthening and modernizing the infrastructure supporting the National Notifiable Diseases Surveillance System. As part of the CDC Surveillance Strategy, the NNDSS Modernization Initiative is enhancing the system’s ability to provide more comprehensive, timely, and higher quality data than ever before for public health decision making. Through this multi-year initiative, CDC is increasing the robustness of the NNDSS technological infrastructure so that it is based on interoperable, standardized data and exchange mechanisms.

Q: What is the National Notifiable Diseases Surveillance System?

A: The National Notifiable Diseases Surveillance System is a nationwide collaboration that enables all levels of public health—local, state, territorial, federal, and international—to share notifiable disease-related health information. Public health uses this information to monitor, control, and prevent the occurrence and spread of state-reportable and nationally notifiable infectious and noninfectious diseases and conditions and outbreaks.

NNDSS is a multifaceted program that includes the surveillance system for collection, analysis, and sharing of health data. It also includes policies, laws, electronic messaging standards, people, partners, information systems, processes, and resources at the local, state, territorial, and national levels.

Notifiable disease surveillance begins at the level of local, state, and territorial public health departments (also known as jurisdictions). Jurisdictional laws and regulations mandate reporting of cases of specified infectious and noninfectious conditions to health departments. The health departments work with healthcare providers, laboratories, hospitals, and other partners to obtain the information needed to monitor, control, and prevent the occurrence and spread of these health conditions. In addition, health departments notify CDC about the occurrence of certain conditions.

The CDC Division of Health Informatics and Surveillance (DHIS) supports NNDSS by receiving, securing, processing, and providing nationally notifiable infectious diseases data to disease-specific CDC programs. DHIS also supports local, state, and territorial public health departments

in helping them collect, manage, and submit case notification data to CDC for NNDSS. DHIS provides this support through funding, health information exchange standards and frameworks, electronic health information systems, and technical support through the NNDSS web site, tools, and training. DHIS and the CDC programs publish statistical data based on NNDSS to support the recognition of outbreaks, monitoring of shifts in disease patterns, and evaluation of disease control activities.

CDC programs responsible for national surveillance, prevention, and control of infectious and noninfectious conditions are found in the

- Center for Global Health (CGH);
- National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP);
- National Center for Emerging and Zoonotic Infectious Diseases (NCEZID);
- National Center for Environmental Health (NCEH);
- National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP);
- National Center for Immunization and Respiratory Diseases (NCIRD); and
- National Institute for Occupational Safety and Health (NIOSH).

These programs collaborate with the Council of State and Territorial Epidemiologists (CSTE) to determine which conditions reported to local, state, and territorial public health departments are nationally notifiable. The CDC programs, in collaboration with subject matter experts in CSTE and in health departments, determine what data elements are included in national notifications. Health departments participating in NNDSS voluntarily submit case notification data to DHIS and also submit some data directly to CDC programs.

Q: Who is leading NMI?

A: NMI is a CDC-wide effort. The NMI team in DHIS, CSELS, is leading the development of the health information infrastructure needed to support NNDSS. Currently, the NMI team is working hand-in-hand with subject matter experts in programs from the CDC Office of Infectious Diseases (OID), who are leading the effort to develop disease-specific data elements for new message mapping guides (MMGs) for Health Level 7 (HL7)-formatted disease case notification.

The NMI team also is working with the Association of Public Health Laboratories (APHL), CSTE, and pilot jurisdictions to strengthen the NMI effort by their input on NMI processes and deliverables, such as message mapping guides. APHL also is helping to develop, pilot, and refine the technical assistance needed to implement HL7 case notification messages in jurisdictions. In addition, CSTE is helping to evaluate the NMI effort through jurisdiction feedback and to develop and distribute communication messages to jurisdictions.

Q: What are the key components of NMI?

A: NMI has three key components:

1. development of prioritized message mapping guides for HL7 case notifications, which provide guidance for how to package and transmit case notification data;
2. the Message Validation, Processing, and Provisioning System (MVPS), software that validates and processes nationally notifiable disease data messages sent by jurisdictions and provisions the data to CDC programs; and
3. technical assistance for implementation of HL7 case notification messages in jurisdictions submitting case notifications to NNDSS.

Q: How long will NMI last?

A: The initiative to modernize NNDSS began in 2014 and will extend over several years. Programs representing conditions covered by the generic V2 and hepatitis message mapping guides began to receive timely, complete, and high-quality data from the first jurisdictions to implement the new messages in late 2016. Ongoing NMI activities include the following:

- Continue development of MMGs and implementation of HL7 case notification messages.
- Enhance MVPS, including developing and implementing other services and components of MVPS.
- Facilitate the use of standards and promote and encourage data element harmonization for surveillance of nationally notifiable conditions.
- Retire legacy data transmission formats, which include the National Electronic Telecommunications System for Surveillance (NETSS) and the legacy National Electronic Disease Surveillance System (NEDSS) Base System (NBS) master message.
- Determine future direction of NBS.

MESSAGE MAPPING GUIDE QUESTIONS

MMG DEVELOPMENT

Q: What is a message mapping guide?

A: Message mapping guides used in the National Notifiable Diseases Surveillance System program describe the data content needed for electronic HL7 case notifications for nationally notifiable infectious diseases or conditions.

These MMGs include a description of each data element in the case notification as well as the attributes associated with each data element, such as its valid values, whether the data element repeats, and HL7 instructions specific for the data element. Public health jurisdictions

use the HL7 message structure specification/profile to package all the variables in a MMG into an HL7 case notification message.

MMGs are used for each condition or disease that is transmitted to CDC through NNDSS. Nationally notifiable diseases that do not have disease-specific variables use only the generic v2 MMG, which includes the basic information needed in every case notification, while conditions with disease-specific data use both the generic v2 MMG and a disease-specific MMG.

MMGs help reporting jurisdictions map each data element in an MMG to a data element in the reporting jurisdiction's surveillance information system. A data element defines a unit of information needed by the surveillance system.

Q: Why is CDC developing new HL7 MMGs for NNDSS case notifications?

A: CDC is developing new HL7 message mapping guides to improve collection, transmission, and analysis of data needed at the national level for public health surveillance. In doing so, CDC is implementing messaging standards and vocabulary standards in case notifications. For some diseases and conditions, the epidemiology of the notifiable disease has changed over time and new data are needed about risk factors or new clinical information is needed, such as laboratory tests and results, vaccination information, and treatment information. For other nationally notifiable diseases, CDC previously received only generic data but also now needs disease-specific data. (Note that NETSS uses a proprietary data and vocabulary format and is not based upon modern health information exchange standards.)

Q: What is the difference between a message mapping guide and an HL7 case notification message?

A: A disease-specific message mapping guide is similar to a data dictionary and indicates the data elements (generic or disease-specific) and the valid values for those data elements included in case notification messages. For example, in referring to the hepatitis MMG, we are referring only to the disease-specific data elements that are included within the hepatitis message. In contrast, when we refer to a disease-specific HL7 case notification message, we are referring to both the generic data elements that are part of all case notification messages and the data elements specific to that disease. For example, in referring to a hepatitis HL7 case notification message (or hepatitis message), we are referring to both generic and disease-specific data elements that, together, comprise the complete hepatitis HL7 case notification message. For this reason, we talk about implementing HL7 case notification messages and not about implementing MMGs.

Q: What MMGs are currently being developed and why were they selected?

A: The DHIS NMI team works with subject matter experts in CDC programs to prioritize MMGs for development. The first set of guides address the generic data elements that will be included

in all messages as well as the disease-specific data elements for congenital syphilis, hepatitis, mumps, pertussis, and STD.

Final message mapping guides are now available for generic v2 and hepatitis on the NNDSS HL7 Case Notification Resource Center at <https://wwwn.cdc.gov/nndss/case-notification/>.

In addition, to support public health's emergency arboviral response needs, CDC developed and published an updated arboviral MMG (v1.3), which is also available on the resource center. (Please note that aArboviral v 1.3 will not be implemented through MVPS.)

Jurisdictions are encouraged to work on implementing these messages and to contact CDC when they are ready to go through the onboarding process to be approved to send case notifications using the new generic v2, hepatitis, and arboviral disease messages.

Work also is underway on guides for babesiosis, congenital rubella syndrome, foodborne and diarrheal disease, malaria, measles, rubella, trichinellosis, and varicella. The next set of conditions will be identified at a later date.

Q: Can jurisdictions use the new HL7 MMGs to send in summary case notifications for specific diseases?

A: No. The new HL7 MMGs are intended for transmitting individual case notifications. NMI expects to address an HL7-based mechanism for summary notifications in the future, but the current priority is developing guides for individual case notifications.

Any jurisdiction sending summary information for specific diseases should continue to do so using their current process.

Q: What is the process for developing MMGs and implementing case notification messages based upon those MMGs?

A: The development of any message mapping guide and implementation of the case notification message based upon that MMG is a collaborative process that involves multiple teams, both internal and external to CDC. Internal teams include the CDC programs, NNDSS team, messaging and vocabulary team, MVPS development and testing teams, state implementation and technical assistance team. External groups include health jurisdictions, CSTE, and APHL.

CDC deliverables include the message mapping guide, business rules (BRs) for processing data by MVPS, test case scenarios, HL7 test messages, and an annotated case report form. The steps in the process of MMG development and case notification message implementation are as follows:

1. Initiation/concept.
2. Requirements analysis.
3. Message design and development.
4. Message reconciliation and finalization.
5. Pilot testing of MMG.
6. MVPS application development.
7. MVPS testing and implementation.
8. Publication of final MMG.
9. Onboarding jurisdictions to transmit data.

Q: Why is CDC taking an incremental approach to the development of MMGs?

A: Due to budgetary, personnel, technical, and other resource constraints, CDC is proceeding with NMI—including the development of MMGs—in a phased, incremental manner, with due consideration at each step for how to achieve the most beneficial results in the briefest amount of time.

Q: Are MMGS under development available for review?

A: The NNDSS HL7 MMGs and Artifacts page at <https://wwwn.cdc.gov/nndss/case-notification/message-mapping-guides.html> contains a list of NNDSS HL7s MMGs that are currently in development. This section, called “MMGs in Development,” also contains any NNDSS HL7 MMGs that are currently available for a 30-day external review by public health reporting jurisdictions or other implementers. CDC responses will also be posted here after external review comments are evaluated for incorporation into the MMG.

Q: Should jurisdictions use draft message mapping guides to implement surveillance information system changes or submit data to CDC?

A: No. MMGs in development are considered draft and may be revised until the time they are finalized.

Those jurisdictions selected for pilot testing MMGs should wait until contacted by the NMI State Implementation and Technical Assistance Team before using the MMGs, before implementing surveillance information system changes, and before submitting test messages to CDC.

All other jurisdictions should not plan to submit data to CDC or implement MMG-based updates to their surveillance information systems until final MMGs have been posted.

Q: What diseases will be covered by using the generic v2 MMG or other HL7 MMGs?

The National Notifiable Diseases Surveillance System Event Code List, posted under “MMG Related Documentation” on the NNDSS HL7 Case Notification Resource Center at <https://wwwn.cdc.gov/nndss/case-notification/>, should be used by jurisdictions implementing HL7 case notification messages to identify all the diseases or conditions (and their respective

event codes) that should be sent to NNDSS by using the generic v2 MMG and other HL7 MMGs. As new disease-specific MMGs are developed, they will be added to this document.

NOTE: For simplicity in identifying those diseases and conditions that will use the generic v2 MMG only, we have filtered this information from the National Notifiable Diseases Surveillance System Event Code List and separately posted this information on the NNDSS HL7 Case Notification Resource Center as “Annual Conditions that Only Use the Generic v2.0 Message Mapping Guide.” This list will be produced annually.

The “Event Codes” worksheet in the National Notifiable Diseases Surveillance System Event Code List has a “Preferred Mechanism” column that can be filtered by the type of MMG that jurisdictions are ready to adopt. If the “Preferred Mechanism” column is filtered by the words in the drop-down list specifying “Generic Individual Case Notification v2 (HL7),” then the conditions that use only the generic v2 MMG will be listed and should be sent by using only the generic v2 MMG. Alternatively, if the “Preferred Mechanism” column is filtered by the words in the drop-down list specifying “Generic Individual Case Notification v2 with STD Case Notification v1 (HL7),” then STD conditions that use both the STD MMG and the generic v2 will be listed.

DATA EXCHANGE/SUBMISSION

Q: Are all elements of the generic v2 MMG required?

A: Not all the data elements in generic v2 are required, but jurisdictions are strongly encouraged to collect and send all of this information. The data elements designated as “required” are the minimum needed to process the record. “Preferred” data elements are expected for cases and are important information for basic disease surveillance. “Optional” data elements are recommended, and states are encouraged to supply this additional information. Whether a data element is required, preferred, or optional is indicated in the final generic v2 MMG, available on the NNDSS HL7 Case Notification Resource Center at <https://www.cdc.gov/nndss/casenotification/>. On the “PHIN Variable IDs” worksheet of the generic v2 MMG, the column named “CDC Priority” indicates the prioritization of the data element by the CDC surveillance program. Regardless of whether a data element is considered preferred or optional, jurisdictions should map to and send all the data elements requested in the MMG that they collect in their surveillance information systems. We encourage jurisdictions to enhance their surveillance systems to capture all of the data elements requested in the MMG.

Q: Can jurisdictions continue to submit information in the generic v1 MMG?

A: CDC encourages all jurisdictions to transition to the new guides as soon as possible after they are published as final because the new data elements are important for notifiable disease surveillance.

Q: Can jurisdictions use the generic v2 MMG to send notifications for conditions that have extended data in NETSS?

A: Eventually, the generic v2 MMG will be used with all nationally notifiable conditions. However, conditions that currently have disease-specific data being sent to CDC through NETSS cannot be sent by using the generic v2 MMG until there is a disease-specific MMG to complete the case notification.

Jurisdictions should use the National Notifiable Diseases Surveillance System Event Code List, posted under “MMG Related Documentation” on the NNDSS HL7 Case Notification Resource Center at <https://wwwn.cdc.gov/nndss/case-notification/>, to identify which conditions should be sent by using each of the new HL7 MMGs.

NOTE: For simplicity in identifying those diseases and conditions that will use the generic v2 MMG only, we have filtered this information from the National Notifiable Diseases Surveillance System Event Code List and separately posted this information on the NNDSS HL7 Case Notification Resource Center as “Annual Conditions that Only Use the Generic v2.0 Message Mapping Guide.” This list will be produced annually.

Q: For TB, STD and hepatitis, do jurisdictions need to send generic v2 messages in addition to the disease-specific message? Or will TB, STD, and hepatitis stand alone and be kept separate from the generic v2 MMG?

A: The case notification messages for STD and hepatitis include the data elements from the STD and hepatitis MMGs in combination with the generic v2 MMG data elements. Jurisdictions should not send HL7 TB messages with generic v2 data elements to MVPS until the TB MMG is updated and CDC is ready for jurisdictions to send the revised TB case notifications, which include the data elements from the generic v2 MMG.

Q: How will data reconciliation be done with the new HL7 case notifications?

A: With MVPS, jurisdictions receive an acknowledgement confirming receipt and parsing of messages. A dashboard summarizes data sent by jurisdictions, including the details of messages received and processed by CDC, and it flags any warnings or errors. Jurisdictions will be able to identify problems and submit corrections to reconcile the data as needed throughout the year.

Q: Will CDC program areas adhere to receiving data in this new way or will they still ask for jurisdiction data in Excel or other files?

A: CDC is working to eliminate the duplication of data requested by CDC in various formats. NMI is one part of the CDC Surveillance Strategy, which is coordinating across the agency to

consolidate systems, eliminate unnecessary redundancies in reporting, and reduce reporting burden.

Q: How long will jurisdictions be expected to send notifications for some diseases in the new HL7 format and for other diseases in the old format?

A: The period of time where jurisdictions may need to send case notification messages in both the old format and the new HL7 format will vary by jurisdiction. Jurisdictions will need to develop plans for retiring the old format feeds, and CDC can provide technical assistance to help with the development of those plans.

MESSAGE VALIDATION, PROCESSING, AND PROVISIONING SYSTEM QUESTIONS

Q: What is MVPS?

A: The Message Validation, Processing, and Provisioning System, or MVPS, is software that validates and processes nationally notifiable disease (NND) case notification messages sent by jurisdictions in the new HL7 format and provisions the data to CDC programs.

Q: Why is MVPS needed?

A: MVPS addresses a number of data processing and distribution challenges. It allows CDC to receive NND data from jurisdictions, process them, and provision them to CDC programs more efficiently and effectively than existing systems. MVPS provides several benefits to jurisdictions and CDC programs:

- MVPS is reducing the number of systems processing data at CDC and allows for streamlined message processing from jurisdictions to CDC.
- MVPS standardizes data processed at CDC.
- MVPS allows CDC programs to receive, process, store, access, share, and analyze health-related data, including electronic health record data, to further the agency's public health goals.
- Through the MVPS Dashboard, the system provides submitting jurisdictions the ability to view the data they have submitted and identify data quality issues.

Q: Describe NNDSS, NEDSS, and NBS. How is MVPS connected to them in NMI?

A: The [National Notifiable Diseases Surveillance System \(NNDSS\)](#) is a nationwide collaboration that enables all levels of public health—local, state, territorial, federal, and international—to share notifiable disease-related health information. Public health uses this information to monitor, control, and prevent the occurrence and spread of state-reportable and nationally notifiable infectious and noninfectious diseases and conditions.

NNDSS is a multifaceted program that includes the surveillance system for collection, analysis, and sharing of health data. It also includes policies, laws, electronic messaging standards, people, partners, information systems, processes, and resources at the local, state, territorial, and national levels.

Integrated surveillance information systems in reporting jurisdictions that are based on the [National Electronic Disease Surveillance System \(NEDSS\)](#) architectural standards are primary data sources for NNDSS. Jurisdictions use these information systems to create and send standards-based case notifications to CDC for NNDSS. Currently, case notifications can be sent by using three different standards; CDC's NNDSS Modernization Initiative will provide a single, new standard to transmit data to CDC.

The [NEDSS Base System \(NBS\)](#) is a CDC-developed integrated information system that helps local, state, and territorial public health departments manage reportable disease data and send notifiable disease data to CDC. NBS provides a tool to support the public health investigation workflow and to process, analyze, and share disease-related health information. NBS also provides reporting jurisdictions with a NEDSS-compatible information system to transfer epidemiologic, laboratory, and clinical data efficiently and securely over the Internet.

Through the NNDSS Modernization Initiative, CDC is replacing the existing NNDSS messaging infrastructure, but not the NNDSS program, with a message validation, processing, and provisioning system—the MVPS—that facilitates the receipt and distribution of notifiable disease data. During NMI, jurisdictions will implement HL7 case notification messages and MVPS will support collection of data through new guides and a data exchange system that will result in more comprehensive, timely, and more accurate information than ever before provided to CDC programs.

Q: What is the scope and technology of MVPS?

A: MVPS is a CDC-built and operated message validation, processing, and provisioning system. It validates and processes NND messages sent by jurisdictions, provides a data quality dashboard, and provisions NND data to CDC programs.

The MVPS technology includes

- an integration engine that parses and transforms messages and files and performs vocabulary translations and data validations,
- a business rule management system processing engine, and
- a database management system that enables provisioning of data sent in the HL7 case notification messages for use by CDC programs.

Q: How will CDC programs receive data once the case notifications are sent to CDC?

A: MVPS provisions data to individual CDC programs, who determine user access to those data. Various options will be available over time, but, initially, data will be provided through SQL Server views.

Q: What is data provisioning?

A: Data provisioning refers to the processes by which surveillance data received through NNDSS are made available to the disease-specific programs at CDC. It ensures that the necessary data relationships and data format are preserved to allow accurate and complete use of the data. It also defines the database structures (such as tables and views) that will be used to store the data and make them available to programs for analysis and reporting.

Q: What data provisioning process/structure has the MVPS team defined?

A: Because the data processing and provisioning needs are different for each condition, the MVPS team identifies and documents the requirements for each condition. The MVPS team has developed a process to extract the data from the HL7 message, perform any needed validations (including content, structural, and business rules) or transformations, and populate the data into tables that are accessible by CDC programs.

Q: What is the CDC Message Evaluation and Testing Service and why is it important to public health?

A: The CDC Message Evaluation and Testing Service (METS) is a common message validation service to assist jurisdictions in preparing and sending messages to CDC that adhere to the applicable messaging, vocabulary, and programmatic standards. Specifically, METS allows jurisdictions to evaluate their test messages as they develop their systems to send HL7 messages to CDC, ensuring that their systems are generating messages that conform to the proper message type structure, business rules, and content, which improves the quality and usability of the data for monitoring disease trends and guiding public health action.

Q: What is the MVPS Dashboard?

A: The MVPS Dashboard is a component of MVPS that displays data sent by jurisdictions, including the details of messages received and processed by CDC, as well as warnings and errors on messages that were submitted by jurisdictions but do not pass the structural, content, and business rules validation. As a result, jurisdictions and programs use the dashboard to verify the number of messages received by CDC and to assist with the reconciliation of data throughout the year. In the longer term, MVPS also will provide information on which cases were included in the published weekly, quarterly, and yearly totals, allowing jurisdictions to reproduce counts and track case counts included within these tables.

RETIREMENT OF THE LEGACY NNDSS PORTFOLIO

Q: Will MVPS supersede NNDSS?

A: No, MVPS will not supersede NNDSS. NNDSS is a multifaceted program that includes the surveillance system for collection, analysis, and sharing of health data. It also includes policies, laws, electronic messaging standards, people, partners, information systems, processes, and resources at the local, state, territorial, and national levels. MVPS is a data exchange system that is replacing and modernizing the current technical infrastructure that supports NNDSS.

Q: Can certain disease-specific reporting still use NETSS?

A: NETSS will be used until all the notifiable conditions have been transitioned to new HL7 message mapping guides and NETSS can be retired. NETSS retirement is an NMI priority, so, although there is not a defined time table, all conditions and jurisdictions will be required to transition to the new HL7 case notifications.

Q: What is the strategy for transitioning from legacy data streams to MVPS?

A: As MMGs are finalized, jurisdictions are encouraged to implement MMG-based case notification messages in their surveillance systems and work with CDC for onboarding.

Q: Does CDC have a final cut-off date when it will no longer accept NETSS files?

A: NETSS retirement is an NMI priority but a defined timetable has not been established. We expect to stop accepting NETSS messages as new guides are implemented for conditions. Right now, we do not have a firm timeline for how long we will continue to accept NETSS messages once MVPS is able to accept HL7 messages for a condition, but states should expect to complete the transition within 12–18 months after MVPS is able to accept data sent by using the new MMG. Jurisdictions are encouraged to begin implementing case notifications based upon new MMGs as they are finalized. The Health Information Systems component of the Epidemiology and Laboratory Capacity (ELC) Cooperative Agreement requires demonstrated progress toward the implementation of case notifications based upon the new MMGs.

Q: What are the plans for the CDC Data and Message Brokering (DMB) system and the Common Data Store (CDS)?

A: The DMB and CDS systems will be replaced by the MVPS information system. Upon successful transition from DMB and CDS to MVPS, these legacy systems will be retired.

USER ACCEPTANCE TESTING

Q: Who will perform user acceptance testing (UAT) and when will it take place?

A: CDC asks NMI pilot jurisdictions to assist with testing MVPS releases before they are implemented. User acceptance testing is coordinated between CDC and the pilot

jurisdictions. This effort includes participation from the MVPS development and testing teams, CDC programs, and the NMI technical assistance team.

Six MMGs (generic v2, STD, congenital syphilis, hepatitis, mumps, and pertussis) have been prioritized, two have been through UAT and are now final (generic v2 and hepatitis), and each of the remaining four will have an associated UAT timeframe for testing MVPS. The MVPS team will work with CDC programs and the NMI technical assistance team to define time frames and support actual testing.

Selected jurisdictions are asked to participate in two aspects of UAT: 1) formal user acceptance testing of the software, and 2) end-to-end testing, which includes provisioning data to CDC programs.

TECHNICAL ASSISTANCE QUESTIONS

Q: What is the role of technical assistance in NMI?

A: CDC is partnering with CSTE and APHL to provide and evaluate technical assistance to state and local jurisdictions to implement the new HL7 case notification messages. Through the NMI State Implementation and Technical Assistance Team, CDC and its partners will help jurisdictions adopt the MMGs and use them to send test case notification messages to MVPS to ensure that these messages will be properly received, processed, and stored for analysis through this new system. CDC, in collaboration with CSTE and APHL, provides direct technical assistance and training in the form of webinars, online technical guides, and other training materials to support implementation for all jurisdictions.

Q: Where do I access the tools and resources available to help me implement and onboard the NNDSS HL7 case notifications?

A: Please access the NMI Technical Assistance and Training Resource Center at <https://www.cdc.gov/nmi/ta-trc/index.html> to

- learn about the types of technical assistance available,
- make a technical assistance request, and
- access implementation and onboarding information for NNDSS HL7 case notifications.

PILOT JURISDICTION SELECTION

Q: What jurisdictions are serving as pilot sites for NMI?

A: To help ensure a smooth and translatable technical assistance approach with all jurisdictions, the NMI State Implementation and Technical Assistance Team is piloting both the MMGs and

the NMI technical assistance approach. For the most up-to-date list of NMI pilot states, please see the chart at the bottom of the monthly NMI Notes newsletter at <https://www.cdc.gov/nmi/news.html>.

Q: How are jurisdictions selected for the pilot phase of NMI?

A: In a collaborative effort, the CDC NMI team works with CDC programs, CSTE, and APHL to identify the jurisdictions to pilot the MMGs and technical assistance process. These jurisdictions are selected by using several criteria, including a jurisdiction’s technical experience and capacity, readiness and willingness to participate, scalability of their implementation experience, ability to provide feedback on NMI TA tools and resources, and ability to participate in NMI evaluation activities.

Q: What activities are NMI pilot site engaged in?

A: NMI pilot sites are engaged in several activities:

- adopting and providing feedback on pilot test-ready MMGs;
- providing feedback on TA tools and resources;
- testing and providing feedback on MVPS; and
- participating in the evaluation of the overall NMI pilot.

GENERAL TECHNICAL ASSISTANCE

Q: What technical assistance will be available?

A: CDC has partnered with CSTE and APHL to provide technical assistance for the following activities:

- extracting data from surveillance information systems,
- mapping codes in the data extract to vocabulary specified in the MMGs,
- creating HL7 messages based on the MMGs by using an integration engine (e.g., Rhapsody) or other tools,
- facilitating secure transport of HL7 messages, and
- transferring knowledge to enhance in-house capability on the use of integration engines and infrastructure management for case notifications to CDC based upon MMGs; and
- providing education and training to build capacity to use current and future MMGs to implement case notification messages.

Q: Can all jurisdictions participate in NMI Technical Assistance?

A: Yes, all jurisdictions have the opportunity to participate. The requirement to implement HL7 case notification messages, starting with the priority guides, and the ability to request technical assistance are both in the ELC Cooperative Agreement. Jurisdictions may choose to implement

available HL7 case notification messages on their own as well. Either way, CDC will work with jurisdictions to monitor progress through the quarterly ELC Health Information Systems calls.

Q: Is technical assistance system dependent?

A: No. All jurisdictions can receive technical assistance for HL7 case notification message implementation. Jurisdictions using NBS will receive most of their technical assistance from the NBS team. Jurisdictions that do not use NBS will receive technical assistance from APHL.

Q: Will there be a cost to the jurisdictions associated with technical assistance? Will funding be provided to help with this process?

A: No, there is no cost to the jurisdictions for technical assistance. Funding provided in the Health Information Systems component of the ELC Cooperative Agreement is intended to help jurisdictions implement the messages. When technical assistance is requested, jurisdictions will be prioritized based on their readiness and ability to conduct HL7 case notification message implementation activities.

Q: When will all jurisdictions be able to adopt the new MMGs?

A: All jurisdictions are invited to adopt finalized MMGs, go through onboarding, and send case notification messages to CDC through MVPS.

Q: Should jurisdictions use draft message mapping guides to implement surveillance information system changes or submit data to CDC?

A: No. MMGs in development are considered draft and may be revised until the time they are finalized.

Jurisdictions selected for pilot testing of MMGs should wait until contacted by the NMI State Implementation and Technical Assistance Team before using the MMGs, before implementing surveillance information system changes, and before submitting test messages to CDC.

All other jurisdictions should not plan to submit data to CDC or implement MMG-based updates to their surveillance information systems until final MMGs have been posted.

Q: How do I submit a technical assistance request?

A: Once an MMG is finalized, a jurisdiction may request onsite or virtual technical assistance by sending an e-mail to EDX@cdc.gov and completing a readiness assessment. The assessment will help to determine the following information:

- type(s) of assistance needed,
- identification of the guide(s), and
- primary point of contact and contact information.

Q: Are NMI and ELC Cooperative Agreement activities two separate projects?

A: No, they are related projects. Implementing case notifications based upon the new MMGs that are developed through NMI is a required activity in the Health Information Systems section of the ELC Cooperative Agreement.

Q: What activities are ELC grantees expected to conduct during the current funding cycle (August 1, 2014, to July 31, 2018)?

A: Implementation of HL7 case notification messages developed through the NMI process is a requirement for jurisdictions who are receiving health information systems funding through the ELC Cooperative Agreement that covers 2014–2018. (Note that implementing the old HL7 guides does not meet this requirement, and jurisdictions should not invest effort in implementing those guides.)

Q: How will grantees report on these activities (monthly, quarterly)? Who will monitor these activities?

A: The quarterly ELC Health Information Systems Implementation Support and Monitoring calls with CDC will include updates on HL7 case notification message implementation. The NMI team also is working with CSTE to evaluate the NMI effort. Additional details regarding monitoring and lessons learned activities will be provided at a later date.

Q: How will CDC success in the NMI effort be measured?

A: Per the NMI performance objective in the CDC Surveillance Strategy, by 2016, 90% of data reported through NNDSS will be by standard HL7 messages. A more up-to-date objective focuses on having 40% of case notifications submitted using HL7 messages by the end of 2017.

Q: How will grantee success in the NMI effort be measured?

A: Grantees will identify a realistic number of priority HL7 case notification messages that they will implement in 2014–2018 and, by using these messages, successfully transmit associated notifiable diseases data to CDC.

Q: What happens if jurisdictions do not participate in NMI?

A: Implementation of available HL7 case notification messages developed through the NMI process is a requirement for jurisdictions who are receiving Health Information Systems funding through the ELC Cooperative Agreement that covers 2014–2018.

CDC understands that jurisdictions not participating in the ELC Cooperative Agreement may face circumstances that affect their ability to implement the new HL7 case notification

messages. It is nevertheless imperative that CDC and the public health community move forward with NMI so that NNDSS can provide more comprehensive, timely, and higher quality data to all users as soon as possible.

NNDSS ONBOARDING QUESTIONS

Q: Is CDC still “certifying” NNDSS messages through PHIN Certification?

A: No. To foster a more collaborative relationship with jurisdictions submitting NNDSS messages, CDC is transitioning to focus on onboarding messages into production and away from certification of NNDSS messages through PHIN Certification.

Q: What is the NNDSS onboarding process?

A: The onboarding process ensures that jurisdictions transmit data in compliance with the NNDSS message mapping guide requirements and that CDC programs are confident in the quality of the data that they are receiving.

Please accessed detailed information about the onboarding process and make an onboarding request at the NMI Technical Assistance and Training Resource Center at <https://www.cdc.gov/nmi/ta-trc/index.html>.

Q: Once we have onboarded onto MVPS for the new HL7 disease case notification messages, should I send those HL7 disease case notifications as soon I have them, rather than waiting to send them together at the end of the week?

A: Yes, we recommend that you send new HL7 disease case notifications through MVPS as soon as you have them. This will make the data available to the CDC programs sooner. You can always send updates as you receive more information on a case. Please note, however, that you should continue to transmit case notifications in legacy notification formats (NETSS, NBS master message, old HL7 case notification messages) on the same schedule you have used historically.

National Notifiable Diseases Surveillance System (NNDSS): The [National Notifiable Diseases Surveillance System](#) (NNDSS) is a nationwide collaboration that enables all levels of public health—local, state, territorial, federal, and international—to share notifiable disease-related health information. Public health uses this information to monitor, control, and prevent the occurrence and spread of state-reportable and nationally notifiable infectious and noninfectious diseases and conditions.

NNDSS is a multifaceted program that includes the surveillance system for collection, analysis, and sharing of health data. It also includes policies, laws, electronic messaging standards, people, partners, information systems, processes, and resources at the local, state, territorial, and national levels.

National Electronic Disease Surveillance System (NEDSS): Integrated surveillance information systems in reporting jurisdictions that are based on the [National Electronic Disease Surveillance System \(NEDSS\)](#) architectural standards are primary data sources for NNDSS. Jurisdictions use these information systems to create and send standards-based case notifications to CDC for NNDSS. Currently, case notifications can be sent using three different standards; CDC’s NNDSS Modernization Initiative will provide a single, new standard to transmit data to CDC.

NEDSS Base System (NBS): The [NEDSS Base System](#) is a CDC-developed integrated information system that helps local, state, and territorial public health departments manage reportable disease data and send notifiable disease data to CDC. NBS provides a tool to support the public health investigation workflow and to process, analyze, and share disease-related health information. NBS also provides reporting jurisdictions with a NEDSS-compatible information system to transfer epidemiologic, laboratory, and clinical data efficiently and securely over the Internet.

National Electronic Telecommunications System for Surveillance (NETSS):

Before CDC developed the NEDSS standards, CDC developed and implemented the National Electronic Telecommunications System for Surveillance. The term *NETSS* refers to a computerized public health surveillance information system that allowed health jurisdictions to collect and transmit weekly data regarding nationally notifiable diseases to CDC. Although this system is no longer in use, the term is still used to refer to a proprietary data file format sent to CDC. A bare-bones approach for providing basic data and information, the NETSS file content has not been updated substantially since it was launched in 1990. Although all jurisdictions currently use more robust, integrated surveillance information systems that comply with the NEDSS standards, the NETSS format is still used for transmission of some surveillance data to CDC.

Although the NETSS file format has changed little since 1990, the NEDSS standards are flexible enough to be updated as healthcare and technology evolve. For this reason, NEDSS-compatible systems, including the [NEDSS Base System](#), allow health departments to adapt to changes in laboratory tests and vaccinations, automate data processing, and receive reportable disease data electronically from laboratories and other disease reporters.

Message Validation, Processing, and Provisioning System (MVPS): [MVPS](#) is software that validates and processes nationally notifiable disease data messages sent by jurisdictions and provisions the data to the CDC programs.

MVPS provides several benefits to jurisdictions and CDC programs:

- MVPS is reducing the number of systems processing data at CDC and allows for streamlined message processing from jurisdictions to CDC.
- MVPS standardizes data processed at CDC.
- MVPS allows CDC programs to receive, process, store, access, share, and analyze health-related data, including electronic health record data, to further the agency's public health goals.
- Through the MVPS Dashboard, the system provides submitting jurisdictions the ability to view the data they have submitted and identify data quality issues.

Have a question about the NNDSS Modernization Initiative that is not answered here? Please send your question to edx@cdc.gov for consideration.