

# 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 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, local, and territorial (SLT) agencies;
2. accelerate the utilization of emerging tools and approaches to improve the availability, quality, and timeliness of surveillance data; and
3. 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 now has the opportunity to strengthen and modernize the infrastructure supporting the National Notifiable Diseases Surveillance System. As part of the CDC Surveillance Strategy, the NNDSS Modernization Initiative is underway to enhance the system’s surveillance capabilities to provide more comprehensive, timely, and higher quality data than ever before for public health decision making. Through this multi-year initiative, CDC seeks to increase 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 health information to monitor, control, and prevent the occurrence and spread of state-reportable and nationally notifiable infectious and some 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, and national levels.

The system is supported and used by numerous stakeholders to monitor the health effects of the reportable conditions in communities, measure trends, identify populations or geographic areas at high risk, plan prevention and control programs and policies, allocate public health resources appropriately, and evaluate the effectiveness of public health programs and policies.

The Division of Health Informatics and Surveillance (DHIS) in the CDC Center for Surveillance, Epidemiology, and Laboratory Services (CSELS) supports parts of NNDSS by

- receiving and securing certain infectious diseases data;
- provisioning it to surveillance programs in the National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), National Center for Immunization and Respiratory Diseases (NCIRD), and Center for Global Health (CGH); and
- publishing and releasing summary data.

DHIS also supports state, local, and territorial health departments in collecting, managing, and analyzing their data and in submitting case notification data to CDC for NNDSS by providing funding, health information exchange standards and frameworks, electronic health information systems, and technical support.

CDC programs in NCEZID, NCHHSTP, NCIRD, and CGH that are responsible for national surveillance, prevention, and control of infectious conditions collaborate with the Council of State and Territorial Epidemiologists (CSTE) to determine which conditions reported to the jurisdictions are nationally notifiable. The CDC programs, in collaboration with subject matter experts (SMEs) in CSTE and in jurisdictions, determine what data elements are included in national notifications. Jurisdictions submit notifications to surveillance systems in NCEZID, NCHHSTP, NCIRD, and CGH in addition to submitting data to DHIS information systems.

**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 disease case notification. The NMI team also is working with CSTE and the Association of Public Health Laboratories (APHL) to gain their expertise, insight, and assistance to implement HL7 case notification messages in jurisdictions.

**Q: What are the key components of NMI?**

**A:** NMI has three key components:

1. development of prioritized Message Mapping Guides for case notification;
2. development of the Message Validation, Processing, and Provisioning System (MVSPS), a component of the broader, envisioned CDC Platform (CDCP); 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 January 2014 and is planned for several years with short-term deliverables in the first phase and long-term activities in the following years.

**Q: What is the primary NMI short-term deliverable?**

**A:** In the first phase of NMI, CDC's sexually transmitted diseases (STD), hepatitis, mumps, and pertussis programs are expected to receive timely, complete, and high-quality data from certain jurisdictions through the MVPS. When this important milestone is achieved, CDC will increase the number of conditions and jurisdictions using the MVPS for NNDSS as well as develop new MMGs for case notifications.

**Q: What are the longer term activities for NMI?**

**A:** Longer term NMI activities include the following:

- Continue development of MMGs and implementation of HL7 case notification messages.
- Implement and enhance the MVPS, including developing and implementing other services and components of the MVPS.
- Ensure standards and harmonization.

- Retire the National Electronic Telecommunications System for Surveillance (NETSS).
- Determine future direction of the National Electronic Disease Surveillance System (NEDSS) Base System (NBS).

## MESSAGE MAPPING GUIDE QUESTIONS

### MMG DEVELOPMENT QUESTIONS

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

**A:** CDC is developing new Message Mapping Guides to support 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 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) 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 worked with subject matter experts in CDC programs to prioritize six MMGs for development for the first phase of this initiative. They address the generic data elements that will be included in all messages as well as the disease-specific data elements for STD, Hepatitis, Congenital Syphilis, Pertussis, and Mumps. They were selected because these diseases either cover a large volume of data in NNDSS or were identified as high-priority conditions.

**Q: What is the development process for these six MMGs?**

**A:** The development of any Message Mapping Guide is a collaborative process that involves multiple teams, both internal and external to CDC. Internal teams include the NNDSS team,

messaging and vocabulary team, MVPS team, state implementation team, Public Health Information Network (PHIN) Certification team, and CDC programs. External groups include health jurisdictions, CSTE, and APHL.

CDC deliverables include the Message Mapping Guide, business rules (BRs) for processing data by the MVPS, test case scenarios, HL7 test messages, and an optional annotated case report form.

The steps in the process of MMG development are

1. initiation,
2. requirements analysis,
3. message design and development (part 1: construct MMG),
4. message design and development (part 2: work with CDC SMEs to ready draft MMG for external feedback),
5. message design and development (part 3: solicit and address external feedback, develop test-ready MMG, BRs, test scenarios, HL7 messages, etc.),
6. content and application development and technical testing,
7. pilot testing and user acceptance testing, and
8. implementation of the HL7 case notification message.

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

**A:** Due to a variety of 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:** MMGs that are under development—but not finalized—are posted to the NNDSS Draft Message Mapping Guides Web site at <http://www.cdc.gov/nndss/message-mapping-guides.html>.

SLT public health surveillance staff have an opportunity to review and comment on each draft MMG when it is open for comment for 6 weeks on the draft MMG Web site. MMGs that have been reconciled with the feedback from their open comment periods are also posted to the draft MMG Web site. In addition, versions of MMGs that are pilot-test ready are posted to the draft MMG Web site.

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

The Notifiable Events and Notification Mechanisms document at <http://www.cdc.gov/nndss/document/NotifiableEventsandNotificationMechanisms.xlsx> should be used by jurisdictions implementing HL7 case notification messages to identify 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: CDC is assessing which conditions in the NBS master message have additional disease-specific data elements that are being sent to CDC and should not be transitioned to Generic v2 until a disease-specific MMG can be developed. When the assessment is complete, guidance will be issued for NBS jurisdictions and will be inserted into the Notifiable Events and Notification Mechanisms document.

The “Event Codes” worksheet in this document 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.

**Q: What is the timeline for updating the Varicella and Arboviral disease MMGs to be compliant with the Generic v2 MMG?**

**A:** CDC soon will begin discussions with CSTE to prioritize transitioning existing MMGs, such as the Varicella and Arboviral MMGs, to the new format for MMGs—using the Generic v2 MMG with a disease-specific MMG. Timelines will be developed after decisions are made about which MMGs to prioritize next.

**Q: Once jurisdictions have completed the implementation of the six priority HL7 case notification messages, should they work on implementing the Arboviral and Varicella messages in their current versions?**

**A:** If jurisdictions are already working on implementing the Arboviral v1.2 (July 2012) and Varicella 2.01 (February 2010) messages, CDC suggests that they continue. However, jurisdictions who have not started may want to consider waiting. The guides may need to be revised due to the transition to Generic v2, and CDC does not want to increase the burden on jurisdictions. CDC is currently working to determine what MMGs will be developed next.

**Q: What MMGs will be developed after the first six?**

**A:** The identification and prioritization of the next MMGs to be developed is a collaborative process among CSELS, the DHIS NMI team, OID, and CSTE. The next conditions that are ready for MMG development are being assessed at this time.

DATA EXCHANGE/SUBMISSION QUESTIONS

**Q: Are all elements of the Generic v2 MMG required? Can jurisdictions continue to submit information in the Generic v1 MMG?**

**A:** No, all the data elements in Generic v2 are not required. The draft Generic v2 MMG is available on the Draft Message Mapping Guide Web site at <http://wwwn.cdc.gov/nndss/message-mapping-guides.html>. On the “PHIN Variable IDs” worksheet of the Generic v2 MMG, the column named “CDC Priority” includes information about whether CDC considers the listed data element required, preferred, or optional to send in a case notification from the CDC surveillance program perspective. Both preferred and optional variables are considered optional. However, CDC preferred variables are the most important of the optional variables to be earmarked for CDC analysis and assessment. The column named “HL7 Optionality” indicates whether the listed data element is required for the HL7 message, is required but can be left empty, or is optional for the HL7 message.

For a period of time, Generic v1 can be submitted. However, CDC prefers to transition all jurisdictions to Generic v2 and encourages jurisdictions to transition as soon as possible because of the new variables in Generic v2 that are important for notifiable disease surveillance use.

**Q: Should all diseases be sent by using the Generic v2 MMG? If there are additional supplemental data (such as for varicella or mumps and pertussis when those MMGs are released), would jurisdictions send cases by using the Generic v2 MMG and a supplemental MMG?**

**A:** Eventually, the Generic v2 MMG will be used with all nationally notifiable conditions. However, for conditions that currently have disease-specific data being sent to CDC through NETSS, data cannot be sent by using the Generic v2 MMG until there is a disease-specific MMG to use for the complete case notification. In the future, the published disease-specific HL7 MMGs on the PHIN Guide Web site at <http://www.cdc.gov/phin/resources/mmghomepagecasenotification.html> and <http://www.cdc.gov/phin/resources/PHINguides.html> for notifiable disease case notification will be modified to remove the Generic variables and to enable them to be used with Generic v2.

Jurisdictions should send only the diseases that do not have NETSS extended data through Generic v2 until a disease-specific MMG is ready for adoption. The Notifiable Events and Notification Mechanisms document at <http://wwwn.cdc.gov/nndss/document/NotifiableEventsandNotificationMechanisms.xlsx> should be used to identify how data should be sent to CDC during the transition to Generic v2 and the new HL7 MMGs.

NOTE: CDC is assessing which conditions in the NBS master message have additional disease-specific data elements that are being sent to CDC and should not be transitioned to Generic v2 until a disease-specific MMG can be developed. When the assessment is complete, guidance will be issued for NBS jurisdictions and will be inserted into the Notifiable Events and Notification Mechanisms document.

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

**A:** The STD MMG must be used with the Generic v2 MMG. Jurisdictions should not send HL7 TB messages with Generic v2 data elements until the TB MMG is updated to remove the generic variables and CDC is ready for jurisdictions to send the revised TB MMG with the Generic v2 MMG.

**Q: What will reconciliation look like?**

**A:** A key component of the MVPS is the implementation of acknowledgement messages back to jurisdictions confirming receipt and parsing of messages. There also will be a dashboard that summarizes data sent by jurisdictions, including the details of messages received and processed by CDC, as well as any warnings and errors. As a result, instead of a yearly reconciliation process, jurisdictions will be able to self-reconcile 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; however, program-specific needs may necessitate the use of various formats. NMI is one part of the CDC Surveillance Strategy, which is designed to facilitate work to consolidate systems, eliminate unnecessary redundancies in reporting, and reduce reporting burden across the agency.

**Q: How long will jurisdictions be expected to send duplicate feeds (old way plus new way) and how will the validation process work?**

**A:** The period of time where jurisdictions may need to send duplicate feeds will vary by jurisdiction. Jurisdictions will need to develop plans for retiring the old feeds, and CDC can provide technical assistance to help with the development of those plans.

There will be three types of validation: structural, business rule (warnings, fatal errors, across-variable checks), and content. MVPS capabilities will allow states to identify notifications that have not been received and reconcile message counts through a dashboard.

## MESSAGE VALIDATION, PROCESSING, AND PROVISIONING SYSTEM QUESTIONS

**Q: What is the MVPS?**

**A:** The MVPS, or Message Validation, Processing, and Provisioning System, is a software solution that will validate and process nationally notifiable disease (NND) data messages sent by jurisdictions and provision the data to the CDC programs.

**Q: Why is the MVPS needed?**

**A:** The MVPS will allow CDC to receive NND data from jurisdictions, process them, and provision them to CDC programs. The MVPS will provide several benefits to jurisdictions and CDC programs:

- The MVPS will reduce the number of systems processing data at CDC and allow for streamlined message processing from jurisdictions to CDC.
- The MVPS will standardize the data processed at CDC.
- The MVPS aims to increase availability of data elements to CDC programs. Through the use of HL7 standards, the MVPS can increase the amount of data available to programs, thus increasing the granularity of data analysis. These HL7 formats include more data elements and more detailed data elements than formats such as NETSS or other flat files.
- The MVPS will provide a Message Monitoring Dashboard that will allow jurisdictions to identify notifications that have been received by MVPS and perform near real-time reconciliation of message counts sent to and received by MVPS.

**Q: How is the MVPS connected to the CDC Platform?**

**A:** The MVPS is anticipated to be a component of the CDC Platform, a broader concept that CDC has envisioned to expand public health shared services and enhance reporting and analytics at CDC for public health surveillance. The development of the CDCP is expected to occur over several years in several phases and will undergo further definition at a future date.

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

**A:** The [National Notifiable Diseases Surveillance System \(NNDSS\)](#) is a multifaceted program that includes the surveillance system for collection, analysis, and sharing of health data and also policies, laws, electronic messaging standards, people, partners, information systems, processes, and resources at the local, state, and national levels. NNDSS is a nationwide collaboration that enables all levels of public health (local, state, territorial, federal, and international) to share health information to monitor, control, and prevent the occurrence and spread of state-reportable and nationally notifiable infectious and some noninfectious diseases and conditions.

The [National Electronic Disease Surveillance System \(NEDSS\)](#) is a key component of NNDSS. NEDSS provides data and IT standards, support, and leadership to state, local, and territorial health departments. These health departments provide CDC with data on nationally notifiable diseases and conditions.

The [National Electronic Disease Surveillance System \(NEDSS\) Base System \(NBS\)](#) provides jurisdictions with a NEDSS-compatible information system to transfer health, laboratory, and clinical data efficiently and securely over the Internet. NBS also provides public health authorities with a tool for processing, analyzing, and sharing data they receive.

CDC will replace the existing NNDSS messaging infrastructure, but not the NNDSS program, with a data validation, processing, and provisioning system—the MVPS—that facilitates the receipt

and distribution of notifiable disease data. States will implement HL7 case notification messages; 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 provided to CDC programs. During the first phase of NMI, notifiable disease data messages for the currently prioritized conditions (STDs, Hepatitis, Mumps, Pertussis, Generic, and Congenital Syphilis) will be processed in the MVPS.

**Q: What is the scope and technology of the MVPS?**

**A:** The MVPS is a CDC-built and operated data validation, processing, and provisioning system. To be successful, the MVPS must validate and process NND messages sent by jurisdictions, provide a Message Monitoring Dashboard, and provision NND data to CDC.

The MVPS technology includes

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

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

**A:** The MVPS will provision data to the individual CDC programs, and user access to those data will be determined by condition. Various options will be available over time, but, initially, data will be provided through SQL Server tables and views.

**Q: What is data provisioning?**

**A:** Data provisioning refers to the processes by which surveillance data received through the NNDSS are delivered 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, views, and stored procedures) that will be used to store the data and make them available to programs for analysis and reporting.

**Q: Will the MVPS address NETSS, NBS, and HL7 data streams separately?**

**A:** No, the MVPS will not address NETSS, NBS, and HL7 data streams separately. To reduce redundancy of effort, increase efficiency, and enhance effectiveness of limited resources, all work by the MVPS team will be consolidated for NETSS, NBS, and HL7. The MVPS team will address data provisioning requirements, code mapping, and structuring for all three formats (NETSS, NBS, and HL7) simultaneously. The MVPS team will analyze how the HL7 data stream relates to the NETSS and NBS data streams on a variable-by-variable basis to provision all three types of data in a relational table view and a NETSS view.

Data provisioning will not occur for the MVPS NETSS view (to include data from NETSS, NBS, and HL7 data streams) until the MVPS team is ready to provision the relational table view (to include NETSS, NBS, and HL7 data streams). There will not be a separate data feed for NBS data

nor will there be an NBS data view. The NBS data will be translated into both the NETSS view and relational table view. CDC programs will receive NBS data as specified in the final MMGs in NETSS and HL7 data provisioning formats via database views.

**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 then develops processes to extract the data from the HL7 message and perform any needed validations. The MVPS team develops additional processes to perform any needed data transformations and to populate the data into tables that are accessible by CDC programs for analysis.

The MVPS team also develops a message processing requirements package that is provided to the MVPS development contractor. Once an MMG is completed and MVPS efforts for a condition are initiated, the MVPS team finalizes a message processing requirements package and a data provisioning requirements package for each condition.

**Q: What is the CDC Message Evaluation and Testing Service and why is it needed?**

**A:** The CDC Message Evaluation and Testing Service (METS) will serve as a common message validation service to assist jurisdictions in preparing and sending messages to CDC as defined by the applicable messaging, vocabulary, and programmatic standards. Specifically, METS allows jurisdictions to evaluate their test messages as they develop their systems to send messages to CDC, ensuring that their systems are generating messages that conform to the proper message type structure, business rules, and content.

**Q: What is the MVPS Message Monitoring Dashboard?**

**A:** The MVPS Message Monitoring Dashboard is a component of the MVPS that summarizes data sent by jurisdictions, including the details of messages received and processed by CDC, as well as warnings of messages that were submitted by jurisdictions but not received by MVPS. As a result, jurisdictions and programs will be able to reproduce counts within *Morbidity and Mortality Weekly Report (MMWR)* tables, track case counts included within *MMWR* tables, and perform near real-time reconciliation of message counts throughout the year.

**Q: What is the time frame for development of the MVPS?**

**A:** The MVPS will be developed incrementally:

- Phase I – Develop and implement MVPS in the CDC data center.
  - Develop MVPS capabilities.
  - Initiate pilot beta testing and implementation.
  - Execute phased implementation of MVPS.
- Phase II – Establish a more robust infrastructure.
  - Implement authentication capabilities.
  - Implement authorization capabilities.
  - Define enterprise service bus architecture.

- Phase III – Enhance MVPS.
  - Continue development of condition-specific processing.
  - Enhance MVPS Message Monitoring Dashboard capabilities.
- Phase IV – Enhance reporting and analytics.
- Phase V – Identify standard shared services.

Phase I of the MVPS development will be considered complete when messages for the currently prioritized conditions (STDs, Hepatitis, Mumps, Pertussis, Generic, and Congenital Syphilis) are processed in the MVPS and successfully provisioned to the appropriate CDC programs that use the data.

The time frame for future phases will be determined as the work of Phase I progresses.

**Q: What is the Public Health Community Platform and how is the MVPS applicable to it?**

**A:** The proposed Public Health Community Platform (PHCP) is part of CDC’s long-term vision for a shared public health platform with analysis tools that would integrate the flow of health data to and from CDC; SLT public health agencies; and other public health partners to enhance the decision making of public health leaders. The CDC Platform and the PHCP would be the two components of the proposed shared public health platform. MVPS is a system that would eventually evolve to a suite of services that may reside on the proposed shared public health platform.

**RETIREMENT OF THE LEGACY NNDSS PORTFOLIO QUESTIONS**

**Q: Will the MVPS supersede NNDSS?**

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

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

**A:** NETSS will be used until appropriate alternatives for certain disease-specific reporting are in place and NETSS can be retired. NETSS retirement is an NMI priority and long-term goal.

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

**A:** The NMI team has determined a transition plan for the initial pilot site, Michigan, and will use lessons learned from this pilot to develop an overall plan to transition from legacy data streams to the MVPS. The strategy will be built around the understanding that jurisdictions will implement the new messages at different times and different rates and that the CDC programs will need ongoing access to data from all the jurisdictions. Once a transition plan has been finalized, the NMI team will share it with both the jurisdictions and the CDC programs.

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

**A:** NETSS retirement is a long-term NMI priority. A definitive date is not available at this time, and CDC will provide that information as NMI evolves.

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

**A:** The DMB information system is expected to be succeeded by the MVPS information system. It is expected that all current viable functionality within DMB will be preserved or enhanced as part of the transition through rigorous user acceptance and quality assurance testing by the CDC programs. Upon successful transition from DMB to MVPS, the legacy DMB information system will be retired.

## TECHNICAL ASSISTANCE QUESTIONS

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

**A:** During the initial pilot, CDC is partnering with CSTE and APHL to provide technical assistance to certain state and local jurisdictions to implement the initial six HL7 case notification messages. Through this NMI Technical Assistance Coordination Team, CDC and its partners will help jurisdictions adopt the MMGs and use them to send test case notification messages to the 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, will provide direct technical assistance and training in the form of webinars, online technical guides, and other training materials to support implementation for all jurisdictions.

## JURISDICTION SELECTION QUESTIONS

**Q: What jurisdiction is serving as the initial pilot site for NMI?**

**A:** To ensure a smooth and translatable technical assistance approach with all pilot jurisdictions, the NMI Technical Assistance Coordination Team is working with a single jurisdiction, Michigan, as the initial pilot site for the NMI TA project. In addition, the NMI Technical Assistance Coordination Team continues to reach out to other pilot jurisdictions to begin the preliminary steps required for implementation.

**Q: How will jurisdictions be selected for the pilot phase of NMI?**

**A:** The DHIS NMI team worked with CDC programs and CSTE to identify the jurisdictions who will pilot the MMGs and technical assistance process after beta testing with Michigan. These jurisdictions were selected by using several criteria, including a jurisdiction's technical capability, readiness to participate, scalability of solutions, and lessons learned that can be used in other jurisdictions.

**Q: Can other jurisdictions participate in NMI?**

**A:** Yes, all jurisdictions will have the opportunity to participate after the pilots. The requirement to implement HL7 case notification messages, starting with the priority guides, and the availability to request technical assistance are both in the Epidemiology and Laboratory

Capacity for Infectious Diseases (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: Will jurisdictions that use NBS be able to participate in NMI?**

**A:** Jurisdictions using NBS will be able to participate in the NMI pilot phases by using the Generic v2, hepatitis, and STD MMGs page builder templates that will be provided by CDC. In addition, jurisdictions that use NBS will be able to pilot Congenital Syphilis, Pertussis, or Mumps MMGs by using the NBS Generic v2 template as the basis and creating the disease-specific pages that map to each MMG with support from the NBS vendor and through technical assistance.

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

**A:** After the initial phase of NMI, all jurisdictions will be invited to adopt the MMGs and send case notification messages to CDC through the MVPS.

**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 participating in the new 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.

**FUNDING/COOPERATIVE AGREEMENT QUESTIONS**

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

**A:** No. The state implementation part of NMI, which includes technical assistance, 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, 2015)?**

**A:** The first year of the ELC Cooperative Agreement will focus on working with pilot jurisdictions to test the implementation of the HL7 case notification messages and the ability of the MVPS to receive, store, and process the data. The NMI team anticipates that minor changes will be made to the MMGs during the pilot process. Once each MMG is finalized, jurisdictions will be able to request technical assistance, if needed, and begin implementation of the HL7 case notification messages.

**Q: How is NMI tied to the Public Health Emergency Preparedness (PHEP) activities?**

**A:** The NMI objective of providing more comprehensive, timely, and higher quality data for public health decision making fits closely with PHEP capabilities for improving public health surveillance and epidemiological investigation and sharing information with federal, state, and local partners.

**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 transition to include updates on HL7 case notification message implementation. Additional details regarding monitoring and lessons learned activities will be provided at a later date.

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

**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.

**Q: How will success in the NMI effort be measured for grantees?**

**A:** Grantees will identify a realistic number of priority HL7 case notification messages that they will implement in 2014–2016 and, by using these messages, successfully transmit associated notifiable diseases data to CDC.

GENERAL TECHNICAL ASSISTANCE QUESTIONS

**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 on the use of integration engines to enhance in-house capability for managing infrastructure used to send case notifications to CDC based upon MMGs.

**Q: How do I submit a technical assistance request?**

**A:** A jurisdiction may request onsite technical assistance by sending an e-mail to [EDX@cdc.gov](mailto:EDX@cdc.gov) and including the following information:

- type(s) of assistance needed,
- identification of the guide (Generic v2, STD, Congenital Syphilis, Hepatitis, Mumps, and Pertussis), and
- primary point of contact and contact information.

**Q: Is technical assistance system dependent?**

**A:** For HL7 case notification message implementation, jurisdictions using NBS will receive technical assistance from CDC’s NBS vendor contractor. Jurisdictions that do not use NBS will receive technical assistance from APHL in coordination with CSTE.

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

**A:** No, there is no cost for technical assistance. All jurisdictions can request funding to support the implementation of HL7 case notification messages as part of the ELC Cooperative Agreement, Section C. When technical assistance is requested, jurisdictions will be prioritized based on their readiness and ability to conduct HL7 case notification message implementation activities.

USER ACCEPTANCE TESTING QUESTIONS

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

**A:** User acceptance testing will be coordinated among the jurisdictions, CDC programs, NMI Technical Assistance Coordination Team, and MVPS team.

Six MMGs (Generic v2, STD, Congenital Syphilis, Hepatitis, Mumps, and Pertussis) have been prioritized, and each has an associated UAT timeframe for testing on the MVPS. The MVPS team will work with the NMI Technical Assistance Coordination Team to define time frames and support actual testing.

UAT is made up of three types of testing: 1) technical acceptance testing, 2) pilot testing with jurisdictions prior to and during onboarding, and 3) end-to-end testing, which includes provisioning data to CDC programs.

The initial testing will encompass validation testing at CDC. The next phase will require testing by CDC programs and jurisdictions prior to onboarding. Once pilot states are identified, have their updated software, and are ready to submit messages to CDC, CDC and jurisdictions will test data submitted through end-to-end testing. Specifically, states will submit data, the MVPS will process and provision data to the CDC programs, and the MVPS team will identify updates to the software as necessary.

## GLOSSARY OF TERMS

**National Notifiable Diseases Surveillance System (NNDSS):** 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 health information to monitor, control, and prevent the occurrence and spread of state-reportable and nationally notifiable infectious and some noninfectious diseases and conditions. NNDSS is a multifaceted program that includes the surveillance system for collection, analysis, and sharing of health data and also policies, laws, electronic messaging standards, people, partners, information systems, processes, and resources at the local, state, and national levels.

**National Electronic Disease Surveillance System (NEDSS):** A key component of NNDSS is the [National Electronic Disease Surveillance System](#). NEDSS provides data and information technology standards, support, and leadership to state, local, and territorial health departments. These health departments provide CDC with data on nationally notifiable diseases and conditions.

**NEDSS Base System (NBS):** The [National Electronic Disease Surveillance System Base System](#) is a CDC-built application that provides jurisdictions with a NEDSS-compatible information system to transfer health, laboratory, and clinical data efficiently and securely over the Internet. NBS also provides public health authorities with a tool for processing, analyzing, and sharing data they receive.

**National Electronic Telecommunications System for Surveillance (NETSS):** Before implementing NEDSS, CDC developed and used the National Electronic Telecommunications System for Surveillance. NETSS is a computerized public health surveillance information system that provides CDC with weekly data regarding nationally notifiable diseases. NETSS continues to be used by jurisdictions that are transitioning to the more robust NEDSS. A bare-bones approach for providing basic data and information, NETSS file content has not been changed or updated substantially since NETSS launched in 1990.

**Message Validation, Processing, and Provisioning System (MVPS):** The CDC MVPS is a software solution that will validate and process nationally notifiable disease data messages sent by jurisdictions and provision the data to the CDC programs.

The MVPS will provide several benefits to jurisdictions and CDC programs:

- The MVPS will reduce the number of systems processing data at CDC and allow for streamlined message processing from jurisdictions to CDC.
- The MVPS will standardize the data processed at CDC.
- The MVPS aims to increase availability of data elements to CDC programs. Through the use of HL7 standards, the MVPS can increase the amount of data available to programs, thus increasing the granularity of data analysis. These HL7 formats include more data

elements and more detailed data elements than formats such as NETSS or other flat files.

- The MVPS will provide a Message Monitoring Dashboard that will allow jurisdictions to identify notifications that have been received by MVPS and perform near real-time reconciliation of message counts sent to and received by MVPS.

The MVPS is anticipated to be a component of the CDC Platform (CDCP), a broader concept that CDC has envisioned to expand public health shared services and enhance reporting and analytics at CDC for public health surveillance. The development of the CDCP is expected to occur over several years in several phases and will undergo further definition at a future date.

*Have a question about the NNDSS Modernization Initiative that is not answered here? Please send your question to [edx@cdc.gov](mailto:edx@cdc.gov) for consideration.*