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.

Supporting Public Health Surveillance in Jurisdictions and at CDC

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, provisioning, and releasing nationally notifiable infectious diseases data to disease-specific CDC programs. DHIS also supports local, state, and territorial public health departments in collecting, managing, and analyzing their data and in submitting 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. Together, DHIS and the CDC programs prepare annual summaries of infectious and noninfectious diseases and conditions, which are published in the *Morbidity and Mortality Weekly Report*.

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 infectious disease data to DHIS and also submit some data directly to CDC programs.

**NNDSS Modernization Initiative**

With the evolution of technology and data and exchange standards, CDC now has the opportunity to strengthen and modernize the infrastructure supporting NNDSS. As part of the CDC Surveillance Strategy ([http://www.cdc.gov/surveillance/](http://www.cdc.gov/surveillance/)), the NNDSS Modernization Initiative (NMI) is underway to enhance 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 seeks to increase the robustness of the NNDSS technological infrastructure so that it is based on interoperable, standardized data and exchange mechanisms.
National Electronic Disease Surveillance System

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

NEDSS is used to support

- reportable disease surveillance by improving information sharing between healthcare providers and health departments and between health departments and CDC and
- electronic laboratory reporting as part of the Meaningful Use initiative to improve public health disease reporting.

Connecting the Healthcare System to Public Health

By encouraging the use of standards in public health surveillance systems and helping to support these systems, NEDSS helps public health agencies accept the electronic transfer of public health surveillance data from the healthcare system to public health departments. When local, state, and territorial public health departments voluntarily submit notifiable disease surveillance data electronically to CDC, they use data standards and electronic disease information systems and resources supported in part by NEDSS.

NEDSS helps connect the healthcare system to public health departments and those health departments to CDC by

- providing leadership and resources to local, state, and territorial public health departments to adopt standards-based systems needed to support national disease surveillance strategy;
- defining the content—such as disease diagnosis, risk factor information, lab confirmation results, and patient demographics—of data messages sent by using the Health Level Seven (HL7) messaging standard;
- implementing content standards that the healthcare industry currently uses (for example, LOINC as the standard for transmitting laboratory test names and SNOMED as the standard for transmitting test results) for increased interoperability between public health departments and the healthcare industry; and
- providing the NEDSS Base System (NBS), a CDC-developed information system, to help reporting jurisdictions manage reportable disease data and send notifiable diseases data to CDC.

Every state uses or is adopting a NEDSS-compatible system to send notifiable disease surveillance data to NNDSS.

NEDSS Base System

The NEDSS Base System provides the local, state, and territorial public health departments that have adopted it 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.

Built and maintained by CDC, NBS can integrate data on multiple health conditions and multiple patients to help local, state, and territorial public health officials identify and track multiple diseases, even if they are affecting the same patient.

NBS helps local, state, and territorial public health departments use NEDSS standards when sending information to CDC about notifiable diseases and conditions.

NBS capabilities also help to increase the adoption of public health standards—including vocabulary standards such as LOINC, SNOMED, and RXNORM and messaging standards such as HL7—by providing best practices in implementing public health standards and interoperability used by health departments.

Currently, 22 health departments—19 states; Washington, DC; Guam; and U.S. Virgin Islands—use NBS to transfer general communicable disease surveillance data to CDC.

For more information, please access the NNDSS Web site at http://www.cdc.gov/nndss/.