

# National Notifiable Diseases Surveillance System

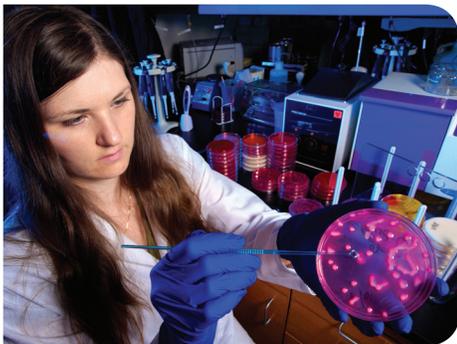
To protect Americans from serious disease, the National Notifiable Diseases Surveillance System (NNDSS) helps public health monitor, control, and prevent about 120 diseases. These diseases are important to monitor nationwide and include infectious diseases such as Zika, foodborne outbreaks such as *E. coli*, and noninfectious conditions such as lead poisoning. About 3,000 public health departments gather and use data on these diseases to protect their local communities. Through NNDSS, CDC receives and uses these data to keep people healthy and defend America from health threats.

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.



**NNDSS**  
National Notifiable Diseases  
Surveillance System

## 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.

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 recognition of outbreaks, monitoring of shifts in disease patterns, and evaluation of disease control activities.

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.

### CDC programs responsible for national surveillance, prevention, and control of infectious and noninfectious conditions

- 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)
- National Institute for Occupational Safety and Health (NIOSH)

## NNDSS Modernization Initiative

With the evolution of technology and data and exchange standards, CDC is strengthening and modernizing the infrastructure supporting NNDSS. As part of the CDC Surveillance Strategy (<http://www.cdc.gov/surveillance/>), the NNDSS Modernization Initiative (NMI) 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.



U.S. Department of  
Health and Human Services  
Centers for Disease  
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## NNDSS Data Sources and Reporting

Integrated surveillance information systems in public health departments are primary sources of data for NNDSS. These systems are based on the National Electronic Disease Surveillance System (NEDSS) architectural standards. By encouraging the use of and helping to support standards-based public health surveillance systems, NEDSS helps public health agencies accept electronic data exchanges from healthcare systems and enables health departments to create and send standards-based case notifications to CDC for NNDSS. Currently, jurisdictions can send case notifications by using different standards; NMI is working to provide a single, standardized message format to transmit data to CDC.

### Connecting the Healthcare System to Public Health



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

- defining the content (i.e., disease diagnosis, risk factor information, lab confirmation results, and patient demographics) of messages sent 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, SNOMED as the standard for transmitting test results, and RXNORM as the standard for transmitting medication information) for increased interoperability between public health departments and the healthcare industry;
- providing leadership and resources to state and local public health departments to maintain and improve standards-based systems needed to support national disease surveillance strategy; 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.

### 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.

Built and maintained by CDC, NBS integrates data from many sources on multiple public health conditions to help local, state, and territorial public health officials identify and track cases of disease over time. This capability allows public health to provide appropriate interventions to help limit the severity and spread of disease.

NBS facilitates the adoption of national consensus standards used across public health and healthcare—including vocabulary standards such as LOINC, SNOMED, and RXNORM and messaging standards such as HL7—and helps local, state, and territorial public health departments use standards when sending information to CDC about notifiable diseases and conditions.

To date, 22 health departments (19 states; Washington, DC; Guam; and U.S. Virgin Islands) use NBS to manage public health investigations and transfer general communicable disease surveillance data to CDC.

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