A National Framework for Respiratory Virus Surveillance in the United States

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PURPOSE

The 2026 National Framework for Respiratory Virus Surveillance establishes a unified national approach to detect and track respiratory viruses and deliver timely, actionable information that guides public health decisions. The framework represents a national commitment to preparedness and partnership by aligning the efforts of federal, state, Tribal, local, and territorial public health partners across the respiratory virus surveillance ecosystem. The systems included in this framework are informed by both traditional and novel data sources, from laboratory and healthcare networks to wastewater and genomic monitoring that augment respiratory virus public health surveillance nationwide. It also emphasizes principles of data streamlining, transparency, and gap closures to readily address emerging pathogens and adapt to evolving needs. The framework positions the United States to detect emerging threats sooner, respond more effectively, and build lasting resilience against current and future respiratory virus threats.

INTRODUCTION

Respiratory viruses constantly evolve, creating the potential for outbreaks or pandemics or the ability to cause more severe or widespread infections. Without robust public health surveillance, these threats may spread undetected until they cause serious illness, strain healthcare systems, and disrupt communities and the economy. To mitigate these impacts, domestic surveillance systems are built and maintained to rapidly identify viral changes or new strains, track emerging threats, monitor illness spread and seasonal epidemics, evaluate disease severity and affected populations, and measure the effectiveness of prevention strategies. These systems are also leveraged in response to outbreaks and public health emergencies.

Respiratory virus surveillance in the United States depends on strong collaborations among the Centers for Disease Control and Prevention (CDC), other federal partners, and state, Tribal, local, and territorial (STLT) health departments, including public health laboratories. Collaborative partnerships also include clinical laboratories, healthcare providers and facilities, wastewater and environmental agencies, and communities. The framework's guiding principles include fostering partnerships to address needs across sectors and communities, leveraging data to drive policy that improves the health and well-being of all Americans, streamlining reporting processes to enhance efficiency across the surveillance ecosystem, promoting open data access to empower decision-making and action, and closing surveillance gaps to ensure comprehensive coverage in every community.

In 2024, the Council of State and Territorial Epidemiologists (CSTE) highlighted the urgent need for an integrated national surveillance strategy to monitor and respond to COVID-19, influenza viruses, respiratory syncytial virus (RSV), and other respiratory viruses. To harmonize and strengthen domestic surveillance, the 2026 National Framework for Respiratory Virus Surveillance prioritizes several critical areas that inform policy and direct action to save lives and protect against respiratory virus health threats in the United States. The **three overarching goals** are:

I. Identify emerging and re-emerging viruses using complete and timely characterization of circulating respiratory viruses and by monitoring trends in viral detections

II. Know where and in what populations disease is occurring and determine who is at risk of more severe outcomes by monitoring illnesses and clinical trends, including healthcare visits, hospitalizations, sequelae, and deaths

III. Inform action, prevent disease, and mitigate healthcare system strain by detecting outbreaks, unusual clinical manifestations, and illness surges in communities

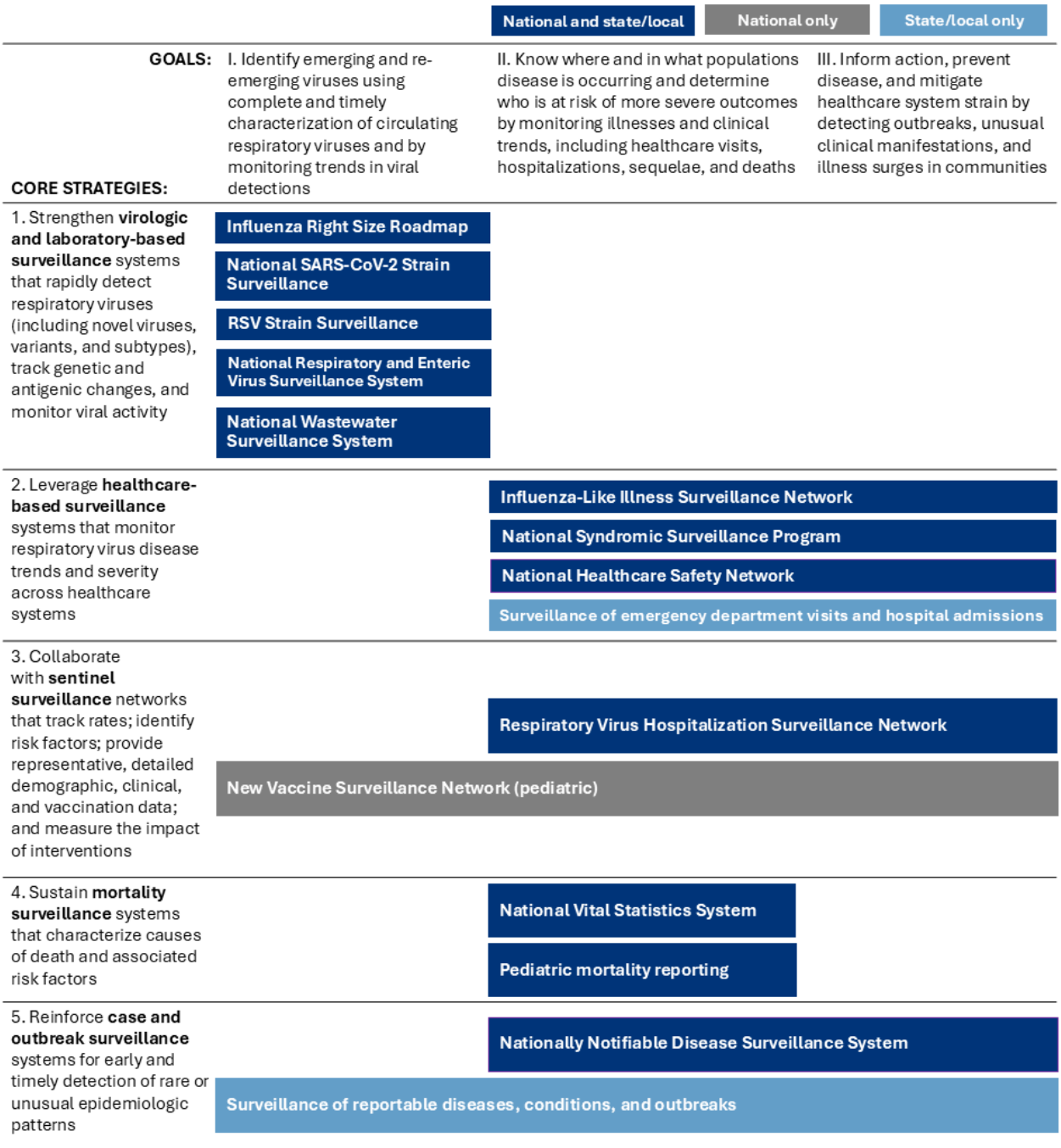
To achieve the surveillance goals of the national framework, five core strategies have been delineated. The national framework highlights key examples of surveillance systems and networks that exemplify the core strategies. However, implementation may vary for the different respiratory viruses and across national, state, and local levels. The **five core surveillance strategies** are:

- Strengthen **virologic and laboratory-based surveillance** systems that rapidly detect respiratory viruses (including novel viruses, variants, and subtypes), track genetic and antigenic changes, and monitor viral activity
- Leverage **healthcare-based surveillance** systems that monitor respiratory virus disease trends and severity across healthcare systems
- Collaborate with **sentinel surveillance** networks that track rates; identify risk factors; provide representative, detailed demographic, clinical, and vaccination data; and measure the impact of interventions
- Sustain **mortality surveillance** systems that characterize causes of death and associated risk factors
- Reinforce **case and outbreak surveillance** systems for early and timely detection of rare or unusual epidemiologic patterns

Each strategy plays a distinct role in building a comprehensive framework. Virologic and laboratory-based surveillance have two components, which focus on characterizing genetic and antigenic changes and monitoring virus activity over time. Other core strategies are designed to monitor patient characteristics and outcomes. These include healthcare-based systems that provide broad geographic coverage with timely but potentially less detailed data, while sentinel networks supply representative information with more robust clinical and epidemiological data. Mortality surveillance remains fundamental, as reducing preventable deaths is the highest priority. Case and outbreak surveillance is equally critical, offering opportunities for rapid detection, investigation, and mitigation to limit spread in communities. Some strategies and their associated surveillance systems may meet multiple goals (see **Figure 1**). Although key surveillance systems and programs are listed for each core strategy, health departments often have additional systems established to meet the specific needs of their populations.

While seasonal epidemics of respiratory viruses are continuously monitored with these five core strategies, surveillance also requires flexibility to adapt to unpredictable events and sustain coordination across diverse platforms and stakeholders. Together, the core strategies are integrated to form a standardized, coordinated, and flexible surveillance ecosystem that delivers timely, representative, and actionable data to guide prevention and response for protection of the public's health against emerging and ongoing respiratory virus threats.

Figure 1. National Framework for Respiratory Virus Surveillance



SURVEILLANCE GOALS AND CORE STRATEGIES

GOAL I. IDENTIFY EMERGING OR RE-EMERGING VIRUSES

Respiratory viruses circulate year-round, often following predictable seasonal patterns. Virologic surveillance provides critical insight into the types, subtypes, and lineages of circulating viruses and supports the early detection of viruses with pandemic or outbreak potential or the ability to cause more severe or widespread infections– an essential component of preparedness and response. Monitoring trends in respiratory virus activity provides an understanding of when, where, and in what populations viruses are circulating. Characterizing these viruses both virologically and epidemiologically helps evaluate the effectiveness of diagnostic tests, therapeutics, and vaccines to determine whether adjustments are needed. Understanding patterns of virus circulation also informs the timing and focus of prevention recommendations and supports healthcare community and public awareness of protective behaviors.

CORE STRATEGY: Strengthen virologic and laboratory-based surveillance systems that rapidly detect respiratory viruses (including novel viruses, variants, and subtypes), track genetic and antigenic changes, and monitor viral activity. This component of the strategy facilitates viral specimen submission and characterization through partnerships with clinical laboratories and state and local public health laboratories as well as facilitates reporting of testing data that originate from both patient and community sources.

- The Influenza Right Size Roadmap describes the essential components of effective, efficient and economical influenza virologic surveillance at both the federal and STLT levels. Optimal thresholds for vaccine strain selection, novel influenza virus detection, antiviral resistance, and situational awareness are described. Thresholds are used to determine the number of specimens that should be tested in public health labs and/or data needed from clinical or commercial laboratories to ensure adequate statistical confidence.
- The National SARS-CoV-2 Strain Surveillance (NS3) allows CDC and partners to rapidly identify new and emerging SARS-CoV-2 variants, monitor their spread, determine compatibility with existing diagnostics, and determine if variants have vaccine or therapeutic resistance or different clinical outcomes to inform vaccine updates (i.e., strain selection). Through NS3, CDC has a collection of representative SARS-CoV-2 specimens and sequences to characterize the virus and better inform public health decisions.

- **RSV Strain Surveillance** allows CDC, in collaboration with public health laboratories, to monitor circulating RSV types and determine if there are emergent, or therapeutic- or immunization-resistant strains.
- The National Respiratory and Enteric Virus Surveillance System (NREVSS) is a multi-pathogen, laboratory-based reporting network used by CDC programs and STLT epidemiologists to monitor viral activity and seasonality across the United States based primarily on tests performed for diagnostic purposes. NREVSS data contain weekly percent positivity, a surveillance metric, not only for influenza, RSV, and SARS-CoV-2 but also adenovirus, human coronaviruses, human metapneumovirus (hMPV), parainfluenza viruses (PIV), and rhino/enteroviruses.
- The National Wastewater Surveillance System (NWSS) is another multi-pathogen, laboratory-based reporting network used by CDC programs and STLT epidemiologists, which can supplement traditional surveillance methods and potentially provide early signal detections for some pathogens and some participating communities across the United States. NWSS provides weekly data on multiple viruses in wastewater, including SARS-CoV-2, influenza, RSV, and measles.

GOAL II. KNOW WHERE AND IN WHAT POPULATIONS DISEASE IS OCCURING AND DETERMINE WHO IS AT RISK FOR MORE SEVERE OUTCOMES

CORE STRATEGY: Leverage healthcare-based surveillance systems that monitor respiratory virus disease trends and severity across healthcare systems. This strategy aims to conduct disease surveillance in healthcare systems across the country to monitor burden.

- The **U.S. Outpatient Influenza-Like Illness Surveillance Network (ILINet)** monitors outpatient visits for respiratory illness that meets criteria for influenza-like illness (ILI): fever plus cough or sore throat. Participating providers report the number of visits for ILI and the total number of visits for any reason, by age group, to CDC weekly.
- The **National Syndromic Surveillance Program (NSSP)** uses near real-time data to support early detection of outbreaks by monitoring emergency department (ED) visit trends across the United States based on chief complaint and discharge diagnoses information. In some states, NSSP is also used as a data source for monitoring hospitalizations.
- The **National Healthcare Safety Network (NHSN)** collects data on newly admitted and currently hospitalized patients with a laboratory test positive for SARS-CoV-2, influenza, or RSV by age group to monitor severe disease and healthcare utilization across the United States. As of November 1, 2024, all U.S. acute care and critical access hospitals are required, as a Centers for Medicare & Medicaid Services (CMS) Condition of Participation, to report weekly data to NHSN's Hospital Respiratory Data (HRD) Module. Similarly, NHSN also monitors laboratory-confirmed SARS-COV-2, influenza, and RSV in nursing homes, skilled nursing, chronic care, and Intermediate Care Facilities for individuals with intellectual disability via a Long-term Care Facilities (LTCF) Component.
- **Surveillance of emergency department visits and hospital admissions** occurs at state and local levels and varies according to different needs and priorities. Increasingly, electronic health records data and health information exchanges are being leveraged for surveillance of healthcare encounters and associated data (e.g., immunization registries, electronic laboratory results). National systems (e.g., NSSP and NHSN) are also leveraged for state and local use.

CORE STRATEGY: Collaborate with sentinel surveillance networks that track rates; identify risk factors; provide representative, detailed demographic, clinical, and vaccination data; and measure the impact of interventions. This strategy aims to leverage public health and academic partnerships for more comprehensive surveillance of respiratory viruses across select representative catchment areas.

- The Respiratory Virus Hospitalization Surveillance Network (RESP-NET) is composed of three active, population-based healthcare surveillance networks that monitor weekly, cumulative, and stratified rates of laboratory-confirmed hospitalizations among persons of all ages associated with influenza (FluSurv-NET), COVID-19 (COVID-NET), and RSV (RSV-NET).
- The New Vaccine Surveillance Network (NVSN) conducts active, population-based respiratory virus surveillance in children <18 years old with medically attended acute respiratory illness (ARI) at seven US academic medical centers in hospital, emergency department, urgent care and outpatient clinic settings to monitor percent viral positivity, clinical and demographic risk factors, emergency department visit and hospitalization rates, and immunization effectiveness for multiple respiratory pathogens, including influenza, COVID-19, and RSV.

GOAL III. INFORM ACTION, PREVENT DISEASE, AND MITIGATE HEALTHCARE SYSTEM STRAIN

Case reporting and outbreak detection typically originate at state and local levels. In many jurisdictions, certain cases and outbreaks are reportable according to laws and regulations. Investigations into unexpected clusters or clinical outcomes, which can occur in high-risk settings and among vulnerable populations, are a high priority because of the immediate prevention opportunities.

CORE STRATEGY: Reinforce case and outbreak surveillance systems for early and timely detection of rare or unusual epidemiologic patterns. This strategy is primarily led by state, Tribal, local, and territorial partners.

- The Nationally Notifiable Disease Surveillance System (NNDSS) collects case surveillance data from across the United States. Novel influenza A virus infections, influenza-associated pediatric mortality, and COVID-19-associated pediatric mortality (as of 2026) are nationally notifiable. A nationally-standardized surveillance case definition for reporting multisystem inflammatory syndrome in children (MIS-C) has also been established. However, not all nationally notifiable diseases are reportable in all states, and some states may require reporting for diseases that are not nationally notifiable.
- **Surveillance of reportable diseases, conditions, and outbreaks** at the state and local levels is essential for detecting individual cases that could be of public health significance, including infections with emerging, re-emerging, or novel viruses or cases with severe or unusual clinical manifestations. All jurisdictions have laws that regulate disease reporting, but implementation of case reporting (including laboratory-reportable results) varies widely among states according to different surveillance needs and priorities. Outbreak detection typically follows from either direct reporting of an outbreak or from increases in case reporting, such as an unexpected increase or epidemiologically linked cluster, reporting of cases in a high-risk setting or population, or a single, unusual or severe case that warrants investigation by public health.

OTHER COMPLIMENTARY STRATEGIES

Although the core surveillance strategies used by state and federal partners are described above, there are several other complementary strategies that also support the overarching goals.

- **Global monitoring of respiratory virus activity** is essential to mitigate the risks of evolving threats through early identification of respiratory viruses that might be introduced into the United States. Strategies include Traveler-based Genomic Surveillance (TGS) at select U.S. international airports, tracking sequences in publicly available repositories GISAID and Genbank, and Epidemic Intelligence from Open Sources (EIOS) technology for 24/7 surveillance of media reports.
- **Community-based surveillance** is conducted by nearly all state and local health departments using diverse strategies. Examples include school-based surveillance (e.g., absenteeism), enhanced surveillance in long-term care facilities, and "citizen science" survey-based reporting of symptoms (e.g., Outbreaks Near Me).
- **Modeling and forecasting** have been accelerated in recent years by CDC programs and the Center for Forecasting and Outbreak Analytics (CFA). COVID-19, influenza, and RSV epidemic trends are modeled to estimate the time-varying reproductive number (Rt) based on NSSP ED visits. ED visits and hospital admissions are also forecasted to help anticipate expected burden.
- **Surveillance for Long COVID** includes health surveys on the presence and duration of ongoing symptoms through self-report and analysis of electronic healthcare records data to understand the frequency of persistent symptoms following SARS-CoV-2 infection.
- **Monitoring the impact of interventions** requires a combination of strategies, including assessing immunization coverage (e.g., registries, surveys, and claims data), analyzing vaccine effectiveness (VE), and evaluating effectiveness of testing and treatment to reduce severe disease from respiratory viruses. Several VE platforms (e.g., VISION, NVSN, and US Flu VE) exist; virologic surveillance (described above) provides essential data for evaluating testing and treatment effectiveness.

PARTNER COMMITMENT

This national framework represents a collective vision for strengthening respiratory virus surveillance and safeguarding public health. By agencies, laboratories, healthcare providers, and communities working together to achieve overarching goals and strengthen core strategies, we can detect emerging threats sooner, monitor their impact with greater precision, communicate findings in near real-time, and act swiftly to protect lives. Through sustained collaboration, innovation, and shared responsibility, we can build a stronger, more resilient national surveillance ecosystem– one that not only meets today's challenges but also anticipates and prepares for the threats of tomorrow.

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