



# Interim Guidance for Public Health Surveillance Programs for Incident Case Classification of COVID-19-associated Hospitalizations

## Background

This guidance was developed by the Council of State and Territorial Epidemiologists (CSTE) with input from members and in collaboration with the Centers for Disease Control and Prevention (CDC) and provides a consensus-based definition of COVID-19-associated hospitalizations. While there is a [CSTE standardized surveillance case definition for SARS-CoV-2 infection](#), currently there is no such standard definition used to categorize a case as having a COVID-19-associated hospitalization. As a result, jurisdictions may be counting COVID-19-associated hospitalizations using different methods. Tracking COVID-19-associated hospitalizations is useful to monitor the severity of COVID-19 and impact on the health care system. The primary aim of this document is to provide interim guidance to state, territorial, local, and tribal public health (STLT) authorities for incident case level classification of COVID-19-associated hospitalization.

It is important for federal and STLT decision-makers and the public to have timely and comparable data on COVID-19-associated hospitalizations across the nation. When health departments use the same criteria to count hospitalizations among COVID-19 cases identified through surveillance, helpful comparisons can be made across communities and the data can contribute to a more meaningful national picture. This guidance is intended for STLT public health departments preparing surveillance reports and sharing timely information for situational awareness and public health response. It is not intended for use by health care providers for diagnostic purposes or clinical documentation. Standard guidance on COVID-19 to inform clinical decision making on admission to the hospital has been made available at the [CDC webpage on clinical care information for COVID-19](#).

Throughout the pandemic, the federal government has mandated the collection of data from hospitals through the [Unified Hospital Data system](#) (formerly known as HHS Protect) which includes the numbers of patients hospitalized daily with confirmed or suspected COVID-19 and other measures of health care capacity. These metrics provide useful information on the severity of disease in the community, as well as health care system capacity. On February 24, 2022, the CDC revised its metrics for the levels of community transmission to focus on incidence (COVID-19 cases per 100,000), severity (new COVID-19-associated hospital admissions) and health care system capacity (percent of staffed inpatient beds occupied by patients with COVID-19) further using these data to inform public health action. However, these inpatient data are supplied in aggregate (are not individual case level data) and are linked to the location of the health care facility (not the residence of the case). Some jurisdictions may be able to supplement these aggregate facility-based data with individual-level data linked to the case residence and with the potential for matching to other available public health datasets for further evaluations (e.g., immunization registries).

Surveillance for COVID-19-associated hospitalizations requires a strategic combination of core approaches to follow overall trends, as well as active surveillance approaches involving more specialized investigation at sentinel sites. It can be challenging to determine whether a hospitalization is due to COVID-19 or whether the person was hospitalized for another reason unrelated to their positive SARS-CoV-2 test result. Generally, this differentiation is beyond the scope of core surveillance approaches by STLTs given the inherent challenges and limitations of resources. For this reason, the term COVID-19-associated hospitalization is used to refer to a temporal association between an incident COVID-19 case

and a hospitalization, and this term is not used to indicate causation. However, enhanced surveillance systems with case level investigation and special studies can provide further depth to the data on COVID-19-associated hospitalizations and exclude likely unrelated findings of asymptomatic SARS-CoV-2 positivity (such as during routine labor and delivery admissions) and assess for COVID-19-like illness (CLI) and severity of disease. It would be advantageous to have enhanced surveillance capacity for a subset of COVID-19-associated hospitalizations in all jurisdictions to better understand novel variants and their public health consequences. This long-term U.S. public health system goal should also encompass associated hospitalizations for other respiratory pathogens of public health consequence.

Enhanced surveillance systems are also needed to evaluate vaccine effectiveness for the prevention of COVID-19-associated hospitalization, intensive care unit (ICU) admission, and death, over time, and in relation to variants of concern. These systems may assess risk factors for COVID-19-associated hospitalization, ICU admissions and death, which may include immunocompromised states, underlying conditions, prior infection, vaccination status, age, race, ethnicity, occupation and industry, and other characteristics. These more detailed analyses can best be performed in sentinel sites such as the [COVID-19-Associated Hospitalization Surveillance Network \(COVID-NET\)](#).

In summary, there are three unique definitions for COVID-19-associated hospitalizations in common use nationally, each with its own purpose. First, this definition for incident case classification of COVID-19-associated hospitalization is used to determine the proportion of SARS-CoV-2 infection cases admitted to the hospital. Second, there is the consistent, but more detailed, COVID-NET definition used for enhanced surveillance in select jurisdictions, which requires more comprehensive chart reviews by surveillance staff. These definitions are only applied once to each case. Third, there is the Unified Hospital Data COVID-19-associated hospitalization reporting mandated by the federal government, which is aggregate data aimed at further understanding health care utilization and capacity affected by COVID-19. When STLTs report hospitalization data publicly, it is essential to make clear the definition used. The definition used should be determined by each STLT based on jurisdictional needs and available data. Some STLTs may choose to display multiple metrics and should include a definition of each.

Methods and data sources used by health departments for incident case classification of COVID-19-associated hospitalizations may vary based on availability, resources, and which methods meet jurisdictional needs. STLTs may use information from electronic laboratory reporting (ELR), syndromic surveillance, direct hospital reports, health information exchanges (HIEs), electronic health records (EHRs) through electronic case reporting (eCR)<sup>1</sup>, or public health case investigations to determine cases identified as having a COVID-19-associated hospitalization and track these trends over time. Beyond a standardized definition, a long-term goal of well-resourced, consistent, and standardized methods for data collection and processing of COVID-19-associated hospitalizations across jurisdictions would further improve accuracy and comparability of data. See the [Interim CSTE and APHL Strategic Framework for SARS-CoV-2 Infection and COVID-19 Surveillance: Priorities and Approaches for State, Territorial, Local, and Tribal Public Health Agencies](#) for further detail on COVID-19-associated hospitalization surveillance approaches.

## Standardized Definition and Criteria for Incident Case Classification of COVID-19-associated Hospitalizations

The criteria defined below are intended to provide useful and timely data for public health classification of hospitalization status using readily available surveillance data without depending on collecting additional information from case investigations or medical chart reviews. Where STLTs have information in addition to the criteria presented below, they should consider whether to include in COVID-19-associated hospitalization surveillance counts. This definition is for incident case level classification of COVID-19-associated hospitalization, where individual level data are available.

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<sup>1</sup> Electronic case reporting (eCR) is the automated, real-time exchange of case report information between electronic health records and public health agencies. CDC eCR Fact Sheet: <https://www.cdc.gov/ecr/docs/eCR-Fact-Sheet-508.pdf>

## DEFINITION OF A COVID-19-ASSOCIATED HOSPITALIZATION

A patient with a positive result on a SARS-CoV-2 laboratory test\* collected† from 14 days before through three days after hospital admission.‡

- \* Evidence of a positive SARS-CoV-2 test by at least one of the following methods:
  - a. Nucleic acid amplification test (NAAT)
  - b. Antigen detection testing
- † The specimen collection date should be of the SARS-CoV-2 test used to define the case.
- ‡ Consider hospital admission date day #0 and include up to, and including, day #14 before and day #3 after hospital admission. Where available, STLTs may include patients who have a positive SARS-CoV-2 test anytime during hospitalization.

### Other Notes

- Hospitalized cases should be counted by jurisdiction of the patient's residence.
- Where available, hospitalization is defined as  $\geq 1$  day between admission date and discharge date or admission date and date of death.
- A case should be counted as a COVID-19-associated hospitalization when the case is first admitted to the hospital. Cases hospitalized before they were diagnosed with COVID-19 should also use original admission dates.
- Jurisdictions should count a case as a COVID-19-associated hospitalization one time for each case designation. An individual would only have an additional categorization of a COVID-19-associated hospitalization if there is an enumeration of a new case, i.e.,  $> 90$  days after their last case designation, and the individual met the definition for a hospitalization associated with that new case designation.
- Some STLTs may further categorize COVID-19-associated hospitalizations by evaluating what number or proportion of the total COVID-19-associated hospitalizations are receiving typical medical therapy for COVID-19 (dexamethasone, remdesivir, oxygen, a combination, or some other measure of COVID-19 treatment). This might help to further elucidate which patients may be admitted 'for' COVID-19 versus for another condition 'with' an unrelated finding of SARS-CoV-2 test positivity.
- Where available, STLT jurisdictions may further categorize cases with regards to the provision of intensive or critical level care or admission to the ICU.

The numbers of COVID-19-associated hospitalizations identified through this standardized definition may be different than the number of COVID-19 hospitalizations compiled previously by STLTs or as reported through aggregate reporting for the CDC's Unified Hospital Data system (previously known as HHS Protect). Reasons for the differences in counts may include differing definitions as well as the sources of information for the data, classification of hospitalizations by patient residence versus location of the hospitalization, and/or timeliness of accrual of data. Multiple sources can provide useful information on COVID-19-associated hospitalizations, and valid conclusions can be drawn based on trends or analyses of data offered by each system.

The COVID-19-associated hospitalization definition is meant primarily for surveillance purposes and for providing data for tracking trends and performing epidemiologic analyses. It will not classify every hospitalization correctly. This standardized definition is not intended to address community-onset versus hospital-onset COVID-19 classifications. These statistics will not count hospitalizations as COVID-19-associated if COVID-19 is not reported to the public health authority, such as when an individual tests positive with a home rapid antigen test kit and results are not reported to public health or not repeated in the health care setting. This document does not address STLT reporting of multisystem inflammatory syndrome in children (MIS-C) associated with COVID-19. Cases of MIS-C may be included in COVID-19-associated hospitalization numbers depending on laboratory findings (approximately half of MIS-C cases have SARS-CoV-2 detected on NAAT at the time

of admission and some may have had prior SARS-CoV-2 infection identified through ELR), however, MIS-C reporting and surveillance is performed separately based on a voluntary clinical syndrome-based public health reporting system. Please see the [CSTE standardized case definition for MIS-C](#) and the [CDC COVID-19 Data Tracker](#) for data on MIS-C nationally.

This definition may need to be reevaluated as new variants emerge with different epidemiologic and clinical characteristics and given the evolution of surveillance methodologies and testing strategies over time. Additionally, as COVID-19 continues to affect the U.S., a more holistic approach to surveillance for hospitalization of respiratory viral pathogens, including but not limited to COVID-19-associated and influenza-associated hospitalizations, will be needed. To implement these surveillance goals and methods nationally, sustained and increased investments for data modernization of public health surveillance systems and the public health workforce at the federal and STLT levels will be essential for streamlined, accurate, and effective surveillance for COVID-19-associated hospitalizations, as well as future emerging infectious disease threats.

