

Terms and topics from CDC's *National and State Healthcare-Associated Infections Progress Report*.

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## AGENCIES, PROGRAMS, AND HEALTHCARE DELIVERY LOCATIONS

**Acute care hospital:** A hospital is an institution that mainly provides diagnostic and therapeutic services to inpatients, including medical diagnosis, treatment, and care. The [Centers for Medicare & Medicaid Services](#) requires that all patients in hospitals be under the care of a physician and provided 24-hour nursing assistance.

**Centers for Disease Control and Prevention (CDC):** Housed within [U.S. Department of Health and Human Services](#), CDC is charged with protecting the public health of the nation by providing leadership and direction in the prevention of and control of diseases and other preventable conditions, and responding to public health emergencies. CDC works 24/7 to protect America from health, safety and security threats, both foreign and in the U.S.

**Emerging Infections Program (EIP):** A national resource utilized for surveillance, prevention, and control of emerging infectious diseases. EIP is a network of state health departments and their collaborators in local health departments, academic institutions, other federal agencies, and public health and clinical laboratories; infection preventionists; and healthcare providers.

**Hospital Compare:** A consumer-oriented website that provides information about the quality of care at over 4,000 Medicare-certified hospitals. Hospital Compare was created through the efforts of the [Centers for Medicare & Medicaid Services \(CMS\)](#), in collaboration with organizations representing consumers, hospitals, doctors, employers, accrediting organizations, and other Federal agencies. Hospitals participating in the CMS quality reporting program submit healthcare-associated infection data to CDC's National Healthcare Safety Network (NHSN). NHSN shares these data with CMS for public posting on Hospital Compare to help consumers make informed decisions about their health care.

**Inpatient rehabilitation facilities (IRF):** Hospitals, or part of a hospital, that provide intensive rehabilitation services using an interdisciplinary team approach. Admission to an IRF is appropriate for patients with complex nursing, medical management, and rehabilitative needs. Data in this report are reported from free-standing IRFs and rehabilitation locations within other hospitals.

**Long-term acute care hospital (LTACH):** Acute care hospitals that provide treatment for patients who are generally very sick and stay, on average, more than 25 days. Services include comprehensive rehabilitation, respiratory therapy, head trauma treatment, and pain management. Most patients are transferred from an intensive or critical care unit.

**Long-term care facilities (LTCF):** Nursing homes, skilled nursing facilities, and assisted living facilities (collectively known as long-term care facilities) provide a variety of services, both medical and personal care, to people who are unable to manage independently in the community.

**National Healthcare Safety Network (NHSN):** CDC's NHSN is the nation's most widely used healthcare-associated infection (HAI) tracking system. NHSN provides facilities, states, regions, and the nation with data needed to identify problem areas, measure progress of prevention efforts, and ultimately eliminate HAIs. In addition, NHSN allows healthcare facilities to track antimicrobial use and resistance, blood safety errors and important healthcare process measures such as healthcare personnel influenza vaccine status and infection control adherence rates.

## **INFECTIONS REPORTED AND KEY ANTIBIOTIC RESISTANCE TERMS**

**Antibiotic resistance (antimicrobial resistance):** Antibiotic resistance is the result of bacteria changing in ways that reduce or eliminate the effectiveness of antibiotics. Antimicrobial resistance is result of microorganisms changing in ways that reduce or eliminate the effectiveness of drugs, chemicals, or other agents used to cure or prevent infections. Antibiotic resistance is one type of antimicrobial resistance.

**Carbapenem-resistant Enterobacteriaceae (CRE) infections:** A family of germs that is difficult to treat because they have high levels of resistance to antibiotics. CRE infections are most commonly seen in people with exposure to healthcare settings, like hospitals and long-term care facilities.

**Catheter-associated urinary tract infection (CAUTI):** A urinary tract infection (UTI) is an infection involving any part of the urinary system, including urethra, bladder, ureters, and kidney. When a urinary catheter is not put in correctly, not kept clean, or left in a patient for too long, germs can travel through the catheter and infect the bladder and kidneys. *In this report*, the CAUTI data include all infections reported to the National Healthcare Safety Network from all applicable locations, including intensive care units and wards.

**Central line-associated bloodstream infection (CLABSI):** When a tube is placed in a large vein and not put in correctly or kept clean, it can become a way for germs to enter the body and cause deadly infections in the blood. *In this report*, the CLABSI data include all infections reported to the National Healthcare Safety Network from all applicable locations, including intensive care units, neonatal intensive care unit, and wards.

***Clostridium difficile* (C. difficile):** When a person takes antibiotics, good bacteria that protect against infection are destroyed for several months. During this time, patients can get sick from *C. difficile*, bacteria that cause life-threatening diarrhea. Often, *C. difficile* infections occur in hospitalized or recently hospitalized patients. *In this report*, the *C. difficile* data include all laboratory identified hospital-onset infections reported to the National Healthcare Safety Network from all inpatient locations in the facility, with the exception of the neonatal intensive care units and well-baby locations.

**Healthcare-associated infection (HAI):** An infection patients can get while receiving medical treatment in hospitals, outpatient clinics, nursing homes, and other facilities where people receive care.

**Laboratory identified (LabID) Event:** For reporting to the National Healthcare Safety Network, an infection is considered laboratory identified when a patient sample is tested and confirmed positive by laboratory test only (i.e., clinical evaluation of the patient is not required).

**Hospital-onset HAI:** For LabID events, an infection is considered hospital-onset if the positive specimen is collected on or after the fourth day of admission.

**Methicillin-resistant *Staphylococcus aureus* (MRSA):** A type of staph bacteria that is resistant to many antibiotics. *In this report*, the MRSA data include all laboratory identified hospital-onset MRSA bacteremia (bloodstream infections) reported to the National Healthcare Safety Network from all inpatient locations in the facility.

**Multi-drug resistant organism (MDRO) infection:** An infection caused by a germ that is resistant to multiple classes of antimicrobials. In some cases, the germs have become so resistant that no available antibiotics are effective against them.

**Surgical site infection (SSI):** When germs get into an area where surgery is or was performed, patients can get a surgical site infection. Sometimes these infections involve only the skin. Other SSIs can involve tissues under the skin, organs, or implanted material (an object or material inserted or grafted into the body, such as prosthetic joints).

## PREVENTION STRATEGIES

**Antibiotic stewardship:** Coordinated efforts and programs to improve the use of antimicrobials in healthcare settings to ensure that hospitalized patients receive the right antibiotic, at the right dose, at the right time, and for the right duration.

**Hand hygiene:** The practice of cleaning hands to prevent the spread of disease-causing germs.

**Healthcare personnel influenza vaccination:** Influenza, or the flu, is a mild to severe respiratory illness caused by a virus. The contagious illness can easily spread from person to person, including from healthcare workers to patients. Vaccination is the best way to prevent getting and spreading the flu.

**Prevention collaboratives:** Prevention projects that consist of multiple hospitals within a state to target an infection as a team, implement prevention strategies, share experiences between facilities, measure progress as a group, and provide feedback to clinicians and staff.

**Ventilator-associated events (VAE):** A ventilator is a machine used to help a patient breathe by giving oxygen through a tube placed in a patient’s mouth or nose, or through a hole in the front of the neck. An infection, such as pneumonia, may occur if germs enter a patient through the tube.

## CALCULATIONS AND ANALYSIS TERMS

**National baseline:** Aggregated data reported to the National Healthcare Safety Network (NHSN) during a historical baseline period that is used to “predict” the number of infections expected to occur in a hospital, state, or in the country. Many federal and state mandates were not enacted during the baseline time periods, and therefore not all states or facilities may have contributed to the baseline (see state mandate).

*In this report,* the number of predicted infections is an estimate based on data reported to NHSN during the following time periods:

HAI TYPE	NATIONAL BASELINE	
	Acute Care Hospitals	LTACHs and IRFs
CLABSI	2006–2008	2013
CAUTI	2009	2013
MRSA, <i>C. difficile</i>	2010–2011	
SSI	2006–2008	

Infection types presented have different baseline years for comparison. Moving forward, HAI prevention progress for future years will be measured in comparison to infection data from 2015.

**Statistical significance:** Term used in the context of a statistical hypothesis test to determine if a finding is unlikely to have occurred by chance alone. A statistically significant test result means it is unlikely that the two groups sampled are different simply by chance alone (suggesting that the two populations sampled are, in fact, different). *In this report*, statistical hypothesis testing is used to compare a calculated standardized infection ratio value (see **SIR**) to the value of 1.0. A statistically significant result from this test means there is statistical evidence that the calculated SIR is different than what would be predicted from the national data. *In this report*, statistical hypothesis testing is also used to compare two SIR values to each other.

**Standardized Infection Ratio (SIR):** A summary statistic that can be used to track healthcare-associated infection (HAI) prevention progress over time; lower SIRs are better. The SIR compares the number of infections in a facility or state to the number of infections that were “predicted” to have occurred, based on historically reported data (see **national baseline**). The SIR is not calculated when the number of predicted infections is less than 1. *In this report*, the SIRs compare the observed number of infections reported to National Healthcare Safety Network (NHSN) during 2014 to the predicted number of infections based on the referent period, adjusting for key risk factors.

**Risk adjustment:** A process used to level the playing field by adjusting for the differences in risk. When the data are risk-adjusted, it makes it possible to fairly compare hospital performance. *In this report*, the SIRs are adjusted for **risk factors** that may impact the number of infections reported by a hospital, such as type of patient care location, bed size of the hospital, patient age, and other factors.

**National 2014 SIR:** A summary statistic calculated from all reported HAIs that occurred in the country in 2014. It was calculated as the total number of observed infections in the country, divided by the total number of predicted infections in the country in 2014.

**State 2014 SIR:** A summary statistic calculated from all reported HAIs that occurred in an individual state in 2014. It was calculated as the total number of observed infections from all hospitals in the state, divided by the total number of predicted infections in the state in 2014.

**State mandate** (for data reporting): A state legislative or regulatory requirement (enacted by the state’s government) requiring hospitals in the state to report healthcare-associated infections to the National Healthcare Safety Network.

**Targeted Assessment for Prevention (TAP) strategy:** a method developed by the Centers for Disease Control and Prevention (CDC) to use data for action to prevent healthcare-associated infections (HAIs). The TAP strategy targets healthcare facilities and specific units within facilities with a disproportionate burden of HAIs to address infection prevention gaps.

**Validation:** Double-checking, or confirming, healthcare-associated infection (HAI) data reported to the National Healthcare Safety Network (NHSN). This generally involves an assessment to ensure all relevant infections were captured in the system. It may also involve checking the accuracy, or quality, of the submitted data. Currently, state health departments may use different methods to validate the HAI data that hospitals submit to NHSN. For example, some states only validate data from one facility while other states validate more widely. Validation efforts should be taken into account when evaluating an individual state's performance. States that validate data or use advanced methods to detect HAIs may find and report more infections than states that do not validate. *In this report*, state validation efforts are specified and classified into two categories for each HAI type: data checked for quality and additional in-depth data review.

**Data Quality:** State health departments may assess a hospital's overall reported HAI data for data entry errors, outliers, or missing information. This does not involve reviewing medical records.

*In this report*, the following criteria were used to assign credit to states that performed data quality checks:

- State health department had access to 2014 data from NHSN.
- State health department performed quality checks on at least 6 months of 2014 NHSN data prior to July 1, 2015.
- State health department contacted hospitals when data errors, outliers, or missing information were found.

**Additional In-depth Data Review:** State health departments may perform a review, or "audit", of a hospital's medical records to ensure the hospital defined and reported all appropriate HAIs to NHSN. The auditing process may identify more HAIs in a hospital than originally reported. As such, states that perform data audits may have a higher SIR when compared to states that do not perform data audits. *In this report*, credit is given to states that performed any type of audit of their hospitals' 2014 medical or laboratory records prior to July 1, 2015.