Identifying Healthcare-associated Infections (HAI) in NHSN

For the purposes of NHSN surveillance in the acute care setting, a healthcare-associated infection (HAI) is a localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that was not present on admission to the acute care facility. An infection is considered an HAI if all elements of a CDC/NHSN site-specific infection criterion were first present together on or after the 3rd hospital day (day of hospital admission is day 1). For an HAI, an element of the infection criterion may be present during the first 2 hospital days as long as it is also present on or after day 3. All elements used to meet the infection criterion must occur within a timeframe that does not exceed a gap of 1 calendar day between elements. Three examples of how to apply the HAI definition are shown in Table 1.

Table 1. ***Examples of Application of HAI Definition***

Day 1	Day 2	Day 3	Day 4	Day 5	Infection is …
Admit to ICU	ICU	ICU All elements of infection criterion were first present together			HAI attributable to ICU Rationale: On day 3, all elements first present together.
Admit to ICU	ICU An element of infection criterion present (e.g., fever)	ICU An element of infection criterion present (e.g., fever)	ICU Final element of infection criterion present (e.g., positive culture)		HAI attributable to ICU Rationale: All elements were present on day 3 or later even though one of the elements was also present on day 2.
Admit to ICU	ICU	ICU An element of infection criterion present (e.g., fever)	ICU No elements of infection criterion present	ICU Final element of infection criterion present (e.g. positive culture)	HAI attributable to ICU Rationale: All elements present on or after day 3 with no more than a 1 day gap between elements.

HAIs may be caused by infectious agents from endogenous or exogenous sources:

- Endogenous sources are body sites, such as the skin, nose, mouth, gastrointestinal (GI) tract, or vagina that are normally inhabited by microorganisms.
- Exogenous sources are those external to the patient, such as patient care personnel, visitors, patient care equipment, medical devices, or the healthcare environment.

Other important considerations include the following:

- Clinical evidence may be derived from direct observation of the infection site (e.g., a wound) or review of information in the patient chart or other clinical records.
- For certain types of infection, a physician or surgeon diagnosis of infection derived from direct observation during an invasive procedure, endoscopic examination, or other diagnostic studies or from clinical judgment may be an acceptable criterion for an HAI, unless there is compelling evidence to the contrary. For example, one of the criteria for SSI is ‘‘surgeon or attending physician diagnosis.’’ Unless stated explicitly, physician diagnosis alone is not an acceptable criterion for any specific type of HAI.
- Infections occurring in infants that result from passage through the birth canal are considered HAIs if they meet the definition of HAI above.

The following infections are not considered healthcare associated:

- Infections associated with complications or extensions of infections already present on admission, unless a change in pathogen or symptoms strongly suggests the acquisition of a new infection.
- Infections in infants that have been acquired transplacentally (e.g., herpes simplex, toxoplasmosis, rubella, cytomegalovirus, or syphilis) and become evident on the day of birth or the next day.
- Reactivation of a latent infection (e.g., herpes zoster [shingles], herpes simplex, syphilis, or tuberculosis).

The following conditions are not infections:

- Colonization, which means the presence of microorganisms on skin, on mucous membranes, in open wounds, or in excretions or secretions but are not causing adverse clinical signs or symptoms.
- Inflammation that results from tissue response to injury or stimulation by noninfectious agents, such as chemicals.

The complete set of CDC/NHSN HAI site-specific infection criteria, and the comments and reporting instructions integral to the correct application of the criteria, can be found in the HAI Definitions chapter.