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CNISP·PCSIN

CNISP Acute Care Point Prevalence Survey (CAPPS)

Version 1.5, 2024

Contact Information

Please direct all questions to:

Public Health Agency of Canada
CNISP Surveillance
E-mail: cnisp-pcsin@phac-aspc.gc.ca

Working Group

Robyn Mitchell (co-lead), Jessica Bartoszko (co-lead), Diane Lee (epi support), Marie-Eve Benoit, Jeannette Comeau, Jennifer Ellison, Charles Frenette, Nicole Haslam, Susy Hota (co-chair), Bonita Lee, Dominik Mertz, Michelle Science (co-chair), Stephanie Smith, Daniel Thirion and Alice Wong

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BACKGROUND

Surveillance of healthcare-associated infections (HAIs) and antimicrobial use (AMU) are important components of comprehensive infection prevention and control (IPC) and antimicrobial stewardship programs (ASP) and have been widely accepted as a primary step toward the prevention of HAIs[1]. The gold standard for surveillance is prospective, active, hospital-wide surveillance. However, active surveillance is time-consuming, costly and requires significant resources. Point prevalence surveys are valuable and low-cost alternatives to active surveillance[2]. Although not as sensitive as the traditional prospective method, point prevalence surveys can inform IPC and ASP by providing information to understand the burden, and trends of HAIs and AMU across different points in time.

Multiple countries perform hospital point prevalence surveys to estimate the burden of HAIs. The European Centre for Disease Prevention and Control (ECDC) has performed surveys in 2011-12 and 2016-2017. The prevalence of patients in an acute care hospital with at least one HAI remained similar across the surveys (5.7% in 2011-2012[3] and 5.5% in 2016-2017[4]). Among tertiary care hospitals the prevalence of at least one HAI was 7.1% in the 2016-2017 ECDC survey. The Centers for Disease Control (CDC) in the United States has performed HAI and AMU point prevalence surveys through the CDC's Emerging Infections Program. Surveys conducted in 2011 and 2015 found a decline in the prevalence of HAIs from 4.0% to 3.2% respectively[5]. Since 2002, the Norwegian Institute of Public Health (NIPH) has conducted two point prevalence surveys per year to monitor HAIs. The results from a 2017 survey among 61 acute care hospitals estimated that 4.7% of patients had at least one HAI[6].

In Canada, the Canadian Nosocomial Infection Surveillance Program (CNISP) has conducted three point prevalence surveys of HAIs and AMU. These repeated surveys are widely utilized to benchmark HAI, antimicrobial resistant organism (ARO) and AMU rates, measure changes in prevalence over time, provide information to IPC and ASPs, and identify new targets for surveillance. Further, they raise awareness of the burden of HAIs and AROs in Canada. A total of 6,747 patients in 28 hospitals (2002), 8,902 patients in 39 hospitals (2009) and 9,929 patients in 47 hospitals (2017) were surveyed. The prevalence of patients with at least one HAI increased from 9.9% in 2002 to 11.3% in 2009 then declined to 7.9% in 2017[7]. The prevalence reported by CNISP hospitals is higher compared to the prevalence reported by the CDC surveys, however CNISP surveys represent data from large, tertiary care hospitals that typically serve patient populations at higher risk for infection compared with general hospitals that were included in the CDC surveys. The HAI prevalence in the 2017 CNISP survey (7.9%) was comparable to the results reported by the 2016-2017 ECDC survey (7.1%), among tertiary care hospitals. Differences in survey methodology and trends in HAIs among jurisdictions highlight the importance of collecting Canadian data to direct prevention strategies. AROs other than MRSA remained low, however their prevalence has increased. AMU significantly increased between 2002 and 2009 and stabilized between 2009 and 2017[8].

The next point prevalence survey is planned for 2024 and has the following objectives.

OBJECTIVES

The objectives of the CNISP acute care point prevalence survey (CAPPS) are listed below.

1. To estimate the prevalence (burden) of HAIs and infections caused by AROs in Canadian acute care hospitals.
2. To describe HAIs and AROs by patient populations, facility types, geographic region, and their microbiology.
3. To estimate the prevalence of and describe AMU in Canadian acute care hospitals.
4. To estimate the prevalence of inpatients under isolation precautions in Canadian acute care hospitals.
5. To describe HAI, ARO and AMU trends over time (i.e., across prevalence surveys), including the impact of COVID-19 on these trends.
6. To pilot a validation study among hospitals completing the primary point prevalence survey.

METHODS

Survey methodology for the 2002, 2009 and 2017 surveys are described in Appendix 1.

Hospital Eligibility

All CNISP acute care hospitals are eligible to participate.

Ward Eligibility

All patient units and wards will be surveyed except for the following units:

1. Long-term care and awaiting placement wards
2. Mental health wards
3. Rehabilitation wards
4. Maternity wards and well-baby nurseries (Level 1 nurseries)
5. Day surgery and over-night surgery wards

Long-term care patients, awaiting placement patients, mental health, rehabilitation patients, maternity patients and day surgery/over-night surgery patients will be included in the study if they are physically located on one of the wards to be surveyed (i.e., the patient is occupying a bed on the ward or unit). If these patients are located in a separate building or a separate wing of the facility, they will be excluded. Infants in Level 2 and Level 3 neonatal units will be surveyed.

Patient Eligibility

All patients, regardless of HAI status, who have been admitted to a CNISP acute care hospital for 48 hours or more are eligible to be included in the point prevalence survey, including patients admitted in the Emergency Room if they have been there for more than 48 hours. Patients who have been admitted to hospital for less than 48 hours will be included in the survey if they were previously admitted to the survey hospital within the last month. Patients admitted on the units listed above under Ward Eligibility (e.g. long-term care, rehab etc.) are NOT to be included.

Data collection – Hospital level

The following hospital level data will be collected from all hospitals participating in the survey: survey date, number of eligible patients to be surveyed, number of inpatient beds, number of ICU beds, hospital type (pediatric, adult, mixed), hospital services provided, teaching hospital status and general internal medicine occupancy. Hospital level data are provided once to participate in the survey (Appendix 2).

Data collection – Patient level

Patients will be identified at each hospital by the hospital census at 8a.m. on a weekday occurring between **Monday, February 26th and Friday, March 15th, 2024**[1]. The survey is not to be conducted on weekends. Hospitals may choose to conduct the survey on different wards on different days during the survey period. Patients admitted after the predetermined start time on that day will not be included in the survey. Patients cannot be enrolled more than once during the surveillance period. Data collection will start at least 24 hours (the day after) after the census to allow sufficient time to complete medical/nursing/laboratory entries in the patient's hospital chart. Patients will be surveyed over a full 24-hour period starting at 8a.m. on the census day and ending at the same time on the following day[1].

There are two options for patient level data collection: a short form **(mandatory)** which includes data that all participating hospitals must complete and a long form **(optional)** for hospitals which are able to provide additional data. Please refer to the patient level forms for details (Appendices 3 and 4).

Definitions

Antimicrobial Use

AMU in all patients, regardless of HAI status, is to be collected. Antimicrobials include systemic antibiotics, antivirals and antifungals (Appendix 5). Topical antimicrobials are not to be captured. Surgical prophylaxis should be captured if given the day before the survey (i.e., in the 24 hours prior to 8 a.m. on the day of the survey). For all AMU (e.g., treatment, medical prophylaxis), any given or planned (including intermittent treatments, e.g., alternate day), administration of antimicrobials should be captured at the time of the survey only. If the antimicrobial agent given for treatment or medical prophylaxis was changed on the day of the survey, only record the last antimicrobial agent at the time of the survey.

[1] For example, site selects Wednesday, February 28, 2024 as their survey day, they would therefore identify the patients by the hospital census at 8:00 AM on Wednesday, February 28 and would begin data collection at least a full 24-hours after the census (i.e. on February 29 or later). The patients would be surveyed from 8:00 AM Wednesday, February 28 until 8:00 AM Thursday, February 29.

Healthcare-associated infection
A HAI is defined as:

A patient who is symptomatic, as per definitions in Appendix 6, or receiving antimicrobial therapy for the treatment of a HAI on the survey day

AND

The onset of symptoms, as per definitions in Appendix 6, was on Day 3 or later (day of admission = Day 1) of the current admission or the patient presents with an infection but has been readmitted fewer than 48 hours after a previous discharge from the survey hospital. For viral respiratory infections and *Clostridioides difficile* infections, symptom onset must be Day 4 or later to be considered a HAI.

Days of admission				
Calendar day	1	2	3	4
Time (hours)	0	24	48	72

Note: All surgical site infections are considered HAIs. If a SSI presents on the day of the survey or the patient is being treated for a SSI on the day of the survey, and SSI definition criteria are met as per Appendix 6, this would be captured as a HAI.

Data submission

Data will be submitted electronically through a secure online web-based platform, LimeSurvey. In LimeSurvey, one form is to be submitted per patient. Please note that forms can time out after approximately two hours of inactivity potentially resulting in a loss of data. To prevent these issues, LimeSurvey allows forms to be saved as drafts and accessed at a later time. Further, LimeSurvey is approved by the Public Health Agency of Canada (PHAC) for the collection of CAPPS data, which are considered Protected A and/or B data. Patient-level data will be de-identified with unique identifiers and linked to patient names by the hospital site. Patient names will not be transmitted to PHAC. All data will be strictly confidential and stored in PHAC servers located in Canada.

Because LimeSurvey does not allow bulk uploads of patient-level data, hospitals also have the option of submitting data electronically to CNISP at cnisp-pcsin@phac-aspc.gc.ca. If doing so, please contact CNISP to request an excel template to ensure formatting is compatible with LimeSurvey. In this template, one row of data will be comparable to one LimeSurvey form.

Hospitals participating in CAPPS will have until **Thursday, March 21st, 2024** to complete the data collection forms for all eligible patients **AND** have the data submitted back to CNISP via one of the data submission methods described above.

Training of surveyors

Training material for the personnel collecting the data are made available by CNISP. Multiple webinars to review the point prevalence survey methodology as well as case studies will be coordinated and provided by CNISP. Participating sites are strongly encouraged to participate in training for logistic and data quality purposes.

Data validation

A data validation study will be piloted using a blinded, repeated data collection methodology for a sample of patients at each hospital participating in the primary point prevalence survey. Please refer to the data validation protocol for additional information. We provide an overview below.

All patients included in the primary point prevalence survey, regardless of HAI status, are eligible for inclusion in the validation study. Sites must re-examine **a minimum of 5% of patient records** from the primary point prevalence survey.

Expectations for the pilot validation study are as follows:

- All sites who participate in the primary point prevalence survey are strongly encouraged to participate in the validation study
- Conduct data collection for the validation study on the same day (preferred) or following the collection of data for the primary PPS, noting that all data are to be submitted to the Public Health Agency of Canada (PHAC) by March 21, 2024
- Blinded data collection (i.e., validation team member(s) cannot look at primary point prevalence survey forms)
- Validation study data collectors cannot be part of the primary point prevalence survey data collection team
- Records for the same patients present at 8:00 am on the primary point prevalence survey day need to be re-examined for the pilot validation study day regardless of HAI status

Data to be collected are summarized as follows:

1. Variables specific to the validation study (including ward-level validation date, sampling method, etc.).
2. Selected patient-level variables regarding HAI and AMU from the primary point prevalence survey.

Data will be submitted electronically through a secure online web-based platform, LimeSurvey.

Data analysis

CNISP epidemiologists will clean, validate, and analyse the data. The analysis will be descriptive in nature and may include the following:

1. Prevalence of HAIs,
    i) Overall prevalence rates,
    ii) Specific prevalence rates by infection type, region, hospital type;
2. Microbiology of HAIs,
    i) Proportion of infections due to which organisms,
    ii) Proportion of infections due to which organisms by infection type;
3. Frequency of patients in isolation precautions,
    i) Proportion of patients in isolation by type of additional precautions,
    ii) Proportion of patients in isolation for MRSA, VRE and CDI and other resistant organisms;
4. AMU by all patients and infected patients,

i) AMU by infection type,
ii) AMU by ward type;

5. Comparison of HAI and AMU trends across all four surveys

Ethics

This surveillance project is observational and does not involve any alteration in patient care. Surveillance for HAIs is a routine component of quality assurance and patient care in Canadian health care institutions and therefore informed consent will not be required. Review Ethics Board (REB) approval was not required by PHAC. However, individual hospitals may seek institutional REB approval according to local hospital policy. A unique identifier linked to patient names will only identify patients at the hospital site and will not be transmitted to PHAC. All data will be strictly confidential.

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Appendix 1 – Summary of CNISP point prevalence survey methodology (2007, 2009 and 2017)

	CNISP 2007	CNISP 2009	CNISP 2017
Timing			
Survey period	February	February	February
Hospitals			
Eligibility	Tertiary acute care adult, pediatric and mixed hospitals	Tertiary acute care adult, pediatric and mixed hospitals	Tertiary acute care adult, pediatric and mixed hospitals
Exclusions	Non-acute care facilities	Non-acute care facilities	Non-acute care facilities
Sample	28/33 CNISP hospitals (84.8% response rate); 6,747 patients	39/55 CNISP hospitals (71.0% response rate); 8,902 patients	47/66 CNISP hospitals (71.2% response rate); 9,929 patients
Patients			
Eligibility	Patients included in hospital census on the morning of the survey who were admitted for ≥48 hours, and patients in hospital <48 hours who were admitted to the survey hospital in the month before the survey.	Patients included in hospital census on the morning of the survey who were admitted for ≥48 hours, and patients in hospital <48 hours who were admitted to the survey hospital in the month before the survey.	Patients included in hospital census on the morning of the survey who were admitted for ≥48 hours, and patients in hospital <48 hours who were admitted to the survey hospital in the month before the survey
Exclusions	Long term care patients, awaiting placement patients, psychiatric, rehabilitation patients, maternity patients and day surgery/over-night surgery patients unless they are physically located on one of the wards to be surveyed	Day surgery, outpatients, emergency department, long-term care, maternity, well baby, mental health, rehabilitation units Patients admitted in the ED were included if they were there for more than 48 hours	Day surgery, outpatients, emergency department, long-term care, maternity, well baby, mental health, rehabilitation units Patients admitted in the ED were included if they were there for more than 48 hours
Sample	All eligible patients in participating hospitals	All eligible patients in participating hospitals	All eligible patients in participating hospitals
Data			
Types of data collected	Healthcare-associated infections, antimicrobial use, IPC characteristics	Healthcare-associated infections, antimicrobial use, IPC characteristics	Healthcare-associated infections, antimicrobial use, isolation status
Demographics	DOB/Age, Sex, DOA, ward	DOB/Age, Sex, DOA, ward	DOB/Age, Sex, DOA, ward
AMU	Receiving systemic therapy with and antibacterial, antifungal, antituberculous or antiviral agents (yes/no); antibiotic code	Receiving systemic therapy with any antimicrobial agent (yes/no); antimicrobial code	Receiving systemic therapy with any antimicrobial agent (yes/no); antimicrobial code; receipt of antiviral to treat respiratory infection
Isolation	Iso (yes/no); type (droplet, contact, airborne); iso reason	Iso (yes/no); type (droplet, contact, airborne); room type (single, multi bed); iso reason	Iso (yes/no); type (droplet, contact, airborne); room type (single, multi bed); iso reason
Device utilization	Presence of: endotracheal tube with or without mech vent; urinary catheter; central venous catheter		
HAI	**Pneumonia** – onset date, VAP/non-VAP; organism	**Pneumonia** – specimen or onset date, VAP/non-VAP; organism	**Pneumonia** – VAP/non-VAP; 2^{o} BSI; organism
	UTI – culture date; organism	**UTI** – culture date; organism	**UTI** – CAUTI/non-CAUTI; 2^{o} BSI; organism

	CNISP 2007	CNISP 2009	CNISP 2017
	SSI – onset or culture date; type SSI; surgery class; organism	**SSI** – specimen date; implant; organism	**SSI** – specimen date; implant; surgery date; 2° BSI; organism
	CDI – specimen date	**CDI** – specimen date	**CDI** – specimen date; 2° BSI
	HA-BSI – culture date; type (1°, 1° – intravascular; 2°); organism	**HA-BSI** – culture date; type (1°, 1° – CVC-BSI; 2°); organism	**HA-BSI** – specimen date; type (1°, CLABSI, other); organism
	NEC (neonates only) – onset date	**NEC (neonates only)** – onset date	
	VRI (peds only) – onset date	**VRI** – onset date; organism	**VRI** – specimen date; organism
	Gastro (peds only) – onset date	**Gastro (peds only)** – onset date; organism	**Gastro** – specimen date; organism
AROs	MRSA, VRE, ESBLs	MRSA, VRE, ESBLs	MRSA, CPE, CPA, VRE, ESBLs
Device associated infections			VAP, SSI associated with prosthetic implant, CAUTI, CLABSI
Antimicrobials/ Organisms		Appendix/Guide for Codes	Appendix/Guide for Codes
Data collectors	Hospital infection prevention personnel	Hospital infection prevention personnel	Hospital infection prevention personnel
Data submission	Completed standardized forms	Completed standardized forms or spreadsheets submitted electronically	Completed standardized forms or spreadsheets submitted electronically
HAIs counted	Infections with symptoms present or for which patient is receiving antimicrobial treatment on the survey date	Infections with symptoms present or for which patient is receiving antimicrobial treatment on the survey date	Infections with symptoms present or for which patient is receiving antimicrobial treatment on the survey date
HAI definitions used	CNISP definitions, modified U.S. CDC NHSN definitions	CNISP definitions, modified U.S. CDC NHSN definitions	CNISP definitions, modified U.S. CDC NHSN definitions (2017 version)
HAI types included	7 HAI types	7 HAI types	7 HAI types
Secondary BSI	Not counted separately from the primary HAI	Counted separately from the primary HAI	Counted separately from the primary HAI
HAIs attributed to other hospitals	Not included	Not included	Not included
Publications	Point prevalence survey for healthcare-associated infections within Canadian acute care hospitals – Journal Hospital Infection, 2007 A point prevalence survey of healthcare-associated infections in pediatric populations in major Canadian acute care hospitals – AJIC, 2007	Assessing the magnitude and trends in hospital acquired infections in Canadian hospitals through sequential point prevalence surveys – ARIC, 2016 Prevalence of antimicrobial use in a network of Canadian hospitals in 2002 and 2009 – Can J Infect Dis Med Microbiol, 2015 A point prevalence survey of health care-associated infections in Canadian pediatric populations – AJIC, 2012	Trends in health care-associated infections in acute care hospitals in Canada: an analysis of repeated point prevalence surveys – CMAJ, 2019 Antimicrobial use in Canadian acute-care hospitals: Findings from three national point-prevalence surveys between 2002 and 2017 – ICHE, 2022

Appendix 2 – Hospital level form

1. Which PPS protocol is this facility completing? □ Long patient forms □ Short patient forms
2. CHEC number _____
3. Total number of admitted patients on the census[2] _____
4. Total number of eligible patients to be surveyed[3]: _____
5. Date of survey: ___ /____ /_____ (DD MMM YYYY)
6. Total number of **inpatient beds** for this healthcare facility on the day of the survey? _____
7. Total number of **adult ICU[4] beds** for this healthcare facility on the day of the survey? _____ □ Not applicable
8. Total number of **CCU[5] beds** for this healthcare facility on the day of the survey? _____ □ Not applicable
9. Total number of **PICU beds** for this healthcare facility on the day of the survey? _____ □ Not applicable
10. Total number of **NICU beds** for this healthcare facility on the day of the survey? _____ □ Not applicable
11. General internal medicine (GIM) occupancy
    On the day of the survey, total number of funded beds: _____
    On the day of the survey, total number of staffed beds: _____
    On the day of the survey, total number of occupied beds: _____

[2] Excluding patients on: (1) Long-term care and awaiting placement wards, (2) Mental health wards, (3) Rehabilitation wards, (4) Maternity wards and well-baby nurseries, and (5) Day surgery and over-night surgery wards.

[3] Eligible patients admitted for ≥ 48 hours or readmitted with a previous hospitalization within the last month.

[4] Excludes CCU beds

[5] Cardiac care unit (CCU)

Appendix 3 – Patient level **SHORT** form

1. Patient identifier: _____ - _____
   Hospital code/CHEC site Patient unique identifier

PART 1. PATIENT DEMOGRAPHIC INFORMATION

2. Age — Enter age. **Specify :** Years, months or days
3. Sex:
   - ☐ Male
   - ☐ Female
   - ☐ Unknown
4. Date of admission[6]: ___ /____ /_____
   DD MMM YYYY
5. Was this patient admitted for < 48 hours and previously admitted to the survey hospital within the last 30 days? ☐ Yes ☐ No ☐ Unknown
6. Please select the ward the patient was on at 8am on the day of the survey *(check only ONE)*:

☐ Medicine	☐ Hematology/Oncology/Bone Marrow Transplant
☐ Pediatrics	☐ Surgery including Gynecology
☐ Adult Intensive Care Unit (ICU)	☐ Solid Organ Transplant
☐ Pediatric ICU	☐ Trauma/Burn
☐ Neonatal ICU	☐ Mixed Medical/Surgical
☐ Obstetrics	☐ Coronary Care (not ICU)
☐ ER (admitted, awaiting inpatient bed)	☐ Step down Unit

☐ Other *(please specify):* _____

[6] The date of admission for an ER patient is the date on which the decision to admit was made rather than the date they were moved to the ward. For example, a patient has been in the ER for more than 48 hours and is admitted on Wednesday, February 21st, 2024. They are moved to the ward on Friday, February 23rd, 2024. The date of admission would be Wednesday, February 21st, 2024.

PART 2. ADDITIONAL PRECAUTIONS

7. Is patient currently on isolation (additional) precautions? ☐ Yes ☐ No (skip to next section)

If yes, type of isolation *(check <u>all</u> that apply)*

☐ Droplet ☐ Droplet with N95 use

☐ Contact ☐ Airborne

Type of Isolation room:

☐ Single room ☐ Multi bed room with or without bed block

☐ Multi bed room as part of a cohort

If yes, indicate the reason for the Additional Precautions *(check <u>all</u> that apply)*:

8.

☐ Methicillin-resistant *Staphylococcus aureus* (MRSA)

☐ Chickenpox/Disseminated Herpes Zoster

☐ Vancomycin-resistant *Enterrococcus* (VRE)

☐ Extended spectrum beta-lactamase (ESBL) producing organism

☐ *Clostridioides difficile* infection

☐ Bacterial Meningitis

☐ Tuberculosis

☐ Invasive Group A Streptococcus

☐ Viral respiratory infections (not COVID-19)

☐ Viral gastroenteritis

☐ Carbapenemase Producing Organism

☐ Other multi-drug resistant gram-negative rods

☐ COVID-19

☐ *Candida auris*

☐ Other *(please specify):* _____

PART 3. ANTIMICROBIAL USE FOR ALL PATIENTS, REGARDLESS OF HAI STATUS

9. Is this patient currently receiving systemic therapy with any antimicrobial agents? □ Yes □ No (skip to Q15)

Antimicrobial #1

10. Antimicrobial generic name (Appendix 5)

11. Route

□ Parenteral
□ Oral
□ Rectal
□ Inhalation

Indication of use (diagnosis) – what the clinician aims to treat

12.

□ Medical prophylaxis
□ Surgical prophylaxis
□ Central nervous system therapy
□ Eye therapy
□ Ear, nose, throat
□ Respiratory
□ Cardiovascular system
□ Gastro-intestinal
□ Skin, soft tissue
□ Bone and joint

□ Urinary tract infection
□ Genito-Urinary/Obstetric/Gynecological
□ Neonatal
□ Other (please specify): _____
□ Unknown/not defined

13. Treatment
□ Empiric □ Targeted □ Unknown

If targeted treatment, please indicate the resistant organism(s) being treated, please check all that apply:

□ Methicillin-resistant *Staphylococcus aureus* (MRSA)
□ Vancomycin-resistant enterococci (VRE)
□ Carbapenemase producing Enterobacterales (CPE)

14.

□ Bacteria, producing extended-spectrum beta-lactamases (ESBL) OR resistant to 3rd generation cephalosporins
□ Other (please specify): _____

PART 4. HEALTHCARE-ASSOCIATED INFECTIONS

15. Does the patient have one or more of the following HAIs **OR** are they presently being treated with antimicrobial agents for one or more of the following HAIs?
(Refer to Appendix 6 for definitions and Appendix 7 for standardized organism names)

☐ Yes
☐ No ***(if "No," then survey ends here)***

If yes, what type? *(please check <u>all</u> that apply)*

☐ **Healthcare-associated Pneumonia**

Type of Pneumonia:

☐ Ventilator associated
☐ Non Ventilator associated

Indicate organism(s)

_____ _____ _____ _____

☐ No organism identified

☐ **Healthcare-associated Urinary Tract Infection**

Type of urinary tract infection:

☐ Catheter-Associated Urinary Tract Infection (CAUTI)
☐ Non-Catheter-Associated Urinary Tract Infection (non-CAUTI)

Indicate organism(s)

_____ _____ _____ _____

☐ No organism identified

☐ **Surgical Site Infection**

SSI type:

☐ Superficial incisional
☐ Complex (deep incisional/organ/space)
☐ Yes

Is this a prosthetic implant related SSI (excluding sternal wires)?

☐ No

Type of surgery/surgeries resulting in this SSI:

☐ Abdominal aortic aneurysm repair

☐ Limb amputation

☐ Appendix surgery

☐ Shunt for dialysis

☐ Bile duct, liver or pancreatic surgery

☐ Carotid endarterectomy

☐ Gallbladder surgery

☐ Colon surgery

☐ Cesarean section

☐ Gastric surgery

☐ Thoracic surgery

☐ Abdominal hysterectomy

☐ Kidney transplant

☐ Laminectomy

☐ Liver transplant

☐ Neck surgery

☐ Kidney surgery

☐ Ovarian surgery

☐ Prostate surgery

☐ Rectal surgery

☐ Small bowel surgery

☐ Spleen surgery

☐ Thyroid and/or parathyroid surgery

☐ Vaginal hysterectomy

☐ Exploratory laparotomy

☐ Breast surgery

☐ Cardiac surgery

☐ Coronary artery bypass graft with both chest and donor site incisions

☐ Coronary artery bypass graft with chest incision only

☐ Craniotomy

☐ Spinal fusion

☐ Open reduction of fracture

☐ Herniorrhaphy

☐ Hip prosthesis

☐ Knee prosthesis

☐ Pacemaker surgery

☐ Peripheral vascular bypass surgery

☐ Ventricular shunt

☐ Other, please specify: _____

Indicate organism(s)

_____ _____ _____ _____

☐ No organism identified

☐ **Healthcare-associated *Clostridioides difficile* Infection**

☐ **Healthcare-associated Blood Stream Infection**

Type:

☐ Primary

☐ CLABSI

☐ Source unknown

☐ Other, specify: _____

Indicate organism(s)

_____ _____ _____ _____

☐ **Healthcare-associated viral respiratory infection**

Indicate organism(s)

_____ _____ _____ _____

☐ **Healthcare-associated viral gastroenteritis**

Indicate organism(s)

_____ _____ _____ _____

Appendix 4 – Patient level **LONG** form

1. Patient identifier: _____ - _____
   Hospital code/CHEC site Patient unique identifier

PART 1. PATIENT DEMOGRAPHIC INFORMATION

2. Age — **Specify :**
3. Sex:
   - ☐ Male
   - ☐ Female
   - ☐ Unknown
4. Date of admission[7]: ___ /____ /_____
   DD MMM YYYY
5. Was this patient previously admitted to the survey hospital within the last 30 days? ☐ Yes ☐ No ☐ Unknown
6. Please select the ward the patient was on at 8am on the day of the survey *(check only <u>ONE</u>)*:

☐ Medicine	☐ Hematology/Oncology/Bone Marrow Transplant
☐ Pediatrics	☐ Surgery including Gynecology
☐ Adult Intensive Care Unit (ICU)	☐ Solid Organ Transplant
☐ Pediatric ICU	☐ Trauma/Burn
☐ Neonatal ICU	☐ Mixed Medical/Surgical
☐ Obstetrics	☐ Coronary Care (not ICU)
☐ ER (admitted, awaiting inpatient bed)	☐ Step down Unit
☐ Other *(please specify):* _____	

PART 2. OUTBREAK STATUS (Long form only)

7a. Is this unit on outbreak? ☐ Yes ☐ No (skip to Q8) ☐ Unknown

7b. Please specify the causative pathogen(s) of the outbreak _____ ☐ Unknown

[7] The date of admission for an ER patient is the date on which the decision to admit was made rather than the date they were moved to the ward. For example, a patient has been in the ER for more than 48 hours and is admitted on Wednesday, February 21st, 2024. They are moved to the ward on Friday, February 23rd, 2024. The date of admission would be Wednesday, February 21st, 2024.

PART 3. INVASIVE DEVICES (Long form only)

8. Does the patient currently have an invasive device present at 8am on the day of the survey? *(check all that apply)*

☐ Yes ☐ No (skip to Q9)
☐ Unknown

☐ Indwelling urinary catheter
☐ Peripheral vascular catheter
☐ Central vascular catheter
☐ Inserted tubes and drains
☐ Invasive respiratory endotracheal intubation
☐ Other (please specify): _____

PART 4. ADDITIONAL PRECAUTIONS

9. Is patient currently on isolation (additional) precautions? ☐ Yes ☐ No (skip to next section)

If yes, type of isolation *(check all that apply)*

☐ Droplet
☐ Droplet with N95 use
☐ Contact
☐ Airborne

Type of Isolation room:

☐ Single room
☐ Multi bed room with or without bed block
☐ Multi bed room as part of a cohort

If yes, indicate the reason for the Additional Precautions *(check all that apply)*:

10.
☐ Methicillin-resistant *Staphylococcus aureus* (MRSA)
☐ Chickenpox/Disseminated Herpes Zoster
☐ Vancomycin-resistant *Enterrococcus* (VRE)
☐ Extended spectrum beta-lactamase (ESBL) producing organism
☐ *Clostridioides difficile* infection
☐ Bacterial Meningitis
☐ Tuberculosis
☐ Invasive Group A Streptococcus
☐ Viral respiratory infections (not COVID-19)
☐ Viral gastroenteritis
☐ Carbapenemase Producing Organism
☐ Other multi-drug resistant gram-negative rods
☐ COVID-19
☐ *Candida auris*
☐ Other *(please specify):* _____

PART 5. ANTIMICROBIAL USE FOR ALL PATIENTS, REGARDLESS OF HAI STATUS

11. Is this patient currently receiving systemic therapy with any antimicrobial agents? □ Yes □ No (skip to Q17)

Antimicrobial #1

12. Antimicrobial generic name (Appendix 5)

13. Route
□ Parenteral
□ Oral
□ Rectal

□ Inhalation

Indication of use (diagnosis) – what the clinician aims to treat

14.

□ Medical prophylaxis
□ Surgical prophylaxis
□ Central nervous system therapy
□ Eye therapy
□ Ear, nose, throat
□ Respiratory
□ Cardiovascular system
□ Gastro-intestinal
□ Skin, soft tissue
□ Bone and joint
□ Urinary tract infection
□ Genito-Urinary/Obstetric/Gynecological
□ Neonatal
□ Other (please specify): _____
□ Unknown/not defined

15. Treatment

□ Empiric □ Targeted □ Unknown

If targeted treatment, please indicate the resistant organism(s) being treated, please check all that apply:

16.

□ Methicillin-resistant *Staphylococcus aureus* (MRSA)
□ Vancomycin-resistant enterococci (VRE)
□ Carbapenemase producing Enterobacterales (CPE)
□ Bacteria, producing extended-spectrum beta-lactamases (ESBL) OR resistant to 3rd generation cephalosporins
□ Other (please specify): _____

PART 7. HEALTHCARE-ASSOCIATED INFECTIONS

17. Does the patient have one or more of the following HAIs **OR** are they presently being treated with antimicrobial agents for one or more of the following HAIs?
(Refer to Appendix 6 for definitions and Appendix 7 for standardized organism names)

☐ Yes
☐ No ***(if "No," then survey ends here)***

If yes, what type? *(please check <u>all</u> that apply)*

☐ **Healthcare-associated Pneumonia**

Type of Pneumonia:

☐ Ventilator associated
☐ Non Ventilator associated

Indicate organism(s)

_____ _____ _____ _____

☐ No organism identified

☐ **Healthcare-associated Urinary Tract Infection**

Type of urinary tract infection:

☐ Catheter-Associated Urinary Tract Infection (CAUTI)

☐ Non-Catheter-Associated Urinary Tract Infection (non-CAUTI)

Indicate organism(s)

_____ _____ _____ _____

☐ No organism identified

☐ **Surgical Site Infection**

SSI type:

☐ Superficial incisional

☐ Complex (deep incisional/organ/space)

Is this a prosthetic implant related SSI (excluding sternal wires)?

☐ Yes

☐ No

Type of surgery/surgeries resulting in this SSI:

☐ Abdominal aortic aneurysm repair

☐ Limb amputation

☐ Appendix surgery

☐ Shunt for dialysis

☐ Bile duct, liver or pancreatic surgery

☐ Carotid endarterectomy

☐ Gallbladder surgery

☐ Colon surgery

☐ Cesarean section

☐ Gastric surgery

☐ Thoracic surgery

☐ Abdominal hysterectomy

☐ Kidney transplant

☐ Laminectomy

☐ Liver transplant

☐ Neck surgery

☐ Kidney surgery

☐ Ovarian surgery

☐ Prostate surgery

☐ Rectal surgery

☐ Small bowel surgery

☐ Spleen surgery

☐ Thyroid and/or parathyroid surgery

☐ Vaginal hysterectomy

☐ Exploratory laparotomy

☐ Breast surgery

☐ Cardiac surgery

☐ Coronary artery bypass graft with both chest and donor site incisions

☐ Coronary artery bypass graft with chest incision only

☐ Craniotomy

☐ Spinal fusion

☐ Open reduction of fracture

☐ Herniorrhaphy

☐ Hip prosthesis

☐ Knee prosthesis

☐ Pacemaker surgery

☐ Peripheral vascular bypass surgery

☐ Ventricular shunt

☐ Other, please specify: _____

Indicate organism(s)

_____ _____ _____ _____

☐ No organism identified

☐ **Healthcare-associated *Clostridioides difficile* Infection**

☐ **Healthcare-associated Blood Stream Infection**

Type:

☐ Primary

☐ CLABSI

☐ Source unknown

☐ Other, specify: _____

Indicate organism(s)

_____ _____ _____ _____

☐ **Healthcare-associated viral respiratory infection**

Indicate organism(s)

_____ _____ _____ _____

☐ **Healthcare-associated viral gastroenteritis**

Indicate organism(s)

_____ _____ _____ _____

Appendix 5 – Antimicrobial agents

Amikacin	Cefuroxime	Moxifloxacin
Amoxicillin	Ciprofloxacin	Nitrofuratoin
Amoxicillin/Clavulanate	Clarithromycin	Norfloxacin
Amphotericin B	Clindamycin	Oseltamivir
Ampicillin	Cloxacillin	Other antituberculous medications
Anidulafungin	Colistin	Other antiviral medications
Azithromycin	Daptomycin	Others (specify)
Aztreonam	Doxycycline	Penicillin G
Caspofungin	Ertapenem	Penicillin V
Cefadroxil	Erythromycin	Piperacillin
Cefalexin	Ethambutol	Piperacillin Tazobactam
Cefalotin	Fluconazole	Posaconazole
Cefazolin	Gentamicin	Pyrazinamide
Cefepime	Imipenem	Rifampicin
Cefixime	Isoniazid	Sulfamethoxazole/Trimethoprim
Cefotaxime	Itraconazole	Tetracycline
Cefoxitin	Levofloxacin	Tigecycline
Ceftazidime	Linezolid	Tobramycin
Ceftazidime/Avibactam	Meropenem	Vancomycin
Ceftolazane/Tazobactam	Metronidazole	Voriconazole
Ceftriaxone	Micafungin	

Appendix 6 – Healthcare-associated infection definitions

Pneumonia

<table>
<tr><th>Imaging test evidence</th><th>Signs and symptoms</th></tr>
<tr><td rowspan="3">Two or more serial chest imaging test results with at least one of the following:

New and persistent or Progressive and persistent
• Infiltrate
• Consolidation
• Cavitation
• Pneumatoceles, in infants ≤1 year old

Note: In patients without underlying pulmonary or cardiac disease (for example: respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), one definitive imaging test result is acceptable.</td><td>For ANY PATIENT, at least one of the following:
• Fever (> 38.0°C or > 100.4°F)
• Leukopenia (≤ 4000 WBC/ mm^3) or leukocytosis (≥ 12,000 WBC/mm^3)
• For adults ≥ 70 years old, altered mental status with no other recognized cause

And at least two of the following:
• New onset of purulent sputum or change in character of sputum , or increased respiratory secretions, or increased suctioning requirements
• New onset or worsening cough, or dyspnea, or tachypnea
• Rales or bronchial breath sounds
• Worsening gas exchange (for example: O2 desaturations (for example: PaO2/FiO2 ≤ 240), increased oxygen requirements, or increased ventilator demand)</td></tr>
<tr><td>ALTERNATE CRITERIA, for infants ≤ 1 year old:

Worsening gas exchange (for example: O2 desaturations [for example pulse oximetry < 94%], increased oxygen requirements, or increased ventilator demand)

And at least three of the following:
• Temperature instability
• Leukopenia (≤ 4000 WBC/mm^3) or leukocytosis (≥ 15,000 WBC/mm^3) and left shift (≥ 10% band forms)
• New onset of purulent sputum or change in character of sputum, or increased respiratory secretions, or increased suctioning requirements
• Apnea, tachypnea, nasal flaring with retraction of chest wall, or nasal flaring with grunting
• Wheezing, rales, or rhonchi
• Cough
• Bradycardia (< 100 beats/min) or tachycardia (> 170 beats/min)</td></tr>
<tr><td>ALTERNATE CRITERIA, for child > 1 year old or ≤ 12 years old, at least three of the following:

• Fever (> 38. 0°C or > 100. 4°F) or hypothermia (< 36. 0°C or < 96.8°F)
• Leukopenia (≤ 4000 WBC/mm^3) or leukocytosis (≥ 15,000 WBC/mm^3)
• New onset of purulent sputum or change in character of sputum, or increased respiratory secretions, or increased suctioning requirements • New onset or worsening cough, or dyspnea, or apnea, or tachypnea
• Rales or bronchial breath sounds
• Worsening gas exchange (for example: O2 desaturations [for example pulse oximetry < 94%], increased oxygen requirements, or increased ventilator demand)</td></tr>
<tr><td colspan="2">Source: NHSN definition Surveillance Definitions (cdc.gov)</td></tr>
</table>

Ventilator-associated pneumonia (VAP)
A pneumonia where the patient is on mechanical ventilation for > 2 consecutive calendar days on the date of event, with day of ventilator placement being Day 1,* AND the ventilator was in place on the date of event or the day before. *If the ventilator was in place prior to inpatient admission, the ventilator day count begins with the admission date to the first inpatient location. If a break in mechanical ventilation occurs for at least one full calendar day, ventilator day count for ventilator association starts anew upon reintubation and/or re-initiation of mechanical ventilation.
Source: NHSN definition Surveillance Definitions (cdc.gov)

Urinary tract infection (UTI)	
	Symptomatic UTI (SUTI) Must meet at least one of the following criteria:
Catheter-associated Urinary Tract Infection (CAUTI) in any age patient	Patient must meet 1, 2, and 3 below: 1. Patient had an indwelling urinary catheter that had been in place for more than 2 consecutive days in an inpatient location on the date of event (with Day 1= day of device placement) AND was either: • Present for any portion of the calendar day on the date of event, OR • Removed the day before the date of event 2. Patient has at least one of the following signs or symptoms: • fever (>38.0°C) • suprapubic tenderness • costovertebral angle pain or tenderness • urinary urgency^ • urinary frequency^ • dysuria^ 3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of ≥105 CFU/ml (See Comments). All elements of the SUTI criterion must occur during the IWP (See IWP Definition Chapter 2 Identifying HAIs in NHSN). ^ These symptoms cannot be used when catheter is in place. An IUC in place could cause patient complaints of “frequency” “urgency” or “dysuria”. Note: • Fever is a non-specific symptom of infection and cannot be excluded from UTI determination because it is clinically deemed due to another recognized cause.
Non-Catheter-associated Urinary Tract Infection (Non-CAUTI) in any age patient	Patient must meet 1, 2, and 3 below: 1. One of the following is true: • Patient has/had an indwelling urinary catheter, but it has/had not been in place for more than two consecutive days in an inpatient location on the date of event OR • Patient did not have an indwelling urinary catheter in place on the date of event nor the day before the date of event

	2. Patient has at least one of the following signs or symptoms: • fever (>38°C) • suprapubic tenderness* • costovertebral angle pain or tenderness* • urinary frequency ^ • urinary urgency ^ • dysuria ^ 3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of ≥105 CFU/ml. (See Comments) All elements of the SUTI criterion must occur during the IWP (See IWP Definition Chapter 2 Identifying HAIs in NHSN). *With no other recognized cause (see Comments) ^These symptoms cannot be used when IUC is in place. An IUC in place could cause patient complaints of “frequency” “urgency” or “dysuria”. Note: • Fever is a non-specific symptom of infection and cannot be excluded from UTI determination because it is clinically deemed due to another recognized cause.
	Source: NHSN definition Surveillance Definitions (cdc.gov)

Surgical Site Infection (SSI)

Superficial incisional infection

Must meet the following criteria:

Date of event occurs within 30 days after any operative procedure (where day 1 = the procedure date)

AND

involves only skin and subcutaneous tissue of the incision

AND

patient has at least ***one*** of the following:

a. purulent drainage from the superficial incision.
b. organism(s) identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing (ASC/AST)).
c. superficial incision that is deliberately opened by a surgeon, physician or physician designee and culture or non-culture based testing of the superficial incision or subcutaneous tissue is not performed
   AND
   patient has at least *one* of the following signs or symptoms: localized pain or tenderness; localized swelling; erythema; or heat.
d. diagnosis of a superficial incisional SSI by a physician or physician designee.

Deep incisional SSI

Must meet the following criteria:

The date of event occurs within 30 or 90 days after the operative procedure (where day 1 = the procedure date) according to the list in Table 1.

AND

involves deep soft tissues of the incision (for example, fascial and muscle layers)

AND

patient has at least *one* of the following:

a. purulent drainage from the deep incision.
b. deep incision that spontaneously dehisces, or is deliberately opened or aspirated by a surgeon, physician or physician designee
   AND
   organism(s) identified from the deep soft tissues of the incision by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing (ASC/AST)) or culture or non-culture based microbiologic testing method is not performed. A culture or non-culture based test from the deep soft tissues of the incision that has a negative finding does not meet this criterion.
   AND
   patient has at least *one* of the following signs or symptoms: fever (>38°C); localized pain or tenderness.
c. an abscess or other evidence of infection involving the deep incision that is detected on gross anatomical or histopathologic exam, or imaging test.

Organ/Space SSI Must meet the following criteria
The date of event occurs within 30 or 90 days after the operative procedure (where day 1 = the procedure date) according to the list in Table 1. **AND** involves any part of the body deeper than the fascial/muscle layers that is opened or manipulated during the operative procedure **AND** patient has at least *one* of the following: a. purulent drainage from a drain that is placed into the organ/space (for example, closed suction drainage system, open drain, T-tube drain, CT-guided drainage). b. organism(s) identified from fluid or tissue in the organ/space by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing (ASC/AST)). c. an abscess or other evidence of infection involving the organ/space that is detected on gross anatomical or histopathologic exam, or imaging test evidence suggestive of infection. **AND** meets at least *one* criterion for a specific organ/space infection site listed in Table 2.
Source: NHSN definition Surveillance Definitions (cdc.gov)

Table 1. Surveillance periods for SSI following operative procedures

Operative procedures	
30-day Surveillance	
Abdominal aortic aneurysm repair	Laminectomy
Limb amputation	Liver transplant
Appendix surgery	Neck surgery
Shunt for dialysis	Kidney surgery
Bile duct, liver or pancreatic surgery	Ovarian surgery
Carotid endarterectomy	Prostate surgery
Gallbladder surgery	Rectal surgery
Colon surgery	Small bowel surgery
Cesarean section	Spleen surgery
Gastric surgery THOR Thoracic surgery	Thyroid and/or parathyroid surgery
Abdominal hysterectomy	Vaginal hysterectomy
Kidney transplant	Exploratory laparotomy
90-day Surveillance	
Breast surgery	Open reduction of fracture
Cardiac surgery	Herniorrhaphy
Coronary artery bypass graft with both chest and donor site incisions	Hip prosthesis
Coronary artery bypass graft with chest incision only	Knee prosthesis
Craniotomy	Pacemaker surgery
Spinal fusion	Peripheral vascular bypass surgery
	Ventricular shunt

Table 2. Specific Sites of Organ/Space SSI

Specific site	
Osteomyelitis	Mediastinitis
Breast abscess or mastitis	Meningitis or ventriculitis
Myocarditis or pericarditis	Oral cavity infection (mouth, tongue, gums)
Disc space infection	Deep pelvic tissue infection or other infection of the male or female reproductive tract
Ear, mastoid infection	Periprosthetic joint infection
Endometritis	Spinal abscess/infection
Endocarditis	Sinusitis
Gastrointestinal (GI) tract infection	GIT Gastrointestinal (GI) tract
Intraabdominal infection, not specified elsewhere	Urinary System Infection
Intracranial infection VASC	Arterial or venous infection
Joint or bursa infection	Vaginal cuff infection
Other infection of the lower respiratory tract	

Clostridioides difficile Infection (CDI)

Criterion 1: has diarrhea* or fever, abdominal pain and/or ileus AND a laboratory confirmation of a positive toxin assay or positive polymerase chain reaction (PCR) for *C. difficile* toxin gene(s) (without reasonable evidence of another cause of diarrhea).

OR

Criterion 2: has a diagnosis of pseudomembranes on sigmoidoscopy or colonoscopy (or after colectomy) or histological/ pathological diagnosis of CDI.

OR

Criterion 3: is diagnosed with toxic megacolon (in adult patients only).

Exclusions

- Any patients under 1 year of age.
- Any pediatric patients (aged 1 year to less than 18 years) with alternate cause of diarrhea found (i.e. rotavirus, norovirus, enema or medication etc.) are excluded even if C. difficile diagnostic test result is positive.

*Diarrhea is defined as one of the following:

- ✓ 6 or more watery/unformed stools in a 36-hour period
- ✓ 3 or more watery/ unformed stools in a 24-hour period and this is new or unusual for the patient (in adult patients only)

Source: CNISP 2023 definition

Bloodstream Infection (BSI)

The BSI is NOT related to an infection at another site (not a secondary BSI according to National Healthcare Safety Network (NHSN) definitions – please refer to Chapter 2 and Chapter 4-Appendix B) and it meets one of the following criteria:

Criterion 1: Recognized pathogen cultured from at least one blood culture, unrelated to infection at another site (not a secondary BSI according to NHSN definitions).
OR
Criterion 2: At least one of: fever (>38°C core), chills, hypotension ; if aged < 1 year: fever (>38°C core), hypothermia (<36°C core), apnea, or bradycardia AND common skin contaminant cultured from ≥ 2 blood cultures drawn on separate occasions, or at different sites, unrelated to infection at another site (not a secondary BSI according to NHSN definitions).

Criterion elements must be met within a seven-day time period which includes three days before and three days after the collection date of the first positive blood culture.

Diphtheroids (Corynebacterium spp. not C. diphtheria), Bacillus spp (not B. anthracis), Propionibacterium spp., coagulase-negative staphylococci, (including S. epidermidis) viridans group streptococci, Aerococcus spp., Micrococcus spp and Rhodococcus spp

Different sites may include peripheral veins, CVCs, or separate lumens of a multiumen catheter. Different times include 2 blood cultures collected on the same or consecutive calendar days via separate venipunctures or catheter entries. The collection date of the first positive blood culture is the date used to identify the date of positive culture. Two positive blood culture bottles filled at the same venipuncture or catheter entry constitute only one positive blood culture.

Source: CNISP 2023 definition

Central line-associated bloodstream infection

A CLABSI must meet one of the following criteria:

Criterion 1: A laboratory-confirmed bloodstream infection (LCBSI) where a central line catheter (CL) or umbilical catheter (UC) was in place for >2 calendar days on the date of the positive blood culture, with day of device placement being Day 1.

OR

Criterion 2: A LCBSI where CL or UC was in place >2 calendar days and then removed on the day or one day before positive blood culture drawn.

CL = venous access device that terminates at or close to the heart or in one of the great vessels. The CDC/NHSN defines great vessels as: aorta, pulmonary artery, inferior and/or superior vena cava, brachiocephalic, internal jugular, subclavian, external iliac, common iliac, femoral veins, and umbilical artery and vein.

CLs include non-tunnelled (standard) CL, coated or not, peripherally inserted CL (PICC), tunnelled devices (e.g. Broviac, Hickman), tunnelled haemodialysis line, intra-cardiac catheters such as intra-atrial & and ventricular lines, dual function lines such as temperature/venous catheters e.g. Cool line catheters, Quattro catheters, introducers etc.), pulmonary artery catheters, umbilical artery and vein catheters and implanted catheters (including ports).

Other arterial catheters are NOT included. AV fistulas and or grafts, pacemaker leads and other non-infusion devices (ECMO, IABP and VAD) inserted into central blood vessels or the heart are NOT included

Source: CNISP 2023 definition

VIRAL RESPIRATORY INFECTION (VRI)

Positive viral culture test by PCR (polymerase chain reaction), DFA (direct fluorescent antigen) or EIA (enzyme immunoassay) for a viral respiratory tract pathogen.

AND

At least one of the following signs or symptoms:
fever (> 38 °Celsius) or single temperature >1.1°Celsius over baseline from any site (oral, rectal, tympanic, axillary), rhinitis, nasal congestion, pharyngitis, sneezing, cough, wheeze, stridor, apnea, dyspnea, laboured breathing, increased respiratory secretions, change in characteristics of chronic secretions, decreased air entry on auscultation, rales, rhonchi, decreased oxygen saturation, need for increased Fi02, increased ventilator support, increased suctioning or new abnormality on chest radiograph.

AND

No other evident cause for the abnormality.

COVID-19 case definition

Positive viral culture test by PCR (polymerase chain reaction) for SARS-CoV-2 in the past 14 days (prior to admission or during hospitalization).

Source: CNISP 2023 definition

VIRAL GASTROENTERITIS

Gastroenteritis must meet at least one of the following criteria:

1. Patient has an acute onset of diarrhea (liquid stools for > 12 hours) and no likely noninfectious cause (for example, diagnostic tests, therapeutic regimen other than antimicrobial agents, acute exacerbation of a chronic condition, or psychological stress information).

2. Patient has at least **two** of the following signs or symptoms: nausea*, vomiting*, abdominal pain*, fever (>38.0°C), or headache*

And at least one of the following:
a. an enteric pathogen is identified from stool or rectal swab by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).
b. an enteric pathogen is detected by microscopy on stool
c. diagnostic single antibody titer (IgM) or 4-fold increase in paired sera (IgG) for organism.

* With no other recognized cause

Source: NHSN definition Surveillance Definitions (cdc.gov)

Appendix 6 – Microorganisms

Acinetobacter baumanii	Klebsiella pneumoniae
Acinetobacter spp., or not specified	Klebsiella spp., other or not specified
Acintomyces	Legionella spp.
Adenovirus	Listeria monocytogenes
Aeromonas spp.	M. catarrhalis
Aspergillus spp.	Morganella spp.
Bacteroides fragilis	Mycobacterium Tuberculosis complex
Beta hemolytic Streptococci, group A	Mycoplasma pneumoniae
Beta hemolytic Streptococci, group B	Neisseria gonorrhoeae
Beta hemolytic Streptococci, other	Neisseria meningitidis
Bocavirus	Norovirus
Burkholderia cepacia	Other bacteria Mycobacterium, atypical
Burkholderia mallei	Other coagulase-negative staphylococci (CNS)
Burkholderia pseudomallei	Other Enterobacterales
Campylobacter sp.	Parainfluenza
Candida species, other or not specified	Peptostreptococcus spp.
Candida auris	Proteus mirabilis
Chlamydia spp.	Proteus spp., other or not specified
Citrobacter freundii	Proteus vulgaris
Citrobacter spp., other or not specified	Providencia spp., other or not specified
Clostridioides difficile	Pseudomonas aeruginosa
Clostridioides spp., other or not specified	Pseudomonadaceae family, other or not specified
Corynebacterium species	Respiratory Syncytial Virus
E. coli	Rhinovirus
Enterobacter cloacae	Rotavirus
Enterobacter spp., other or not specified	Salmonella enteritidis
Enterococcus faecalis	Salmonella spp., or other not specified
Enterococcus faecium	Salmonella typhi or paratyphi
Enterococcus spp., other or not specified	Salmonella typhimurium
Enterovirus	Serratia marcescens
Enterovirus/Rhinovirus	Serratia spp., other or not specified
H. influenzae	Shigella spp.
Helicobacter pylori	Staphylococcus aureus
Herpes Simplex Virus	Staphylococcus epidermidis
Human Coronavirus (not SARS-CoV-2)	Staphylococcus haemolytics
SARS-CoV-2	Stenotrophomonas maltophilia
Human Metapneumovirus	Streptococcus pneumoniae
Influenza A	Streptococcus spp., other or not specified
Influenza B	Varicella Zoster Virus
Klebsiella aerogenes	Viridans group Streptococci
Klebsiella oxytoca	Yersinia spp.
	Other, not specified above

Revision history

Date	Revisions
Jan 30, 2024	• Corrected organism spelling errors in Appendix 6 • Updated patient eligibility to include all patients admitted to a CNISP participating at 8am on the day of the survey
Feb 20, 2024	• Updated patient eligibility back to previous definition to exclude patients hospitalized for < 48 hours.
Feb 22, 2024	• Removed ASP questions and Table 2 from long form • Updated the HAI definition for CDI – symptom onset must be ≥ 72 hours (or 4 days)