Vancomycin-resistant Enterococci (VRE) Protocol

Approved by Provincial IPC Surveillance Committee:
Revised: April 2024

Alberta Health Services
Infection Prevention & Control

Approved: June 2010
Revised: April 2024

Alberta Health Services
Infection Prevention & Control

Contents

Approved: June 2010
Revised: April 2024

Introduction

Antibiotic-resistant organisms constitute a significant and growing threat to patients/clients/residents in healthcare facilities and in our communities. Vancomycin-resistant Enterococci (VRE) are strains of Enterococcus bacteria and types of antibiotic-resistant organisms that have developed vancomycin resistance by obtaining new DNA in the form of plasmid or transposons which encode genes that confer vancomycin resistance (see VRE typing). Vancomycin is an antibiotic, generally prescribed to treat serious infections cause by organisms, that are resistant to other antibiotics such as penicillins.

VRE can be spread from patient to patient via the fecal-oral route or indirectly via the hands of healthcare workers or through contact with contaminated equipment or other surfaces. VRE infections typically occur among patients with weakened immune systems, patients previously treated with vancomycin or other antibiotics for long periods of time, patients who have undergone surgical procedures and those patients with medical devices such as urinary catheters (Public Health Agency of Canada [PHAC], 2010).

In conjunction with the VRE surveillance protocol, there are four supporting documents to assist in the interpretation and practical use of the protocol:

- VRE Protocol-Specific and General Surveillance Definitions (Appendix A and Appendix B),
- VRE Case Classification Algorithm (Appendix C),
- VRE User Guide (Alberta Health Services [AHS], 2018).

Goal

To decrease incidence of hospital-identified VRE infections in Alberta Health Services (AHS) and Covenant Health facilities.

Objectives

1. To determine the incidence of recognized hospital-identified and On Admission VRE infections in the population under surveillance in AHS and Covenant Health facilities.
2. To use surveillance results to develop and evaluate Infection Prevention and Control (IPC) interventions which support safer patient care.
3. To establish quarterly and annual VRE infection incidence rates for trend analysis over time and to compare with internal and external benchmarks.
4. To establish VRE Blood Stream Infection (BSI) incidence rates.

Methodology

Cases eligible for surveillance are inpatients with laboratory confirmed VRE clinical isolates, regardless of severity. The first positive isolate meeting infection definition is labeled as the **First Infection.**

Reports of isolates originating from facilities under surveillance will be forwarded by laboratories to facility-based IPC programs or designates. Facility Infection Control Professionals (ICPs) receiving VRE laboratory reports will determine if cases are infections according to the definitions from the National Healthcare Safety Network (NHSN), will determine if cases are hospital-identified or On Admission and will compile and record at least the minimum case information (Centers for Disease and Prevention [CDC], 2024b). Data from completed VRE surveillance will be entered into the provincial surveillance platform.

Approved: June 2010
Revised: April 2024

Patient population

All individuals admitted to AHS and Covenant Health acute and acute tertiary rehabilitation care facilities, where inpatient care is provided 24 hours/day, 7 days a week. Acute and acute tertiary rehabilitation facilities will be referred as the "facilities under surveillance" in this protocol for simplicity. Please refer to Appendix B: General Surveillance Definitions for facilities that would be included under this term.

Case definition

A **First Infection** case is a laboratory confirmed VRE in an infected body site;

and

Is identified for the first time in a patient at the time of admission or during hospitalization.

Inclusion criteria

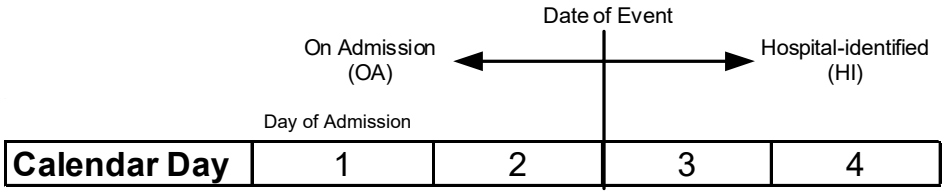
- A patient's laboratory result indicates the presence of VRE at a body site where the National Healthcare Safety Network site-specific criteria for infection are met. If there are multiple organisms and VRE is also present, VRE does not need to be the causative pathogen to meet case definition for a VRE surveillance case.
- VRE case identified for the first time while patient is admitted to a facility under surveillance.
- VRE case identified for the first time in the emergency department in patients who are subsequently admitted to a facility under surveillance.
- Previously known VRE positive patients with For Info record and **no First Infection** *or* (a historic **Initial**) record.
- Previously known VRE positive patients with a different strain of a VRE (i.e., *Enterococcus faecalis* vs *Enterococcus faecium*).

Exclusion criteria

- Patients with a previous incident VRE case (i.e., previous **First Infection** or a historic **Initial** VRE) are not eligible to be a new VRE surveillance case unless they are identified with a different VRE strain.
- Patients with laboratory confirmed VRE, whether they meet the National Healthcare Safety Network infection criteria or not, who were not admitted at the time of specimen collection or were not subsequently admitted as an inpatient following their emergency department visit are not eligible to be a **First Infection** case.

Case classification

Once the person has been identified with a **First Infection**, the infection will be classified as hospital-identified or identified On Admission based on the following criteria:



Hospital-identified

Once an admitted patient has been identified with a **First Infection** case, the infection will be classified as **hospital-identified** using the following criteria:

- If the infection onset is on or after the 3rd calendar day of admission.
- Direct transfers between facilities if:
  - The patient (not known to be VRE positive) is transferred directly from a facility under surveillance to another and is identified with a VRE infection on admission at the receiving facility (i.e., prior to calendar day 3), the ICP at the sending facility must be notified of the VRE to agree with the interpretation of the appropriate National Healthcare Safety Network infection definition and case classification. The ICP at the receiving facility creates a For Info record using the encounter information of their facility and sends invite to ICP at the sending facility.
  - The patient will be entered as a **First Infection** surveillance case at the sending facility if the infection is deemed to meet the National Healthcare Safety Network transfer rule criteria. For example, the date of event is on the date of transfer or discharge, or the next day, the infection is attributed to the transferring/discharging /sending facility location (i.e. hospital-identified back). The patient must have been at the sending facility for 3 calendar days. If deemed to be hospital-identified back, the ICP at the sending facility would go into the For Info record change it to a **First Infection** record, classify as hospital-identified and enter the encounter information during the patient's stay prior to transfer.
  - The sending facility finds evidence meeting National Healthcare Safety Network site-specific infection criterion that the infection occurred 2 days before admission, on day of admission, or the day after admission to their facility, the case can be classified as On Admission at the sending facility. If there are multiple direct transfers between facilities, the most recent facility the patient was admitted at prior to the direct transfer takes the case as hospital-identified to their facility if infection meets National Healthcare Safety Network transfer rule criteria.

Example of Hospital-identified

Calendar Day	VRE	Infection Window Period
-2		
-1		
1		
2		
3		
4 HI	VRE Positive	**Urine Culture**: > 10^8 cfu/L Vancomycin Resistant E. *faecium*
5		Fever >38.0 C
6		
7		
8		

VRE Infection is Hospital-identified

- Date of Event = Calendar Day 4 - urine culture with VRE
- Patient met UTI definitions within the infection time window period therefore meeting NHSN UTI definitions.
- Pathogen = VRE

(**Note**: Please see Data_definition_Urine_Colony_Counts_2016.pdf for more information on interpreting NHSN UTI definition's criteria for urine colony count).

Infection Window Period
(First positive diagnostic test, 3 days before and 3 days after)

Date of Event (Event Date)
(Date the first element used to meet an NHSN site-specific infection criterion occurs for the first time within the 7-day infection window period)

Approved: June 2010
Revised: April 2024

Infection identified on admission

An infection is considered identified **On Admission** if the date of event of the infection definition criterion occurs during the day of admission to an inpatient location (calendar day 1), the 2 days before admission, or the day after admission (calendar day 2).

Example of on admission

Calendar Day	VRE	Infection Window Period
-2		
-1		
1 OA		Fever >38.0 C
2		Fever >38.0 C
3	VRE Positive	**Urine Culture**: > 10^8 cfu/L Vancomycin Resistant E. *faecium*
4		
5		
6		
7		
8		

VRE Infection identified on admission

- Date of Event = Calendar Day 1 - patient had a fever
- Patient met UTI definitions within the infection time window period, therefore meeting NHSN UTI definitions
- Pathogen = VRE

(**Note**: Please see Data_definition_Urine_Colony_Counts_2016.pdf for more information on interpreting NHSN UTI definition's criteria for urine colony count).

Infection Window Period
(First positive diagnostic test, 3 days before and 3 days after)
Date of Event (Event Date) (Date the first element used to meet an NHSN site-specific infection criterion occurs for the first time within the 7-day infeciton window period)

Other considerations for classification

Site of positive culture as First Infection case

- If a patient has multiple infected body sites positive with the same VRE strain within 1 day of each other, use the culture result with the most significant manifestation of VRE (i.e., most clinically relevant specimen) to report as the **First Infection** case.
- Use specimen with the earliest collection date as the incident **First Infection** case, e.g., if blood and wound culture specimens are positive within 1 day of each other, the blood specimen should be used as the incident case.

VRE BSI surveillance

- All BSI records for an antibiotic-resistant organism under surveillance are to be entered into the provincial surveillance platform BSI module including sites that are not performing local BSI surveillance.

- For VRE-BSI, the case classification for the BSI and VRE are determined independently. Classify the VRE based on the VRE protocol, and the BSI based on the BSI protocol.

> Note: Each new VRE-BSI episode must be entered in the provincial surveillance platform but not every positive blood culture result from the same BSI episode. Please refer to the provincial BSI protocol for more information (AHS, 2023a).

- Any new hospital-acquired BSI where the pathogen is VRE is included in the hospital-acquired VRE-BSI rate. This is regardless of the status of the VRE (either **First Infection** or **Follow-up**). The event is reported in the reporting quarter of the BSI event date.

VRE identified in Surgical Site Infections (SSI)

- If a patient has a VRE positive culture from an SSI and is deemed to be an SSI (according to National Healthcare Safety Network definitions (CDC, 2024a)), that information should be entered independently in the provincial surveillance platform VRE module and into the SSI module if the surgical procedure is one followed for either provincial or local SSI surveillance.
    - If a VRE is identified from a superficial incisional SSI (infection is occurring within 30 days of the surgery), the incident VRE case will be classified according to the criteria for case classification above.
    - If a VRE incident case is identified from a **deep incisional or organ-space SSI**, it will be classified according to the following criteria:
    - If the surgery resulted in a deep or organ-space SSI, the VRE incident case will be hospital-identified to the facility where the surgery was done if infection occurs within their National Healthcare Safety Network SSI defined follow-up time. The procedure facility and surgery admission date should be used as the encounter information for that record and the ICPs at that facility should be notified of the VRE to agree with the interpretation of the National Healthcare Safety Network definition.

Data collection and data entry

The following table highlights whether a record type is mandatory data entry in the provincial surveillance platform. For more information, see the written explanations below the table. The highlighted cells indicate what record types are used for reporting purposes.

VRE Data Entry		
Record Type	**Description**	**Mandatory Entry**
For Info	Non-acute care positive VRE BEFORE the first inpt VRE infection specimen	No
	Inpatient postive clinical specimens (not rectal/stool or sputum) that are deemed colonized BEFORE the frst inpatient VRE infection specimen	Yes
	New VRE positive identified by the ARO clearing protocol BEFORE the first inpt VRE infection record	No
	VRE valid negative culture results identified by the ARO clearing protocol BEFORE the first inpatient VRE infection record	No
First Infection	A patient's first VRE infection as an inpatient (clinical specimens only)* OR Previously known VRE positive patient with an infection AND a different strain of VRE (faecalis vs faecium)* * Needs case classification OA, HI (VRE-BSI remains HA, HCA CA)	Yes
Follow-up	Subsequent results for surveillance cases (unless identified by the ARO clearing protocol), any patient location	No
	Any New BSI with VRE identified AFTER the fist inpatient VRE infection record (Enter separately in BSI and VRE modules)	Yes
	Any positive colonization or infection identified by the ARO clearing protocol AFTER the first inpatient VRE infection record	No
	VRE valid negative culture results identified by the ARO clearing protocol AFTER the first inpatient VRE infection record	No

> Note: If a patient has an Initial record in the provincial surveillance platform (this was the incidence case record type used prior to April 2015), the cases identified following this case should have a record type of "follow-up", unless the VRE identified is of a different strain.

Approved: June 2010
Revised: April 2024

Mandatory data entry

- All inpatient clinical specimens with confirmed laboratory results of a new positive VRE in all facilities under surveillance before and including the **First Infection** record. Case severity decisions for each case should be noted using National Healthcare Safety Network infection definitions.
- All inpatient blood cultures growing VRE from facilities under surveillance must be evaluated and if determined to be a NEW bloodstream infection (BSI) episode it must be entered directly in the provincial surveillance platform VRE module **and** BSI module regardless of the VRE record type (**First Infection**, **For Info, Follow-up, Initial**).
- Inpatient colonized clinical VRE specimens with NO **First Infection**. If the positive colonized clinical specimens are within the infection window period, enter the first inpatient positive clinical specimen as a **For Info** record and then enter the subsequent test dates in the comment box. If subsequent record is outside the infection window period (i.e. more than one week apart) enter as a second **For Info** record.

Minimum case information

Basic demographic, facility and microbiological data will be collected on all cases and must include:

- Name (first, middle, last);
- Date of birth;
- Gender;
- Alberta Personal Healthcare Number (PHN) (or Unique Lifetime Identifier (ULI));
- Connect Care Medical Record Number (MRN);
- Record type and infection classification (i.e., Hospital-identified or On admission);
- Admission date to reporting facility;
- Reporting zone and facility name;
- Encounter service and area where patient is admitted;
- Culture date, laboratory name, accession number, and cultured site;
- Case severity (colonization/infection, unknown case severity is reserved for patients with a previous **First Infection** record) for all clinical specimens; and
- Specimen sampling reason.

Other considerations for data entry

Information may be obtained from a variety of sources including inpatient/resident charts (current or archived), nurses' logs, laboratory reports, nursing and medical staff, etc. The data will be collected by the ICP manually or electronically as soon as possible after the laboratory report of the **First Infection** VRE isolate is obtained.

Each ICP or IPC designate will be responsible for timely entry of the surveillance data into provincial surveillance platform. It is expected that the minimum data set is collected and entered in a timely manner after factoring in time of collection, to time to reach laboratory, work-up and distribution to ICPs and/or IPC offices. Typically, the time it takes for a laboratory to work up a culture specimen is approximately 3 days. As a recommendation, data entry should be completed within 1-2 weeks of receiving the laboratory report by an ICP or an IPC designate.

Denominator data

Denominators (numbers of inpatient admissions and inpatient days) are provided by AHS Analytics. Denominators are presented by month which are aggregated for the fiscal quarter of the report. Denominators used for reporting can be accessed on Tableau Workbooks.

Rate calculations

Incidence Rates for AHS/Covenant Health Hospitalized Patients	Calculations
Hospital-identified VRE	$\frac{\text{Number of hospital-identified VRE cases}}{\text{Number of patient-days}} \times 10{,}000$
On admission VRE	$\frac{\text{Number of on admission VRE cases}}{\text{Number of admissions}} \times 1{,}000$
Hospital-acquired VRE-BSI	$\frac{\text{Total number of hospital-acquired BSI with VRE}}{\text{Number of patient-days}} \times 10{,}000$

Comparator rates

Internal and external surveillance rates are used as comparators. The internal rates are the historical rates for the province or zone from the previous fiscal year. The external rates are provided by the Canadian Nosocomial Infection Surveillance Program (CNISP) which are created from data submitted by large and tertiary acute care facilities and therefore may not provide appropriate comparison for smaller acute care facilities.

Reporting

Communication and dissemination of surveillance reports is an integral part of surveillance to inform IPC practice within AHS/Covenant Health and provide support for interventions that improve the quality of patient care delivered. Responsibility for compiling, reporting, and disseminating data and reports is shared between AHS/Covenant Health IPC Surveillance and Standards and the AHS/Covenant Health IPC program. Formal reports are generated routinely (usually quarterly) using reconciled and validated data.

The reports are presented to the provincial IPC Surveillance, Evaluation, Quality Improvement and Research committee for approval (AHS, 2023b). Operational reports are created by local ICPs or their designate and may or may not consist of reconciled and validated data, as they are often created with real-time, as is, data. Additional ARO-BSI information can be accessed on our Tableau Workbooks.

Data quality

The purpose of evaluating the quality of data is to ensure that VRE-related events are monitored efficiently and effectively. The evaluation should involve the assessment of the program (i.e., the protocol and reporting) and system (i.e., electronic data collection tool) attributes including relevance, simplicity, flexibility, data quality, acceptability, consistency, representativeness, timeliness and stability.

Additionally, with increasing use of technology, informatics concerns for surveillance systems need to be addressed. These include evaluating hardware and software, using a standard user interface, applying standard data formatting and coding, performing quality checks and adhering to confidentiality and security standards.

A standardized approach is used to reconcile and validate the data provincially. The first component of data reconciliation and validation of data in the provincial surveillance platform ensures that demographic data is valid and reliable. The second component entails ensuring that the VRE-related events are entered in a manner that is consistent with the protocol definitions. At this latter stage, outliers are identified, and requests are sent to the ICPs to verify that the data was correctly entered, and definitions were consistently applied according to the provincial surveillance protocol. Final designation of cases is a

collaborative effort between the facility-based ICPs and the epidemiologists/analysts of the IPC Surveillance and Standards team.

Further use of statistical software for validating records is still in development. Algorithms are continuously being updated and added to ensure capture of as many discrepancies as possible. In addition to this current process of data review, there will be data audits using external data sources to determine the validity and reliability of the data in the provincial surveillance platform. The data in will also serve to inform decisions made by the IPC Surveillance and Standards team to improve surveillance processes and methodologies.

On-going case-severity decision reviews are conducted to create a supportive environment for the ICPs and IPC Physicians at the facilities, and to create mentoring relationships between Data Quality Working Group members and ICPs at these facilities to support all aspects of surveillance across the participating facilities.

Data quality working group

The IPC Surveillance Data Quality Working Group reports to the IPC Surveillance, Evaluation, Quality Improvement and Research committee and is responsible to develop, review and update indicator protocols to include the precise methodology for data collection to ensure consistency. Decisions from the Data Quality Working Group on specific protocol questions are communicated to provincial ICPs through the Data Quality Forum and are included in the protocol User Guide. These decisions will be supplemental to the protocol and will be incorporated into the protocol, when revised.

Protocol revision history

Date	Details
October 2015	VRE was separated from the original combined MRSA/VRE protocol.
April 2017	
April 2018	
April 2019	Protocol style updated; reference style changed to APA.
Spring 2020	Updated to new template and reposted to web page.
April 2021	Removed references to ARO screening protocol and requirement for that data entry as routine clearing for VRE was halted in early 2021; Updated references.
April 2022	Added clarification on mandatory for info data entry for inpatient colonized clinical samples with no First Infection record.
March 2023	Updated references. Updated LTC definition. Changed reporting process from IPC Surveillance Committee to IPC Surveillance, Evaluation, Quality Improvement and Research Committee.
Spring 2024	Reference to supporting documentation in the “Introduction” changed to a bulleted list. Updated language in Methodology section to clarify which cases are mandatory data entry. Added “historic” when talking about “Initial” record type in the case definition section. Updated VRE data entry table to include exclusion of “sputum” for data entry of clinical specimens colonized before the first inpatient VRE infection specimen. Added “unknown case severity is reserved for patients with a previous First Infection record” in the minimum case information section. Removed reference to ProvSurv – used “provincial surveillance platform.” General and specific definitions updated. References updated.

References

Alberta Health Services. (2018). VRE User Guide. Retrieved March 2024, from https://provsurv.healthy.bewell.ca/provhelp/vreug/vre-ug-001.html

https://www.albertahealthservices.ca/assets/healthinfo/ipc/hi-ipc-sr-bsi-surveillance-protocol.pdf.

Alberta Health Services. (2023). *Infection Prevention and Control Alberta Health Services and Covenant Health, Action Plan Provincial Surveillance Program.*

Alberta Health Services. (2024). Bloodstream Infection (BSI) provincial surveillance protocol [PDF document]. Retrieved March 2024, from

Centers for Disease Control and Prevention. (2024a). National Healthcare Safety Network: Procedure-associated Module – Surgical Site Infection Event. Retrieved March 2024, from https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscssicurrent.pdf.

Centers for Disease Control and Prevention. (2024b). National Healthcare Safety Network: Surveillance Definitions for Specific Types of Infections. Retrieved March 2024, from http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf.

Government of Alberta. (2008). Continuing Care Strategy: Aging in the Right Place. Retrieved March 2024, from https://open.alberta.ca/publications/9780778574224.

Government of Alberta. (2024). Alberta Health Facility and Functional Centre Definitions and Facility Listing as of January 1, 2022. Retrieved March 2024, from https://open.alberta.ca/publications/alberta-health-facility-and-functional-centre-definitions-and-facility-listing.

Public Health Agency of Canada. (2010). Vancomycin-resistant Enterococci (VRE) fact sheet. Retrieved March 2024, from http://www.phac-aspc.gc.ca/nois-sinp/vre-erv-eng.php.

Appendix A: VRE protocol-specific definitions

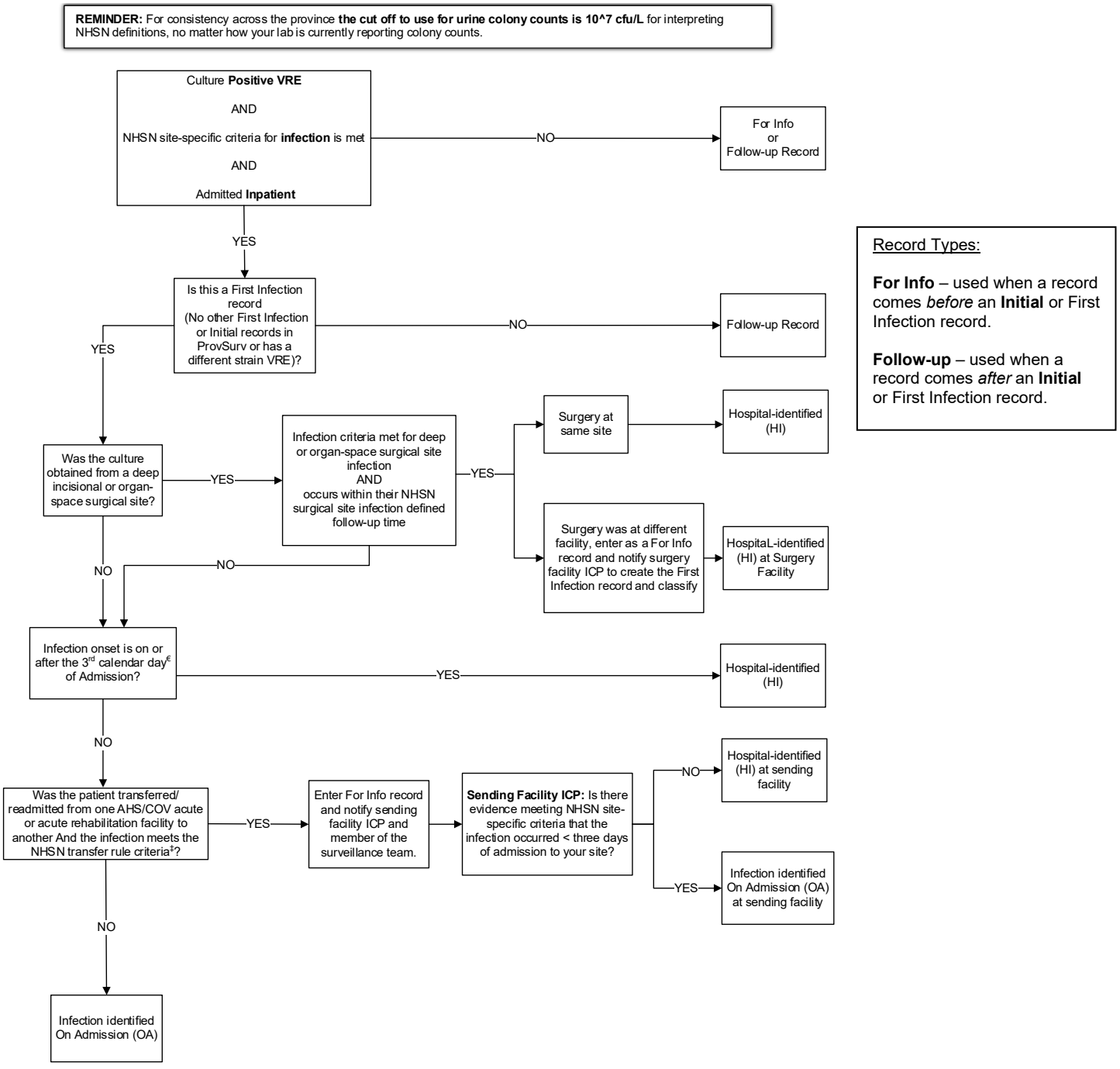
Terms	Definitions
Body or culture sites examples	Abscess, Bronchoalveolar lavage (BAL)-bronchial wash (BW), Blood, Burn, Device Insertion Site, Groin, Nose, Rectal, Pleural Fluid, Stool, Skin, Soft Tissue, Sputum, Stoma, Surgical Site, Synovial Fluid, Throat, Ulcer, Urine, Wound.
Calendar days	Used for determining the timeline of presenting with or acquiring an antibiotic-resistant organism, CDI, BSI, or National Healthcare Safety Network infection definition. Calendar day 1 is the day of patient admission (see patient admission definition for more information) or day of surgical procedure.
Colonization	The presence of microorganisms on skin, mucous membranes, open wounds, or excretions/ secretions but are not causing adverse clinical signs or symptoms (CDC, 2024b).
Date of event	the presence of microorganisms on skin, mucous membranes, open wounds, or excretions/ secretions but are not causing adverse clinical signs or symptoms (CDC, 2024b).
Infection	Presence of micro-organisms from any site with signs and the manifestation of symptoms of a clinical infection. Refer to National Healthcare Safety Network definitions for infection definitions from specific sites (CDC, 2024b). http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf.
Infection window period	The 7-days during which all site-specific infection criteria must be met. It includes the day of the first positive diagnostic test (i.e. lab specimen collection, imaging test, procedure or exam, physician diagnosis and initiation of treatment) that is an element of the site-specific infection criterion, was obtained, the 3 calendar days before and the 3 calendar days after. For site-specific infection criteria that do not include a diagnostic test, the first documented localized sign or symptom that is an element of National Healthcare Safety Network infection criterion, excluding SSIs, should be used to define the window (i.e., diarrhea, site specific pain, purulent exudate).
Strain typing	Speciation tests are used to differentiate different species of VRE (e.g. *E. faecalis*, *E. faecium*) and that of those with intrinsic vancomycin resistance (e.g. *E. casseliflavus*, *E. gallinarum*). Some DNA testing (e.g. PCR or PFGE) is done to determine which *van* gene the organism has (e.g., VanA, VanB.
Vancomycin Resistant *Enterococcus* (VRE)	Enterococcus species, usually *E. faecium* or *E. faecalis*, which have acquired high level resistance to vancomycin (MIC ≥ 8 µg/ml) due to VanA or VanB genes. Surveillance cases do not include organisms with intrinsic low-level vancomycin resistance (e.g. *E. gallinarum*, *E. casseliflavus*).

Appendix B: General surveillance definitions

Terms	Definitions
Encounter types	Type of AHS/Covenant Health healthcare location or facility where the patient is located at the time of identification. The following encounter types are referred to in acute care surveillance protocols (Government of Alberta, 2008; Government of Alberta, 2024). • **Inpatient acute care:** Refers to a General Hospital: According to the Hospitals Act, a general hospital is defined as a "hospital providing diagnostic services and facilities for medical or surgical treatment in the acute phase for adults and children and obstetrical care" (Government of Alberta, 2024). General hospitals have several functional centres. Each functional centre is associated with inpatient, outpatient, or diagnostic and therapeutic services. • **Inpatient mental health/rehab**: A designated mental health facility providing diagnosis and treatment for mental illness and addiction in the acute phase for adults and children. Inpatient services refer to a person admitted to and assigned a bed in a facility by order of a physician for provision of diagnostic and/or treatment services. They would have a patient/group room in which inpatient services are provided within the patient's room or within a common group room within the designated mental health facility. AHS facility examples include Glenrose Rehabilitation Hospital, Centennial Centre for Mental Health and Brain Injury.
Infection prevention and control baseline	A comparator rate created for each acute care facility in the IPC Surveillance on-line dashboards and reporting modules, to guide efforts to reduce healthcare-associated infections. The IPC baseline is based on reported monthly rates for the previous fiscal year. The calculation excludes the monthly rates higher than 1 Standard Deviation above the 12-month average but includes all rates where the site had optimal performance. This calculation method biases the IPC baseline rate towards zero, to focus on the best patient safety outcomes.
Long-term care	Long term care facilities include auxiliary hospitals and nursing home that are reserved for those with unpredictable and complex health needs who require 24-hour nursing care. Residents of long-term care facilities usually have multiple chronic and/or unstable medical conditions. Specialized services such as respite, palliative care, case management, rehabilitation therapy, as well as services for advanced Alzheimer's and dementia are available at these facilities. A list of certified long-term care facilities in Alberta Health Services can be found on the COMMON-PROVINCIAL Surveillance drive. In this file, if the site has "LTC" listed in the "Accommodation Subtype II" column, it will qualify as a LTC site. If the site has "LTC" AND another type (i.e. subacute in LTC) listed in the column we would assume they are from a site that offers LTC.
Patient admission (aka inpatient admission)	A person admitted to and assigned a bed in a hospital by the order of a physician, for the provision of diagnostic or treatment services or both. Includes any time in the emergency department where the patient is subsequently transferred to an inpatient unit. This is the denominator used for non-hospital-acquired rates (see Rate Calculation Section) (Government of Alberta, 2024).
Patient days (aka inpatient days)	As defined by AHS, this is used to create the denominator for hospital-acquired or hospital-identified cases. The total is equal to midnight census with patients admitted and discharged on the same day counted as a one day stay. It includes patients out on a pass. Day of admission is counted but the day of separation (discharge, death or transfer out of hospital) is not counted. Patient-days are included for inpatient encounters where discharge date is not recorded in the

Terms	Definitions
	data source. Inpatient totals exclude the time patients are waiting in the emergency department for an inpatient bed (time from decision to admit to discharge from emergency department).
Emergency department inpatient days (EDIP)	As defined by AHS, denominators for provincial surveillance modules include these figures in the total patient-days. Includes the number of acute care inpatient patient-days utilized in the emergency department during the reporting period. The figures reflect the time from emergency department discharge (i.e. decision to admit) to emergency department departure for patients admitted to an acute care hospital. It is calculated as [(emergency department departure date and time – emergency department discharge date and time) ÷ 60 ÷ 24]. Figures exclude cases where the emergency department discharge date and time or emergency department departure date and time were not provided, or the value has a negative number.

Appendix C: VRE classification algorithm



Record Types:

For Info – used when a record comes *before* an **Initial** or First Infection record.

Follow-up – used when a record comes *after* an **Initial** or First Infection record.

€**Calendar day 1 is the day of hospital admission**

‡ **The NHSN transfer rule:** date of event is on the date of transfer or discharge, or the next day, the infection is attributed to the transferring/ discharging/sending facility location.

NHSN: National Healthcare Safety Network; ICP: Infection Control Professional

Approved: June 2010
Revised: April 2024

Alberta Health Services
Infection Prevention & Control