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PAEREWA PĀRONGO HAUORA

Infection Surveillance Data Standard

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MINISTRY OF HEALTH
MANATŪ HAUORA

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1 Introduction

Surveillance of infections is required in order to understand both infection prevalence and outbreaks. This knowledge will help to significantly reduce their incidence and severity. The increasing resistance of infections to antibiotics makes it even more important to improve infection surveillance.

Infections can cause significant pain and suffering to patient's lives and potentially impact those of the patient's family and whānau. The impact on a person's health can range from relatively mild, self-limiting or asymptomatic diseases, to severe life-threatening illnesses. It can prolong hospital stays, create long term disabilities, and may even lead to death. The consequences of an infection can be much more serious for those that have a compromised immune system.

People and the environment play a big part in the transmission of infections out in the community and within a health care setting. The burden and cost to the health and disability sector relating to infections can be significant and, in some cases, unnecessary. In addition, health care associated infections are the most common complications affecting patients in health care settings.

Infection surveillance will support the ability to monitor the occurrence of infections or an outbreak by key organisms. This data will provide valuable information to support the sector in identifying, addressing and resourcing outbreaks. It will also support the reduction of health care associated infections and improve the care of patients, generally increasing patient safety and wellbeing. A minimum set of data is required to be captured consistently to support infection surveillance.

The ACC infection prevention advisory group advocated for the implementation of infection monitoring and management information systems across all district health board hospitals within New Zealand.

1.1 Purpose

This standard is designed to ensure that the minimum information relating to infections is consistently captured for a patient's health care encounter.

Standardised infection information will support the ability to analyse data captured in an infection surveillance system. This information will inform patient care as well as assist in identifying improvements to address outbreaks and to significantly reduce the incidence and severity of infections. The data may also be used for research and education purposes.

1.2 Scope

This standard defines the minimum data to be captured for a patient with a suspected or confirmed infection identified as a result of a health care encounter.

The standard covers administrative, demographic, clinical information and observation details for patients with infections. Also included are relevant details for the patient's activities and locations within the health care setting.

This standard covers the minimum data captured for the purposes of submitting into an infection surveillance system. The standard does not define the data sent from the laboratory to the physician responsible for the patient's care.

It is recognised that some of these data elements detailed in this standard may not be relevant or able to be captured for a general practice or community setting encounter.

1.3 Legislation and regulations

The following Acts of Parliament and Regulations are relevant to this standard. Readers must consider other Acts and Regulations and any amendments that are relevant to their own organisation, when implementing or using this standard.

- Health Act 1956
- Health and Disability Commissioner (Code of Health and Disability Services Consumers' Rights) Regulations 1996
- Health Information Privacy Code 1994
- Health Practitioners Competence Assurance Act 2003
- New Zealand Public Health and Disability Act 2000
- Privacy Act 1993 (revised 2008)
- Public Records Act 2005

1.4 Related specifications

The documents listed below have been used in the development of or are referenced to in the operation of this standard. They provide further clarity if required.

- **HISO 10046 Consumer Health Identity Standard**
- **HISO 10008.2:2015 Pathology and Radiology Messaging Standard**
- **HISO 10008.3:2019 Notifiable Disease Messaging Implementation Guide**
- **New Zealand Pathology Observation Code Set**
- **New Zealand Universal List of Medicines (NZULM)**
- **HISO 10042 Medication charting and medicine reconciliation standards**
- **HISO 10029:2015 Health Information Security Framework**

The current HISO Health Practitioner Index standards are listed below. These standards were published in 2008 and while they can provide guidance on the particular HPI values referred to in this standard, they are not suitable for any other purpose.

- **HISO 10005:2008 Health Practitioner Index (HPI) Data Set**
- **HISO 10006:2008 Health Practitioner Index (HPI) Code Set**

Note: refer to the provider information section in Appendix 1: Standard data elements for the current structure and format of a provider (being either a person, facility or organisation).

1.4.1 SNOMED CT

HISO has endorsed SNOMED CT as the clinical terminology to use in New Zealand and is used in various data elements in this standard. The SNOMED CT NZ Edition includes all content from the SNOMED International Edition and New Zealand specific content in a separate package called the SNOMED NZ Extension.

Refer to the Ministry of Health's website for releases and to download the SNOMED NZ Edition.

See **www.health.govt.nz/nz-health-statistics/classification-and-terminology/new-zealand-snomed-ct-national-release-centre/snomed-ct-subsets-and-maps**

For data elements where the use of SNOMED CT has been identified, the preferred term or synonym for the SNOMED concept should be displayed to the user and the term recorded with the correct SNOMED CT identifier. Active SNOMED CT concepts must be selected when determining values for data elements.

For further details of SNOMED CT concepts, refer to SNOMED International's **SNOMED CT Browser**.

1.5 Data element template

Data element specifications in this standard conform to the requirements of *ISO/IEC 11179 Information Technology – Metadata Registries (MDR)*.[1]

Definition	A statement that expresses the essential nature of the data element and its differentiation from other elements in the data set.		
Source standards	Established data definitions or guidelines pertaining to the data element.		
Data type	Alphabetic (A) Date Date/time Numeric (N) Alphanumeric (X) Boolean SNOMED CT identifier	**Representational class**	Code, free text, value or identifier. For date and time data types, use full date or partial date.
Field size	Maximum number of characters	**Representational layout**	The formatted arrangement of characters in alphanumeric elements, eg: • X(50) for a 50-character alphanumeric string • NNN for a 3-digit number • NNAAAA for a formatted alphanumeric identifier
Data domain	The valid values or codes that are acceptable for the data element. Each coded data element has a specified code set. Code sets use the SNOMED CT clinical terminology standard where possible. Enumerated SNOMED concepts are denoted by preferred term and linked to descriptions in the **SNOMED International browser**. Where there are many member concepts, a reference set is published in the SNOMED NZ Edition, available from the **SNOMED Member Licensing and Distribution Service**. To ensure compatibility between SNOMED concepts and Read Codes, a cross mapping is published in the SNOMED NZ Edition. New Zealand Medicines Terminology (NZMT) is the standard used to identify medicines.		
Obligation	Indicates if the data element is mandatory or optional in the context, or whether its appearance is conditional.		
Guide for use	Additional guidance to inform the use of the data element.		
Verification rules	Quality control mechanisms that preclude invalid values.		

[1] See https://standards.iso.org/ittf/PubliclyAvailableStandards/index.html

2 Patient

This section and following sections describe the minimum data required for submission into an infection surveillance system in order to effectively monitor the prevalence and outbreaks of infections. The data elements are to be submitted for any patient that attends a health care setting (an encounter) and an infection is suspected.

An encounter may cover such things as observations, treatment, investigations, or surgical procedures. This encounter may also cover an admittance, attendance, a contact (mental health purposes) or delivery of care.

Where data elements are defined in other HISO standards, a reference to the source standard is provided against the relevant data element.

2.1 Patient details

The Patient entity details the data elements required for submission into an infection surveillance system for each person that attends an encounter in a health care setting.

Data element	
Mandatory fields:	
NHI Number	Ethnicity
Given name	Date of birth
Family name (surname)	Sex
Optional fields:	
Other given name(s)	Address details (includes postcode)
Title (prefix)	Country code
Name suffix	Contact details
Date of death	General practitioner
Mother's birth name	GP practice

Given name, Family name (surname) and *Date of birth* data elements are also required for verification against the NHI. Address details for the patient are not mandatory, however if the information is submitted into an infection surveillance system, it must be supplied in the correct format.

Personal information related to the patient should be captured according to the HISO 10046 Consumer Health Identity Standard

See **https://www.health.govt.nz/publication/hiso-10046-consumer-health-identity-standard**

The format and content of the data elements that are marked in blue above and not included in HISO 10046 Consumer Health Identity Standard are:

2.1.1 Sex

Definition	The category into which the patients are determined based on reproductive organs.		
Source standards			
Data type	Alphabetic	**Representational class**	Code
Field size	1	**Representational layout**	A
Data domain	Must be a valid code from list below.		
Obligation	Mandatory		
Guide for use	**Value** / **Meaning** F / Female M / Male U / Unknown I / Indeterminate		
Verification rules	Valid value only		

2.1.2 General practitioner

The patient's general practitioner (GP).

This data element is optional. The patient's GP information (if known) may be submitted to an infection surveillance system.

For further details on the format of the required data elements, refer to the data elements documented under the heading 'Health care provider' in Appendix A: Standard data elements. Health care provider

2.1.3 GP practice

The GP practice where the patient is enrolled.

Use the National Enrolment Service record where possible to identify the patient's GP practice.

If a patient is currently not enrolled with a GP practice, but has been in the past, the last known GP practice where the patient was enrolled should be recorded.

When submitting information into an infection surveillance system for a GP practice, the data elements for a *Facility* are required. For further details on the format of these data elements, refer to 'Facility' in Appendix A: Standard data elements.

3 Encounter

The following sections define the data elements that provide administrative details about the patient's encounter and associated location(s).

3.1 Encounter details

This section specifies the information regarding the patient's visit required for submission into an infection surveillance system.

3.1.1 Visit unique identifier

Definition	A unique identifier that is assigned by the source system for the patient's encounter		
Source standards			
Data type	Alphanumeric	**Representational class**	Identifier
Field size	36	**Representational layout**	X(36)
Data domain			
Obligation	Mandatory		
Guide for use	This may also be known as an Encounter ID, Episode ID, Event ID, PMS unique identifier. This is not the NHI.		
Verification rules			

3.1.2 Visit date and time

The date and time that the patient either attended an encounter in a health care setting or was admitted to hospital.

This may also be known as *Admission date*. This data element is mandatory. The format and content of this data element is provided under Date and time in Appendix A: Standard data elements.

3.1.3 Patient class

Definition	This field is used by systems to categorise patients.		
Source standards	HL7 version 2.4, HL7 User defined table 0004 – Patient class. HISO 10008.2:2015 Pathology and Radiology Messaging Standard **https://www.health.govt.nz/publication/hiso-10008222015-pathology-and-radiology-messaging-standard**		
Data type	Alphabetic	**Representational class**	Code
Field size	1	**Representational layout**	A
Data domain			

Code	Description
E	Emergency
I	Inpatient
O	Outpatient
P	Pre-admit
B	Obstetrics
R	Recurring patient
U	Unknown
N	Not applicable

Obligation	Optional
Guide for use	For encounters with a general practice, use (R) for Recurring patient or (N) if the patient is not registered with that practice. If using the FHIR value set/code system that is part of the FHIR Specification, refer to: **https://www.hl7.org/fhir/v2/0004/index.html**
Verification rules	Valid code

3.1.4 Health care provider

When submitting information into an infection surveillance system for an attending, referring or consulting health care provider, their *Name, Common person number* and *Assigning authority* are required. The health care providers role in the patient's care and their scope of practice are optional data elements that can also be submitted into an infection surveillance system. For further details on the format of these data elements, refer to the Health care provider section in Appendix A: Standard data elements.

Consulting health care provider

The details of the consulting health care provider for the patient. This information is mandatory.

Attending health care provider

The details of the attending health care provider assigned to the patient. This information is optional.

Referring health care provider

The details of the health care provider that referred the patient. This information is optional.

3.1.5 Admission

For circumstances where a patient was or will be admitted into hospital, the following data elements are required to be submitted to an infection surveillance system.

Admission type

Definition	The circumstances under which the patient was or will be admitted.		
Source standards	HL7 version 2.4, HL7 User defined table 0007 – Admission type. HISO 10008.2:2015 Pathology and Radiology Messaging Standard **https://www.health.govt.nz/publication/hiso-10008822015-pathology-and-radiology-messaging-standard**		
Data type	Alphabetic	**Representational class**	Code
Field size	1	**Representational layout**	A
Data domain			

Code	Description
A	Accident
E	Emergency
L	Labour and delivery
R	Routine
N	Newborn
U	Urgent
C	Elective

Obligation	Conditional. Required for pre-admissions and admissions.
Guide for use	
Verification rules	Valid code only

Admission source

Definition	This indicates the process for the patient's admission.		
Source standards	HL7 version 2.4, HL7 User defined table 0023 – Admit source. HISO 10008.2:2015 Pathology and Radiology Messaging Standard **https://www.health.govt.nz/publication/hiso-1000822015-pathology-and-radiology-messaging-standard**		
Data type	Numeric	**Representational class**	Code
Field size	1	**Representational layout**	N
Data domain			

Code	Description
1	Physician referral
2	Clinical referral
3	HMO referral
4	Transfer from a hospital
5	Transfer from a skilled nursing facility
6	Transfer from another health care facility
7	Emergency room
8	Court/law enforcement
9	Information not available

Obligation	Conditional. Required for pre-admissions and admissions
Guide for use	
Verification rules	Valid code only

3.1.6 Health specialty

Definition	The health specialty under which the patient is seen and/or receives treatment.		
Source standards	Ministry of Health's Health Specialty code table. **https://www.health.govt.nz/nz-health-statistics/data-references/code-tables/common-code-tables/health-specialty-code-table**		
Data type	Alphanumeric	**Representational class**	Code
Field size	3	**Representational layout**	X(3)
Data domain	A valid health specialty code from the Ministry of Health's Health Specialty code table.		
Obligation	Optional		
Guide for use			
Verification rules	Valid code only		

3.1.7 Provisional / working diagnosis

Definition	A code that identifies the clinical description of a patient's condition that is chiefly responsible for the encounter.		
Source standards			
Data type	SNOMED CT Identifier	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Data domain	An active SNOMED CT term from the *Clinical finding (404684003)* hierarchy that identifies the reason for the encounter.		
Obligation	Optional		
Guide for use	It's the clinical information within an encounter that includes codes for diagnosis, injury, cause of intentional and unintentional injury. This diagnosis is subject to change as tests are carried out and findings are evaluated. Findings evaluated may include information gained from the history of illness, any mental status evaluation, specialist consultations, physical examination, diagnostic tests or procedures, any surgical procedures, and any pathological or radiological examination.		
Verification rules	Must be an active SNOMED CT concept.		

3.1.8 Date/time of provisional diagnosis

The date and time that the provisional diagnosis was made.

This information is generally conditional. However, it is mandatory if a *Provisional/working diagnosis* has been recorded. For the format and content of this data element, refer to the date and time section of Appendix A: Standard data elements.

3.1.9 Infection site

Definition	The site (body structure) in which the infection is suspected or identified.		
Source standards			
Data type	SNOMED CT Identifier	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Data domain	Must be a subtype of the *Body region structure* (*38866009)* from SNOMED CT.		
Obligation	Optional		
Guide for use	More than one site must be able to be selected.		
Verification rules	An active SNOMED CT concept.		

3.1.10 Readmission

Definition	An indication of whether the patient was admitted to hospital due to an infection contracted as a result of a previous admission/treatment from the same or different service provider		
Source standards			
Data type	Boolean	**Representational class**	N/A
Field size	1	**Representational layout**	N(1,0)
Data domain	**Value** / **Meaning** 1 / Yes, the patient was readmitted due to an infection 0 / No, the patient was not readmitted due to an infection		
Obligation	Conditional. Mandatory if *Infection site* is captured.		
Guide for use	There may be multiple instances		
Verification rules	Valid value only		

3.2 Patient location

This section includes the data elements that detail the location of the patients encounter, where the patient is based, going to be moved to, or discharged to.

There may be multiple location instances for each patient during their health care encounter.

In order to understand a patient's movement within a health care facility, patient admission, transfer, leave, discharge, updates to the associated location of the patient are all important parameters to capture in real time.

3.2.1 Facility

The facility that the patient is/was assigned to.

When submitting information into an infection surveillance system for a facility, the *Facility name* and *Facility identifier*, are required. *Facility type* and address details are optional. For further details on the format of these data elements, refer to the facility and address sections in Appendix A: Standard data elements.

3.2.2 Organisation

The organisation that the patient is/was assigned to.

When submitting information into an infection surveillance system for an organisation, the *Organisation name* and *Organisation identifier* are required. For further details on the format of these data elements, refer to 'Organisation' in Appendix A: Standard data elements.

3.2.3 Point of care

Definition	Details the name of the area where the patient is or was based within the health care setting during their encounter		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	100	**Representational layout**	X(100)
Data domain			
Obligation	Mandatory		
Guide for use	This may be the GP's room, ward, or clinic/department.		
Verification rules			

3.2.4 Room

Definition	The number or name of the room that the patient is assigned.		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	50	**Representational layout**	X(50)
Data domain			
Obligation	Conditional. Mandatory if patient is placed in a room		
Guide for use	This also refers to the theatre where an operation is/was held in.		
Verification rules	Must be a valid room name or number within the facility.		

3.2.5 Bed

Definition	The number or name of the bed the patient is assigned to.		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	50	**Representational layout**	X(50)
Data domain			
Obligation	Conditional. Mandatory if assigned a bed		
Guide for use	This also refers to the bed an operation took place on.		
Verification rules	Must be a valid bed within the facility.		

3.2.6 Bay/cubicle

Definition	The number or name of the bay or cubicle that the patient is located in during point of care.		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	50	**Representational layout**	X(50)
Data domain			
Obligation	Conditional. Mandatory if assigned to a bay/cubicle		
Guide for use			
Verification rules	Must be a valid bay/cubicle within the facility.		

3.2.7 Floor/level

Definition	The number of the floor or level that the patient is on during point of care.		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	2	**Representational layout**	X(2)
Data domain			
Obligation	Optional		
Guide for use			
Verification rules	Must be a valid floor/level within the facility.		

3.2.8 Location identifier

For service locations that are unable to be identified with a Health Provider Identifier (HPI), a global location number is required.

Definition	A business location or sub-location identifier.		
Source standards	**NZBN Organisation Part API Use Case Specification**		
Data type	Numeric	**Representational class**	Identifier
Field size	13	**Representational layout**	N(13)
Data domain	Global Location Number (GLN)		
Obligation	Optional		
Guide for use	GLN is the primary identifier in the New Zealand Business Number (NZBN) register for locations and sub-locations of an organisation. This is not the GLN for the organisation itself. Use GLN where it exists The last digit is a check digit – see the **GS1 check digit calculator**		
Verification rules	A valid Global Location Number		

3.2.9 Location name

Definition	Location or sub-location name		
Source standards	**NZBN Organisation Part API Use Case Specification**		
Data type	Alphanumeric	**Representational class**	Text
Field size	100	**Representational layout**	X(100)
Data domain	Free text		
Obligation	Mandatory if location identifier is provided.		
Guide for use	Maps to NZBN organisation part name, where GLN exists Used to distinguish an organisation's different locations, or to distinguish one sub-location from another belonging to the same organisation at the same address		
Verification rules			

3.2.10 Location description

Definition	Additional information that describes the patient's location.		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	500	**Representational layout**	X(500)
Data domain			
Obligation	Optional		

Guide for use	This data element provides the ability to capture further information that describes the patient's location during an activity or as a result of an activity. This should be used for describing locations that cannot be captured within the other patient location data elements. An example of the type of information captured in this field would be a person that has been discharged home or an aged care facility like (eg, home, Cashmere Heights Home, 16 Helston Road, Johnsonville). This may also be the location name that maps to a NZBN organisation part name, where a GLN exists.
Verification rules	

3.3 Discharge

The following data elements are to be submitted into an infection surveillance system when the care being given to a patient ends and the patient is discharged.

3.3.1 Visit unique identifier

A unique identifier that is assigned by the source system for the patient's encounter.

This is a mandatory field to be included with discharge information. Refer to 3.1.1 Visit unique identifier for details of this data element.

3.3.2 Discharge date and time

The date and time of the physical departure of the patient from the location of point of care.

Examples of discharges may be moving between ED to an in-patient ward, discharged to another hospital, or discharged to the community. This may also be known as *Event end date*.

This is mandatory if a patient is admitted for health care. For the format and content of this data element, refer to the date and time section of Appendix A: Standard data elements.

3.3.3 Discharge diagnosis

Definition	The diagnosis identified as chiefly responsible for the episode of patient care covering admission, residential care or attendance at the healthcare establishment.		
Source standards			
Data type	SNOMED CT Identifier	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Data domain	An active SNOMED CT term from the *Clinical finding (404684003)* hierarchy.		
Obligation	Conditional. Required if patient is discharged		
Guide for use	This is determined by evaluating all the findings carried out during the episode of care. Findings evaluated may include information gained from the history of illness, any mental status evaluation, specialist consultations, physical examination, diagnostic tests or procedures, any surgical procedures, and any pathological or radiological examination.		
Verification rules	Must be an active SNOMED CT concept. May be the same as the *Provisional/working diagnosis*.		

3.3.4 Discharge disposition

Definition	The final place or setting to which the patient was discharged from on the day of discharge.		
Source standards	Ministry of Health's Event end type code table. **https://www.health.govt.nz/nz-health-statistics/data-references/code-tables/common-code-tables/event-end-type-code-table**		
Data type	Alphabetic	**Representational class**	Code
Field size	2	**Representational layout**	AA

Data domain	A valid Event end type code

Code	Description
DA	Discharge to an acute facility
DC	Psychiatric patient discharged to community care
DD	Died
DF	Change of funder
DI	Self-discharge from hospital - Indemnity signed
DL	Committed psychiatric patient discharged to leave for more than 10 days
DN	Psychiatric remand patient discharged without committal
DO	Discharge of a patient kept sustainable for organ donation
DP	Psychiatric patient transferred for further psychiatric care
DR	Ended routinely
DS	Self-discharge from hospital - No Indemnity
DT	Discharge of patient to another health care facility
DW	Discharge to another service within the same facility
EA	Discharge from Emergency department acute facility to specialist facility for neonates and burns only
ED	Died while still in Emergency department acute facility
EI	Self-discharge from treatment in an Emergency department acute facility with indemnity signed
ER	Routine discharge from an Emergency department acute facility
ES	Self-discharge from treatment in an Emergency department acute facility without indemnity
ET	Discharge from Emergency department acute facility to another health care facility

Obligation	Conditional. Mandatory if patient is discharged.
Guide for use	
Verification rules	Valid code only

3.3.5 Discharge to location

The place or setting to which the patient was discharged to on the day of discharge.

If a patient is discharged to a ward/bed, then the information to be submitted should include the data elements identified in section 3.2 Patient location.

When a patient is discharged to a place of residence, then refer to 3.2.9 Location description for the format of this data element.

4 Observations

Observations provide information about the general health of the patient. They can be provided by a variety of systems, including but not limited to pathology, surgery, ADT (admission, discharge, and transfer), electronic patient record (EPR) and nursing documentation / charting systems.

The following sections detail the supporting data about the observations that are undertaken during or as a result of a patient's visit to a health care facility.

For the purposes of this standard, there are two different types of observations, laboratory and non-laboratory observations.

The following sections document the core dataset for observations relating to suspected and/or confirmed infections. It can be summarised as the item being measured, the date/time of the measurement, the observed value and any units of measure applicable to the observed value.

In addition, information on antibiotic use is also captured under Observations.

4.1 Non-laboratory data

Non-laboratory observations are those quantitative measures of the patient that are typically captured through direct examination of a patient. Such information may be indirect evidence of an infection.

The following data elements can be submitted.

4.1.1 Activity unique identifier

Definition	A unique identifier that is assigned by the source system for an activity under taken in relation to a patient's infection.		
Source standards			
Data type	Alphanumeric	**Representational class**	Identifier
Field size	36	**Representational layout**	X(36)
Data domain			
Obligation	Optional		
Guide for use			
Verification rules			

4.1.2 Observation date/time

For observations taken directly on the patient, the observation date/time is the date/time that the observation was performed.

This data element is mandatory. This must be a valid date and time that is less than or equal to the current date and time. For the format and content of this data element, refer to the date and time section of Appendix A: Standard data elements.

4.1.3 Activity location

The location where the activity or observation was performed on the patient.

The information to be submitted should include the data elements identified in section 3.2 Patient location.

4.1.4 Height

Definition	The measured height of the patient at the time of the encounter.		
Source standards			
Data type	Numeric	**Representational class**	Value
Field size	4	**Representational layout**	N.NN
Data domain	Metres		
Obligation	Optional		
Guide for use	Record height to two decimal places.		
Verification rules			

4.1.5 Weight

Definition	The measured weight of the patient at the time of the encounter.		
Source standards			
Data type	Numeric	**Representational class**	Value
Field size	5	**Representational layout**	NNN.N
Data domain	Kilograms		
Obligation	Optional		
Guide for use	May also be known as weight on admission, admission weight. Record weight to one decimal place.		
Verification rules			

4.1.6 Blood pressure (systolic/diastolic)

Definition	The blood pressure level recorded during an encounter.		
Source standards			
Data type	Numeric	**Representational class**	Value
Field size	7	**Representational layout**	NNN/NNN
Data domain	Millimetres of mercury (mmHg/mmHg)		
Obligation	Optional		
Guide for use	Both the highest reading (systolic) and the lowest reading (diastolic) must be captured.		
Verification rules	Valid measurement in units of millimetres of mercury (mmHg)		

4.1.7 Temperature

Definition	The body temperature of the patient taken during an encounter.		
Source standards			
Data type	Numeric	**Representational class**	Value
Field size	4	**Representational layout**	NN.N
Data domain	Celsius (°C)		
Obligation	Optional		
Guide for use	Record temperature to one decimal place.		
Verification rules			

4.1.8 Heart rate

Definition	The heart rate of the patient taken during an encounter.		
Source standards			
Data type	Numeric	**Representational class**	Value
Field size	3	**Representational layout**	NNN
Data domain	Beats per minute (BPM)		
Obligation	Optional		
Guide for use	Must be greater than zero		
Verification rules			

4.1.9 Respiratory rate

Definition	The respiratory rate of the patient taken during an encounter.		
Source standards			
Data type	Numeric	**Representational class**	Value
Field size	3	**Representational layout**	NNN
Data domain	Breaths per minute		
Obligation	Optional		
Guide for use			
Verification rules	Must be greater than zero		

4.1.10 Oxygen saturation (Sp02)

Definition	The blood oxygen level of the patient taken during an encounter		
Source standards			
Data type	Numeric	**Representational class**	Value
Field size	3	**Representational layout**	NNN
Data domain	Percentage		
Obligation	Optional		
Guide for use			
Verification rules	Must be greater than zero		

4.2 Laboratory data - request

Where there is a suspicion of infection, the following data elements are to be submitted with each observation requested.

4.2.1 Laboratory accession number

Definition	A laboratory's unique accession number or 'day number' for the report.		
Source standards	N/A		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	30	**Representational layout**	X(30)
Data domain	As defined by the laboratory.		
Obligation	Mandatory		
Guide for use	This may be the number under which the specimens or episode is documented in the laboratory information system.		
Verification rules			

4.2.2 Laboratory test

Definition	The observation being requested or undertaken by a laboratory		
Source standards	New Zealand Pathology Observation Code Set **https://www.health.govt.nz/publication/hiso-100042019-new-zealand-pathology-observation-code-sets** SNOMED CT International		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Data domain	An active LOINC or SNOMED CT code.		
Obligation	Mandatory		
Guide for use	Must include the observation test name and code when submitting information to an infection surveillance system. May also be known as Requested investigations		
Verification rules	Must be an active LOINC code and short name or SNOMED CT identifier and clinical term.		

4.2.3 Requesting health care provider

The details of the health care provider responsible for requesting/ordering/actioning an observation.

May also be known as '*Ordering provider*'. Refer to Appendix A, Health care provider for further information on the structure of the data elements required. This is a mandatory field.

4.2.4 Requesting facility

The facility that the *Requesting health care provider* is representing at the time of the request.

For further details on the format of the data elements for *Requesting facility,* refer to Appendix A, Facility. This is a mandatory field.

4.2.5 Sample date/time

For laboratory tests, this is the date and time that is provided on the observation request form when the specimen was collected.

This data element is mandatory. This must be a valid date and time that is less than or equal to the current date and time. For the format and content of this data element, refer to the date and time section of Appendix A: Standard data elements.

4.2.6 Patient location

The patient's location at the time the sample was taken, is to be submitted. Refer to section 3.2 Patient location for the required data elements.

4.2.7 Observation end date/time

The last date and time that the test or service was performed.

This data element is optional. The data element can be used to capture an expiry date. Must be a valid date and time that is greater than or equal to the Sample date and time.

For the format and content of this data element, refer to the date and time section of Appendix A: Standard data elements.

4.2.8 Specimen received date/time

The date and time when the specimen(s) were received in the laboratory.

This data element is mandatory for specimens received in a laboratory. Must be a valid date and time that is less than or equal to the current date and time. For the format and content of this data element, refer to the date and time section of Appendix A: Standard data elements.

4.2.9 Laboratory facility name

The name of the receiving laboratory that actions the observation.

This is a mandatory field when providing laboratory facility information to an infection surveillance system. The 'Facility name' format is to be used to provide the *Laboratory facility name*. Refer to the data elements under Facility in Appendix A: Standard data elements.

4.2.10 Laboratory facility identifier

The unique identifier for the receiving laboratory that actions the observation.

This is a mandatory field when providing laboratory facility information to an infection surveillance system. The 'Facility identifier' format is to be used to provide the *Laboratory facility identifier*. Refer to the data elements under Facility in Appendix A: Standard data elements.

4.2.11 Organisation

The organisation that operates the laboratory that actions the observation.

This is a mandatory field. When submitting information into an infection surveillance system for an organisation, the *Organisation name* and *Organisation identifier* are required. For further details on the format of these data elements, refer to 'Organisation' in Appendix A: Standard data elements. **Error! Reference source not found.**

4.3 Laboratory data - result

4.3.1 Observation result unique identifier

Definition	A laboratory's unique identifier for the observation result.		
Source standards	N/A		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	30	**Representational layout**	X(30)
Data domain	As defined by the laboratory.		
Obligation	Mandatory		
Guide for use	This is also known as *Observation identifier*		
Verification rules			

4.3.2 Observation result date/time

The date and time when the observation result was recorded.

This data element is mandatory for observation results. Must be a valid date and time that is less than or equal to the current date and time. For the format and content of

this data element, refer to the date and time section of Appendix A: Standard data elements.

4.3.3 Observation result

Definition	The code associated with the result identified by the observation.		
Source standards			
Data type	SNOMED CT Identifier	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Data domain	An active SNOMED CT code from the *Clinical finding (404684003)* hierarchy.		
Obligation	Mandatory		
Guide for use	Must include the *observation result name* and *code* when submitting information to an infection surveillance system.		
Verification rules	Must be an active SNOMED CT identifier and clinical term.		

4.3.4 Units

The units of measurement are required when reporting a result.

Definition	The units of measurement are required when reporting a result.		
Source standards	See **HISO 10008.2:2015 Pathology and Radiology Messaging Standard.**		
Data type	Alphanumeric	**Representational class**	Code
Field size	250	**Representational layout**	X(250)
Data domain	Valid code/abbreviation from table 155 Common ISO Derived Units and ISO+ extensions, in Appendix B of HISO 10008.2:2015 Pathology and Radiology Messaging Standard.		
Obligation	Mandatory		
Guide for use			
Verification rules	Valid code or abbreviation		

4.3.5 Organism

Definition	The organism identified by an observation.		
Source standards			
Data type	SNOMED CT Identifier	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Data domain	Must be an identifier from the **New Zealand microorganism reference set** of the SNOMED CT New Zealand Edition.		
Obligation	Mandatory		
Guide for use	This also includes multi-drug resistant organisms. Record up to five organism codes.		
Verification rules	Must be an active SNOMED CT identifier and clinical term.		

4.3.6 Organism growth

Definition	Description of the organism growth type.		
Source standards			
Data type	SNOMED CT Identifier	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Data domain	Should be a subtype of the *Finding of organism growth (365698005)* from the SNOMED CT New Zealand edition.		
Obligation	Optional		
Guide for use			
Verification rules	Must be an active SNOMED CT identifier and clinical term.		

4.3.7 Multi-drug resistant organism

Definition	Indicates whether it is a multi-drug resistant organism		
Source standards			
Data type	Boolean	**Representational class**	N/A
Field size	1	**Representational layout**	N(1,0)
Data domain	**Value** / **Meaning** 1 / Yes, it is a multi-drug resistant organism 0 / No, it is not a multi-drug resistant organism		
Obligation	Mandatory if patient has been diagnosed with an infection.		
Guide for use			
Verification rules	Valid value only		

4.3.8 Abnormal flags

Definition	Indicates the normality status of the test result.		
Source standards	HISO 10008.2:2015 Pathology and Radiology Messaging Standard. **https://www.health.govt.nz/publication/hiso-1000822015-pathology-and-radiology-messaging-standard**		
Data type	Alphabetic	**Representational class**	Code
Field size	2	**Representational layout**	A(2)
Data domain			

Code	Description
L	Low
H	High
LL	Below lower panic limit
HH	Above upper panic limit
N	Normal, applies only to Non-Numeric values
A	Abnormal
AA	Extremely abnormal
S	Susceptible. Indicator for microbiology susceptibilities only.
R	Resistant. Indicator for microbiology susceptibilities only.
I	Intermediate. Indicator for microbiology susceptibilities only.

Obligation	Mandatory for observation results and antibiotic susceptibilities associated with an organism.
Guide for use	To be collected for observation results and antibiotic susceptibilities associated with an organism.
Verification rules	

4.3.9 Additional details

	Further details relating to the observation of the organism and/or it's growth.		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	500	**Representational layout**	X(500)
Data domain			
Obligation	Optional		
Guide for use			
Verification rules			

4.4 Antibiotic details

The following sets out the details for recording and submitting information regarding antibiotics administered to the patient in relation to an encounter.

For each instance that an antibiotic is captured, the *Antibiotic name, Administered date and time, Dose, and Dose unit* must be submitted to an infection surveillance system.

4.4.1 Antibiotic

Definition	The generic name of the antibiotic used		
Source standards	New Zealand Universal List of Medicines (NZULM) https://**www.health.govt.nz/our-work/ehealth/other-ehealth-initiatives/emedicines/nz-universal-list-medicines**		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Data domain	A valid NZULM code		
Obligation	Optional		
Guide for use	A system should provide the ability to record multiple antibiotics.		
Verification rules	Must be an active NZULM concept.		

4.4.2 Administered date and time

The date and time the antibiotic was administered to the patient.

This data element is mandatory if an antibiotic has been administered. For the format and content of this data element, refer to the date and time section of Appendix A: Standard data elements.

4.4.3 Dose

Definition	A specified quantity of a therapeutic agent prescribed to be taken at one time or at stated intervals.		
Source standards			
Data type	Alphanumeric	**Representational class**	Value
Field size	4	**Representational layout**	N(4)
Data domain			
Obligation	Mandatory if an antibiotic has been specified.		
Guide for use	The most common dose the patient takes. Capture the dose for each antibiotic recorded.		
Verification rules	Valid value		

4.4.4 Dose unit

Definition	The amount of a medication administered to a patient in a single dose.		
Source standards			
Data type	Alphabetic	**Representational class**	Free text
Field size	30	**Representational layout**	A(30)
Data domain			
Obligation	Mandatory if an antibiotic has been specified.		
Guide for use	The most common dose the patient takes. Capture the dose for each antibiotic recorded.		
Verification rules	Valid value		

Appendix A: Standard data elements

This appendix identifies data elements within this document that use a consistent format.

Date and time

Definition	The date and time for the associated data element.		
Source standards			
Data type	Date/time	**Representational class**	Full date
Field size	14	**Representational layout**	CCYYMMDD [hh]:[mm]:[ss]
Data domain	Valid date and time		
Obligation	Refer to the relevant section for specific obligational requirements.		
Guide for use			
Verification rules	Refer to the specific data element.		

Provider information

Information relating to the health provider (being an individual, facility or organisation that provides health care) should be captured following the representational layout below:

Health care provider

The following provides details of data elements for the health care provider referred to in this document. If a submission includes a *Health care provider name,* the health care provider's *Common person number* and *assigning authority* must also be supplied.

Health care provider name

Definition	The full name of the individual contributing to the care of the patient.		
Source standards	HISO 10005 Health Practitioner Index (HPI) Data Set. **https://www.health.govt.nz/publication/hiso-100052008-health-practitioner-index-hpi-data-set**		
Data type	Alphabetic	**Representational class**	Text
Field size	50	**Representational layout**	A(50)
Data domain	The text is case-sensitive and can include spaces, apostrophes and hyphens, as well as macrons and other diacritic characters		
Obligation	Refer to the various sections for specific obligational requirements.		
Guide for use			
Verification rules			

Common person number

Definition	A unique six-character identifier assigned by the HPI system to an individual person contributing to the care of the patient.		
Source standards			
Data type	Alphanumeric	**Representational class**	Identifier
Field size	6	**Representational layout**	NCAAAA
Data domain	Valid CPN only		
Obligation	Mandatory if a *Health care provider name* is submitted.		
Guide for use	Should be automatically populated. Only the HPI system generates a new unique CPN which is the primary key for person records. This CPN is not re-used once assigned. Where more than one CPN exists for a single person, one CPN is declared 'live' and all other CPNs are made 'dormant' and attached to the live record. The CPN is the primary key for person records. A Modulus 11 routine is used to produce the identifier check digit		
Verification rules	N – is a number excluding number zero "0" A – is an alpha character excluding letter 'I' or 'O' C – is a check digit number in the second position calculated using check digit Modulus 11.		

Assigning authority

Definition	The source of the unique identifier for the health care provider.		
Source standards			
Data type	Alphanumeric	**Representational class**	Code
Field size	10	**Representational layout**	X(10)
Data domain			
Obligation	Mandatory if a *Common person number* is submitted.		
Guide for use			
Verification rules	Assigning authority can be obtained from the clinician but must be validated with the HPI system.		

Health care provider role

Definition	The role that the health care provider played as part of the care of patient.		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	30	**Representational layout**	X(30)
Data domain			
Obligation	Optional		
Guide for use			
Verification rules			

Health care provider scope of practice

Definition	A code identifying the scope of practice that is applied to a healthcare provider under the Health Practitioners Competence Assurance Act 2003		
Source standards			
Data type	Alphabetic	**Representational class**	Code
Field size	4	**Representational layout**	A(4)
Data domain			
Obligation	Optional		
Guide for use	This code classifies the type or range of healthcare services that a healthcare provider is authorised to provide.		
Verification rules			

Organisation

This section describes the data elements needed to identify an organisation.

When submitting information into an infection surveillance system for an organisation, the *Organisation name* and *Organisation identifier* are required.

Organisation name

Definition	The name of the entity that either provides health care directly or is involved in the business of supporting or providing health care		
Source standards			
Data type	Alphanumeric	**Representational class**	Free text
Field size	255	**Representational layout**	X(255)
Data domain	The text is case-sensitive and can include spaces, apostrophes and hyphens, as well as macrons and other diacritic characters		
Obligation	Mandatory		
Guide for use			
Verification rules	Must be the same as the organisation name assigned to the HPI ORG ID.		

Organisation identifier

Definition	A unique 8-character ID assigned by the HPI system to an individual organisation.		
Source standards			
Data type	Alphanumeric	**Representational class**	Identifier
Field size	8	**Representational layout**	GXXNNN-C
Data domain	Valid HPI ORG ID only		
Obligation	Mandatory		
Guide for use	Only the HPI system generates an HPI organisation identification (HPI ORG ID). This ID is not re-used once assigned. Where more than one HPI ORG exists for an organisation, one is declared 'live' and all other HPI ORG IDs are made 'dormant' and attached to the live record. The HPI ORG ID is the primary key for organisation records. A Modulus 11 check digit routine is run over the organisation identifier to produce the organisation identifier check digit G is a constant prefix – all organisation identification numbers start with 'G'. X is either an alphabetic or a numeric. N is a number C is the check digit established using the Modulus 11 system.		
Verification rules	A valid HPI ORG identifier		

Facility

When submitting information into an infection surveillance system for a facility, the *Facility name* and *Facility identifier*, are required. *Facility type* and address details are optional.

Facility name

Definition	The name of the facility that is providing services associated with the patient's visit.		
Source standards			
Data type	Alphanumeric	**Representational class**	Text
Field size	255	**Representational layout**	X(255)
Data domain	The text is case-sensitive and can include spaces, apostrophes and hyphens, as well as macrons and other diacritic characters		
Obligation	Mandatory		
Guide for use			
Verification rules	Must be the same as the organisation name assigned to the HPI FAC ID.		

Facility identifier

Definition	The unique identifier for the facility that is providing services associated with the patient's visit.		
Source standards			
Data type	Alphanumeric	**Representational class**	Identifier
Field size	8	**Representational layout**	FXXNNN-C
Data domain	Valid HPI FAC ID only		
Obligation	Mandatory		
Guide for use	The Facility Identifier is assigned by the HPI system at the time that the facility record in the HPI is created. F is a constant prefix – all facility identification numbers start with 'F'. X is either an alphabetic or a numeric. N is a number C is the check digit established using the Modulus 11 system.		
Verification rules	A valid HPI FAC identifier		

Facility type

Definition	A code that classifies the facility entities		
Source standards			
Data type	Numeric	**Representational class**	Code
Field size	3	**Representational layout**	X(3)
Data domain	Optional		
Obligation			
Guide for use			
Verification rules	Valid code set value if present		

Address information

The following data elements are required when submitting address details into an infection surveillance system.

Additional address details

Definition	A field to record for example, building names or institution names		
Source standards	NZ Post Address Standard		
Data type	Alphanumeric	**Representational class**	Free text
Field size	1000	**Representational layout**	Z(1000)
Data domain			
Obligation	Optional		
Guide for use	When printing or displaying address, this field should be placed at top of the address		
Verification rules			

Street address / address line 1

Definition	The street or mailing address of a facility		
Source standards	NZ Post Address Standard		
Data type	Alphanumeric	**Representational class**	Free text
Field size	100	**Representational layout**	X(100)
Data domain			
Obligation	Mandatory		
Guide for use	This is address line 1 and is used to record the Floor, Unit, Street Address or Service Delivery information, whichever is applicable		
Verification rules			

Additional street address / address line 2

Definition	Other geographic information related to the facility address		
Source standards	NZ Post Address Standard		
Data type	Alphanumeric	**Representational class**	Free text
Field size	100	**Representational layout**	X(100)
Data domain			
Obligation	Optional		
Guide for use	This is address line 2 and is used to record the Unit, Street Address, RD Number, Suburb, Town/City, Box Lobby, Post Shop or Post Centre, as applicable		
Verification rules			

Suburb / address line 3

Definition	The name of the suburb within a city or town situation or other delivery information		
Source standards	NZ Post Address Standard		
Data type	Alphabetic	**Representational class**	Free text
Field size	50	**Representational layout**	A(50)
Data domain			
Obligation	Optional		
Guide for use	This is address line 3 and is used to record the Rural Delivery Number, Suburb, Town/City, Box Lobby, Post Shop or Post Centre, as applicable		
Verification rules			

Town or City / address line 4

Definition	The name of the city		
Source standards	NZ Post Address Standard		
Data type	Alphabetic	**Representational class**	Free text
Field size	50	**Representational layout**	A(50)
Data domain			
Obligation	Optional		
Guide for use	This is address line 4 and is used to record the Town/City		
Verification rules			

Postcode (zip/postal code)

Definition	The numeric descriptor for a postal delivery area, aligned with the locality, suburb or place for the address		
Source standards	NZ Post Address Standard		
Data type	Alphanumeric	**Representational class**	Code
Field size	15	**Representational layout**	X(15)
Data domain			
Obligation	Optional		
Guide for use	In some cases, the post code may appear with the city element in the same line		
Verification rules			