NZ International Patient Summary (NZIPS)

Adopting the International Patient Summary (IPS) standard for core personal health information, data exchange and data portability in Aotearoa New Zealand

HISO 10099:2022

DRAFT FOR PUBLIC COMMENT

MAY 2022

Interim
HEALTH NEW ZEALAND
HAUORA AOTEAROA
He hinonga taupua

hiso
Health Information Standards Organisation
PAEREWA PĀRONGO HAUORA

Citation: Ministry of Health. 2022. *HISO 10099:2022 NZ International Patient Summary (NZIPS)*. Wellington: Ministry of Health.

Draft for public comment 9 May 2022 by the Ministry of Health
PO Box 5013, Wellington 6140, New Zealand

ISBN xxx-x-xx-xxxxxx-x (online)
HP xxxx

Health Information Standards Organisation (HISO) standards are published by the Ministry of Health for the New Zealand health and disability system

Interim
HEALTH NEW ZEALAND
HAUORA AOTEAROA
He hinonga taupua

MINISTRY OF HEALTH
MANATŪ HAUORA

This document is available at consult.health.govt.nz

PREAMBLE

RELEASE FOR PUBLIC COMMENT

This slide deck presents new draft standard **HISO 10099:2022 NZ International Patient Summary (NZIPS)** for public comment. The specification is posted for comment on Health Consultation Hub and forum.hinz.org.nz for an eight-week period during May and July 2022. The consultation process will be used to firm up and build support for the specification ahead of its publication as an interim standard for trial use later this year.

The mahi to develop NZIPS has been guided by an expert advisory group and industry special interest group, comprising health professionals, software experts and consumer representatives who have worked with HISO since October 2021 to review drafts and provide input. The specification is now open to everyone for comment.

ABOUT THE NEW DRAFT STANDARD

NZIPS is a deliverable of the Interoperability Roadmap 2020 and a standard that will contribute to a more joined-up and equitable health system. NZIPS is our adaptation for Aotearoa of the recognised ISO and HL7® International Patient Summary (IPS) standards.

The Global Digital Health Partnership endorses the IPS and promotes its adoption by member countries, including New Zealand, as a pivotal standard for interoperability at national level and globally.

NZIPS tailors the IPS to New Zealand data standards and use case requirements.

NZIPS is principally a standard for the makeup and exchange of a defined core personal health data set. In its first iteration, NZIPS covers the person's health conditions, immunisations, medicines, allergies and adverse reactions, measurements and vital signs, and test results.

The standard comprises a data set specification and related data exchange and data portability requirements. The standard provides a source of requirements for continuity of care, consumer access and patient record transfer use cases, defining the key data elements and how they are represented. The standard encompasses a developing profile of the HL7® FHIR® IPS Implementation Guide, based on these choices. NZIPS also defines underpinnings of the future Hira information model.

An early version of the document has informed data requirements for COVID patient care in the community.

PURPOSE

NZ International Patient Summary (NZIPS)

Adopting the International Patient Summary (IPS) standard for core personal health information, data exchange and data portability in Aotearoa New Zealand

This slide deck presents HISO's work, in line with the Interoperability Roadmap, to develop a base standard for core personal health information, data exchange and data portability.

This mahi is about establishing a standard for representing and communicating personal health information in an agreed format in terms of its content, structure and coding.

The standard defines the representation of the consumer's most important health information so that it can be made easily accessible to individuals and whānau, following the person in their interactions with carers and the health system.

The standard sets data content and application programming interface (API) requirements for an interoperable patient summary that is firmly based on the international standards set out in the roadmap, principally HL7® FHIR® and SNOMED CT. It sets parameters for a New Zealand rendering of the international HL7 FHIR IPS Implementation Guide.

Our specifications are intended to be clean and fully standards-based to achieve the best possible data quality, interoperability and support for multi-party solutions.

The international specification will be adapted to the data requirements of our environment, including hauora Māori, applying our chosen terminology and code set standards, and extending the data set as required.

The standard lays the foundation for developing successors to GP2GP patient record transfer and the NZ ePrescription Service (NZePS), based on our chosen standards.

NZIPS has already been used to set data and interface requirements for systems supporting COVID-19 patient care in the community.

SCOPE

The standard centres on a data set specification conforming to ISO 27269:2021 Health informatics — International patient summary and setting parameters for a New Zealand adaptation of the HL7 FHIR IPS Implementation Guide.

Our NZIPS project aligns with the Global Digital Health Partnership (GDHP) project, alongside HL7 International and SNOMED International, to further develop IPS and drive its implementation in member countries.

CONTENT OF THE DATA SET

The data blocks defined by the ISO standard provide the overall structure of the data set and its mandatory data elements. The scope of the NZIPS data set in this first edition includes demographics, immunisations, medicines, conditions, allergies and adverse reactions, measurements and vital signs, laboratory test results, smoking and vaping status, and care plans.

The NZIPS data set will be extended in future as new data blocks are added to the international standard and based on discovery to meet New Zealand requirements. A future data block for sharing one's own health story and others for child health, family history and alerts are proposed for the next iteration of the international standard. HISO is represented on the ISO 27269 IPS revision working group.

PRIMARY USE CASES

The specifications support four main use cases: consumer access, unplanned care, patient record transfer between general practices, and COVID-19 care in the community. For people travelling overseas and migrants, there are cross-border use cases for IPS.

The standard will inform work to define a standard primary care data set for public health and population health purposes.

PRESENTATION

Data set specifications are published in a straightforward, technology-neutral format, following the example of the US Core Data for Interoperability (USCDI).

The standard sets parameters for a supporting set of NZIPS FHIR conformance artefacts published in the NZ FHIR Registry, based on the developing HL7 FHIR IPS.

OVERVIEW OF THE NZIPS

WHAT THE PATIENT SUMMARY IS

The IPS standard ISO 27269:2021 Health informatics — International patient summary defines the core data set for a machine-readable patient summary that conveys a snapshot of the person's current health status and supports continuity of care, including unplanned care and planned care.

The patient summary is also a data set that supports cross-border use cases for a person visiting another country.

The IPS document is composed of sections for clinical data (centring on problems, allergies and adverse reactions, and medications) and attribute collections for administrative data and document metadata (eg, patient attributes, provenance). These are the mandatory data blocks. Other data blocks that are required if they can be reliably populated are immunisations, medical devices, results, procedures, health provider and contacts.

The IPS can be communicated as whole document, or each part can be accessed separately via APIs. An IPS feature is a collection of reusable data elements that stand together – eg, vaccination data.

The Global Digital Health Partnership (GDHP) prioritises the problems, medicines, allergies and adverse reactions sections of the IPS, and transitions of care.

IPS is not a lifetime record but a summary of current health status that is needed for managing health conditions and risk.

WHAT IT MEANS FOR CONSUMERS

For patients and consumers, having secure access to one's own health summary via chosen apps and platforms is a consumer data right that enables self-management and whānau-supported care at home and in the community.

WHAT IT MEANS FOR HEALTH PROFESSIONALS

When health professionals encounter a patient that they do not know well, and do not have access to the full record in their native clinical application, there is a need to have a coherent simple and straightforward summary of essential information. This is the minimum data set necessary to provide safe effective and efficient care and to identify where additional information required could be accessed.

TE TIRITI AND HEALTH EQUITY

The Strategy for a Digital Public Service states that digital offers an unprecedented opportunity to accelerate the achievement of Māori aspirations. Emerging technologies, digital tools and the pace of change mean the wellbeing outcomes sought by Māori and the Crown can be achieved much faster than we ever anticipated. The Digital Inclusion Blueprint recognises the importance of Te Ao Māori to Māori digital inclusion and data sovereignty. Māori data is a taonga that must be respected, understood and protected in a digital world.

Our interoperability roadmap outlines the contribution of standards and interoperability to a data-driven and joined-up system that improves health equity for Māori.

In the development of NZIPS and all data and digital standards mahi, HISO commits to the five principles identified by the Waitangi Tribunal and embedded in the Ministry of Health's Te Tiriti o Waitangi Framework – namely, tino rangatiratanga, equity, options, active protection and partnership. The Ministry of Health's Te Rangapū Tiriti will ensure that all data and digital mahi, including paerewa (standards) mahi, is pursued in partnership with Māori.

In 2021, Te Tihi o Ruahine Whānau Ora Alliance representatives joined the HISO committee as one step towards strengthening Māori involvement in standards governance, while recent mahi to develop iwi affiliation data protocols with the Data Iwi Leaders Group has shown the power of partnering.

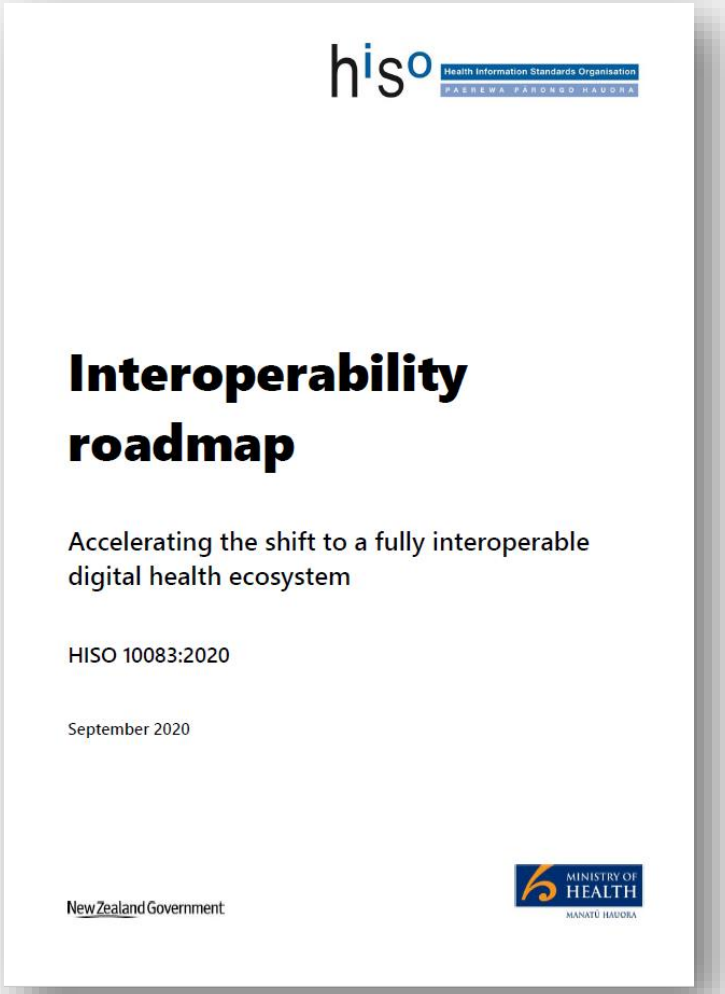
The Waitangi Tribunal's Hauora: Report on Stage One of the Health Services and Outcomes Kaupapa Inquiry identifies the need to collect robust primary care data relevant to Māori health outcomes, as part of the commitment to achieving health equity for Māori. Whakamaua: Māori Health Action Plan 2020-25 gives effect to He Korowai Oranga: Māori Health Strategy and aims to secure pae ora (healthy futures) for Māori, encompassing mauri ora, whānau ora and wai ora (healthy individuals, families and environments). Māori health providers need access to data to transform services, streamline patient pathways and protect the health and wellbeing of individuals and whānau.

Data provides Māori health providers, policymakers and researchers with evidence about how well the system is working for Māori, and how it can be improved.

NZIPS and other HISO standards for data and interoperability are designed to help to fulfil these requirements.

INTEROPERABILITY ROADMAP

The following slides recap the themes and objectives of the Interoperability Roadmap to position the new standards.



INTEROPERABILITY ROADMAP

First published in 2020, the purpose of the Interoperability Roadmap is to accelerate the shift to a fully interoperable health system.

The specifications we present here are about getting the same terminologies, code systems and data standards used across the health system so that personal health information can be safely and securely communicated for patient care and to promote self-management by the person and their whānau.

The roadmap has four themes.

- ■ CONNECTING AND IDENTIFYING
- ● USING THE SAME LANGUAGES
- ▲ UNBLOCKING ACCESS TO INFORMATION
- ★ ENABLING JOINED-UP SERVICES

In the NZIPS mahi, we address several of the signalled roadmap objectives.

- ● Data standards for core personal health information
- ▲ Personal health data portability
- ● SNOMED CT implementation in primary care

CORE PERSONAL HEALTH INFORMATION

NZIPS helps to fulfil the requirement for a straightforward data set specification for core personal health information. The International Patient Summary (IPS) is the key reference point. Our specifications are formulated in a user-friendly, technology-neutral format, following the example of the US Core Data for Interoperability (USCDI). These technology-neutral data set specifications will be fed into the design of FHIR profiles and extensions for NZIPS.

STANDARD TERMINOLOGIES

NZIPS strongly reflects our commitment to SNOMED CT as our principal standard for terminology. NZIPS will accelerate the system-wide move to SNOMED CT. Our SNOMED CT content extends to whānau-friendly terms in English and te reo Māori to promote patient engagement and health literacy.

The NZ Universal List of Medicines (NZULM) will continue to be enhanced as a foundational service, steering towards more complete use of SNOMED CT and terminology services over time.

DATA PORTABILITY

Data portability will be enabled by APIs that allow consumers to move their own health information between patient portals, consumer health platforms and personal health apps. Data holders must be able to exchange correctly structured and coded data, in conformance with the published standards, at the interfaces to their systems.

FHIR API DEVELOPMENT

We will use the FHIR R4 IPS Implementation Guide and related specifications as starting points for work to set API standards for access to core personal health information. FHIR profiles and conformance artefacts will be published in the NZ FHIR Registry. The FHIR resource model offers implementers many choices, and our aim is to create a clean and simple adaptation that reflects our chosen standards.

SUPPORT FOR A MARKETPLACE

We are aiming for an open and modular approach to interoperability that encourages collaboration, reduces duplication and maximises resources to create the best possible experience for consumers and providers.

REQUIREMENT FOR SNOMED CT

As our principal standard for terminology, SNOMED CT is the required source of codes and terms for many data elements in the NZIPS data set.

Using SNOMED CT-enabled software at point of care makes for health records that can be reliably communicated between clinicians, patients and whānau, and linked machine-readably to health pathways, health education resources and other digital tools.

Amid its versatile applications, the central requirement is to use SNOMED CT to record problems and medical conditions in all health records.

In the context of NZIPS, this means using SNOMED CT to code:

- **a diagnosed health issue**
- **an indication for a prescribed medicine**
- **a medical condition addressed by a care plan.**

SNOMED CT fully replaces the Read code system, which is no longer maintained and is being withdrawn from the New Zealand health system, as it has been in the United Kingdom.

The Ministry of Health has worked actively with the Accident Compensation Corporation (ACC) and Ministry of Social Development (MSD) since 2016 to modernise forms and interfaces so that health providers can use SNOMED CT natively in place of Read codes.

Our membership of SNOMED International makes SNOMED CT freely available in Aotearoa. We publish a mapping table in our standard product the SNOMED CT NZ Edition to enable health providers and their industry partners to complete this change.

HIGH LEVEL USE CASES

The priority high level use cases for NZIPS are the following.

CONSUMER ACCESS TO PERSONAL HEALTH INFORMATION	Interfaces with patient portals and other consumer health platforms and apps
PATIENT RECORD TRANSFER	Patient record transfer triggered when a patient enrols with a new GP Support the move from HL7 v2 messaging and CDA to FHIR-based APIs for patient record transfer
PATIENT SUMMARY FOR UNPLANNED CARE	Medications data repository
COVID CARE IN THE COMMUNITY	My COVID Record, vaccination certificates and passes Patient care of COVID cases at home and in the community
MINIMUM DATA SET FOR PUBLIC HEALTH AND POPULATION HEALTH	Adding clinical data to the administrative data held in the NHI and NES for public health and population health purposes Support for analytical data sets and reporting
HIRA USE CASES	The Hira programme is working in partnership with consumers, health providers and the software industry to deliver an ecosystem of data and digital services that draw together a person's latest health information from trusted sources

ADOPTION OF THE STANDARD

NZIPS is designed for widespread adoption as a standard for core personal health information. It will shape how this important data set is collected, recorded and communicated across a range of clinical and consumer-facing solutions and services.

Adoption of NZIPS will be driven through national programmes, such as the Hira programme, which will embed the new standard into practice as part of the creation of an ecosystem of digital health services over the next few years. UIs and APIs that transact personal health information will need to conform to the data requirements laid down by NZIPS.

A draft specification for trial use will be released to health providers and their industry partners to develop solutions and demonstrate interoperability.

HISO is committed to referencing and reusing the NZIPS data set in all new data standards and revisions. New standards such as the Consumer Medicines Data Standard will adopt the relevant NZIPS data elements, for example. New standards will present checklists of requirements that can be assessed simply and objectively, for the benefit of health providers and their industry partners. A new standard for a national immunisation record and schedule is another example.

NZIPS will underpin the design of planned new systems that are successors to our national solutions for GP2GP patient record transfer and the NZ ePrescription Service (NZePS). NZIPS will provide the modern standards backbone to the new systems and APIs that emerge. Redevelopment of other national digital services such as the National Medical Warning System (NMWS) will also depend on NZIPS.

HISO will actively promote NZIPS as a foundational standard and make supporting tools and materials available that enable implementers to easily show conformance to NZIPS in their own specifications and products.

Central among these tools and materials will be a collection of NZIPS value sets that will be made available via terminology services. The NZIPS data set will be published in an interactive online data dictionary, where users will have ready access to the definitions and the ability to comment, raise issues and propose changes. A regular change cycle will be introduced, along the lines used for the US Core Data for Interoperability (USCDI).

IPS PROPERTIES

Health Information Standards Organisation
PAEREWA PĀRONGO HAUORA

DATA SET

MINIMAL	▪ Reflects the ideas of **summary** and the need to be **concise** ▪ A **core data set** that **all health professionals can use**
NON-EXHAUSTIVE	▪ The data set **is not closed** and can be **extended** beyond the present-day standard to additional content for new requirements
SPECIALTY-AGNOSTIC	▪ It is a **starter data set** to help inform a person's treatment at the point of care, irrespective of the **specialty** of the health provider
CONDITION-INDEPENDENT	▪ It is a **starter data set** that is clinically relevant and used to inform a person's treatment at any point of care, **whatever the health issue**

DESIGN PRINCIPLES

IMPLEMENTABLE	▪ Promote the evolution and convergence of existing standards ▪ Make the most of solutions that are already implemented or ready for implementation
APPLICABLE FOR GLOBAL USE	▪ Strive for **global accessibility** using freely available **global standards and terminologies** ▪ Do not make local choices that preclude interoperability with other jurisdictions
EXTENSIBLE AND OPEN	▪ Provide **common content** that can be **extended for other use cases** ▪ Be **open** to **emerging solutions** for unresolved issues or improvements
SUSTAINABLE	▪ Ensure there is a **robust maintenance process** to keep the standard up-to-date ▪ **Ensure clinical validity**, meeting requirements around clinical workflow and clinical documentation

CONTENT AREAS

NZIPS is an extensible data set specification that will build on the set of data blocks presented here. New requirements can be expected to emerge from IPS's own further development, as well as from local initiatives.

INITIAL SCOPE OF NZIPS

Our first priority is to create data set specifications for the following content areas:

- **DEMOGRAPHICS**
- **PROBLEMS**
- **MEDICATIONS**
- **ALLERGIES AND ADVERSE REACTIONS**
- **IMMUNISATIONS**
- **SMOKING AND VAPING**
- **MEASUREMENTS AND VITAL SIGNS**
- **DIAGNOSTIC RESULTS**
- **CARE PLAN**
- **RECENT ENCOUNTERS**

LATER SCOPE OF NZIPS

Other content areas in subsequent work:

- HEALTH PROVIDERS AND CARE TEAM
- PROCEDURES
- ADVANCE CARE PLAN AND ADVANCE DIRECTIVES
- CHILD HEALTH SPECIFICS
- MEDICAL DEVICES
- ELIGIBILITY AND ENTITLEMENTS
- FAMILY HISTORY
- GENOMICS

DATA ELEMENT SPECIFICATIONS

In the following sections, our data set specifications are presented in a templated form based on the **ISO/IEC 11179 Information Technology – Metadata Registries (MDR)** standard.

Each data element is presented with a unique canonical name and narrative definition, paired with a value domain.

The value domain is the set of permissible values for the data element, with an associated data type and, for quantities, a unit of measure.

Data elements are organised by content area – problems, medications, etc – and grouped into one or more logical statements.

DEMOGRAPHICS

hiso Health Information Standards Organisation
PAEREWA PĀRONGO HAUORA

WHAT THE DATA SET IS

The person's name, birth date and contact details, plus other identity, demographic, eligibility and enrolment information as recorded in the National Health Index (NHI) and National Enrolment System (NES) for everyone receiving public health services. The NHI number is the national health identifier and key to this information.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

This data set enables the person to engage with the health system and receive health services in person and online. Information is shared with the health system in secure and privacy-protecting ways to prove identity and eligibility, and to receive the right services. Having good demographic data is important to population health and public health.

HOW THE DATA IS REPRESENTED

International and NZ Government standards govern the structure and coding of these data elements to ensure data quality and interoperability.

PERSON		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
NHI number	National health identifier for the patient or consumer	NHI number
Person name	Current full name of the patient or consumer	Composite person name data element in accord with the preferred format of the NZ Government OASIS CIQ Name Profile
Birth date	Date of birth of the patient or consumer	Date
Gender code	Coded gender of the patient or consumer	Codes for male, female, another gender as described by HISO 10046:2021 Consumer Health Identity Standard
Gender description	Person's own description of gender, if coded as 'another gender'	Text

KEY USE CASES

- Identity, eligibility and enrolment
- Bookings and appointments
- Identifying people at risk by ethnicity, age, location, etc
- Patient record transfer
- Consumer access
- Population health and public health

STANDARDS AND MATERIALS

- IPS section PATIENT ATTRIBUTES
- FHIR resource Patient
- HISO 10046:2021 Consumer Health Identity Standard
- HISO 10085:2020 Contact Tracing Data Standard – Consumer identity and demographic information
- Government mandated data standards for person name, date of birth, street address, gender

STEPS TO CONFORMANCE

- Move to structured names and addresses
- Integration with National Health Index (NHI) and National Enrolment Service (NES) APIs

FUTURE SHIFTS

- Further content such as Māori descent and iwi affiliation
- Eligibility and entitlement information

PERSON continued		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Home address	Current home address for the patient or consumer	Structured physical address in accord with the Government mandated
Phone number	Current contact phone number for the patient or consumer	International ITU-T E.164 numbers
Email address	Current contact email address for the patient or consumer	Valid email address in local-part@domain format
Ethnic group code	Set of ethnic group codes describing the person's ethnicity	Stats NZ code set
Preferred language code	Code for the person's preferred language for communication	ISO 639-3 Language codes
Māori descent code	Code indicating whether the person is of Māori descent	Māori descent V1.0.0 N(1) In particular, 1 for Māori descent, 2 for No Māori descent
Iwi code	Set of codes for a person's iwi affiliation	Iwi and iwi-related groups statistical classification V1.0.0
Birth country code	Code for the person's country of birth	ISO 3166-1 2-alpha country codes
Residential country code	Code for the person's current country of residence	ISO 3166-1 2-alpha country codes

PROBLEMS

WHAT THE DATA SET IS

Core personal health information centres on a concise statement of the problems and conditions affecting the person, including long term conditions and other current health issues. It includes pregnancy and can be an alert such as being immunocompromised.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

Structured and coded information about the person's health problems needs to be communicable across health services to enable the best clinical decision making, choice of health pathways and safe and effective use of medicines and other interventions. The person and their whānau are saved from repeating their health story at every encounter, and they can be guided to relevant digital health apps and literacy tools for their conditions.

HOW THE DATA IS REPRESENTED

Each problem is represented by a statement that includes a SNOMED CT concept for the disease or disorder. A diagnosis can be more specific or less specific depending on the evidence. The associated signs and symptoms and their severity are also expressed using SNOMED CT. There is an explicit statement of no known problems.

PROBLEM		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Problem code	Code representing the problem or condition	SNOMED CT Disorder concept – eg, asthma, diabetes, hypertension
Body site code	Code for the body site affected by the problem (if applicable)	SNOMED CT Body structure – eg, both hands, left elbow
Problem severity code	Code for the severity of the problem	SNOMED CT Severities (qualifier value) – eg, mild, moderate, severe
Onset date	Approximate or exact onset date of the problem	Date
Resolution date		

KEY USE CASES

- Clinical management
- Eligibility for some health services – eg, for free flu vaccination
- Identifying people at risk – eg, asthma, hypertension, diabetes, ischaemic heart disease, CKD, COPD, stroke, epilepsy are COVID-19 risk factors
- Disease prevalence

STANDARDS AND MATERIALS

- IPS sections PROBLEMS, HISTORY OF PAST PROBLEMS
- FHIR resource Condition
- SNOMED CT NZ Edition

STEPS TO CONFORMANCE

- Final withdrawal of Read codes
- Terminology service integration

FUTURE SHIFTS

- SNOMED CT post-coordination
- Sensitive information indicator

PROBLEM MANIFESTATION		
DATA ELEMENT	**DEFINITION**	**VALUE DOMAIN**
Problem code	Code representing the problem or condition	SNOMED CT Disorder concept – eg, asthma, diabetes, hypertension
Problem manifestation code	Code for a sign or symptom experienced with a given problem	SNOMED CT Clinical finding – eg, painful joint, chest pain

MEDICATIONS

WHAT THE DATA SET IS

Core personal health information includes structured and coded data about each of the prescription medications in the person's current or recent use. The data set includes prescription and dispensing details, including the indication for the medicine and the dosage. Over-the-counter medicines, traditional medicines, alternative medicines and supplements can be included.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

This essential information for the individual and their whānau needs to be communicable in machine readable form across all points of care. Properly structured and coded prescription and dispensing information helps ensure patient safety and enables automation.

HOW THE DATA IS REPRESENTED

NZ Medicines Terminology (NZMT) codes and terms are used for all non-branded and branded medicinal products, while dosage and indication are represented using SNOMED CT. The reason a medicine was stopped can be recorded. NZULM is the standards-based source of computable information about each product's active ingredient and strength.

PERSON MEDICATION		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Medicinal product code	NZMT code for the non-trade medicinal product	NZMT MP/MPUU code Eg, code for salbutamol 90 mcg/spray, carvedilol 25 mg tablet
Medicinal trade product code	NZMT code for the trade medicinal product	NZMT TP/TPUU/TPP/CTPP code
Medication indication code	Code for the problem or condition that is the indication for the medicine	SNOMED CT Clinical finding – eg, hypertension, diabetes, anxiety disorder As needed – eg, shortness of breath
Medication course code	Code for short term, long term or as needed medication	SNOMED Drug therapy status – long term, short term, as needed

KEY USE CASES

- Clinical portals
- Patient portals and personal health apps
- Medicine reconciliation

STANDARDS AND MATERIALS

- IPS section MEDICATION SUMMARY
- FHIR resource MedicationStatement
- Inspired EHRs: Designing for Clinicians
- HISO 10024.1:2018 NZ Universal List of Medicines
- SNOMED CT Medicinal Product Model
- SNOMED CT Drug Model for National Extensions
- NHS Digital Implementation Guide for Dose Syntax for FHIR R4
- Mapping to SNOMED CT for clinical decision support

STEPS TO CONFORMANCE

- Integrate with NZULM and NZF and NZHTS
- Move to NZULM to identify medicines
- Move to SNOMED CT for recording dosage

FUTURE SHIFTS

- Active ingredient and strength data elements
- Complex dosage instructions
- Identification of Medicinal Products (IDMP)
- Sensitive information indicator
- SNOMED CT concrete domains

MEDICATIONS

PERSON MEDICATION continued		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Medication start date	Start date for the medicine	Date
Medication usage period code	Code for the prescribed period of medication use	SNOMED CT
Medication route code	Code for the route of administration of a medication	SNOMED CT Route of administration value – eg, oral route, topical route
Medication dosage quantity	Number of units in medicine dose	Number
Medication frequency code	Code for frequency of medicine administration	SNOMED frequencies – eg, every 4 hours as needed, once daily, once a day at bedtime, three times daily
Medication cessation reason code	Code for the reason the medicine was stopped	SNOMED CT medication discontinued – eg, side effect, ineffective, interaction
Medication product GTIN	Supply chain identifier for the medicinal trade product	Global Trade Item Number (GTIN)
Medication batch number	Batch number for the medicine	String
Medication expiry date	Expiry date for the medicine	Date

EXPRESSING THE DOSAGE

- A structured way to express dosage instructions is essential for patient safety when medicines information is shared between care settings – for example, in a hospital discharge summary. A hospital prescription for paracetamol 1000 mg is equivalent to a prescription in primary care for 2 x 500 mg paracetamol tablet
- ISSUE: ISO 27269:2021 describes dosage only in terms of a counted unit of presentation, but we may need to allow for the other method too

DISPENSING INFORMATION

- Scanned product information: GTIN, batch number and expiry date
- Dispensed quantity, days supply, when prepared/handed over

PRODUCT INFORMATION

- Strength – active ingredient content per dose unit, per unit of volume or per unit of weight, according to the dose form – eg, 500 mg (per tablet)

ALLERGIES AND ADVERSE REACTIONS

WHAT THE DATA SET IS

Core personal health information includes a record of each known allergy or propensity for adverse reactions to some substance. All unresolved allergies and propensities are included. In each case, the medicine, food or other substance that is the causative agent is recorded, along with the manifestation of the allergy or adverse reaction, and its overall criticality.

Some examples are a severe tongue swelling reaction to a certain medicine, an anaphylactic reaction to peanuts, a severe eye swelling reaction to cat allergen.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

Information about allergies and adverse reactions needs to be communicated as a patient safety measure when prescribing, dispensing and administering medicines and medical devices, in diagnostic procedures and treatments, in nutrition and dietetics, and in other aspects of hospital and community care. Patients must have access to this information in an understandable form.

HOW THE DATA IS REPRESENTED

Data in this area is represented in distinct sets of statements about: (1) each recorded adverse reaction event, and (2) each diagnosed allergy or propensity for adverse reactions of some kind. Coded data elements distinguish allergies from other sensitivities and intolerances, and differentiate medicine, food, biologic and other environmental causative agents. An explicit statement represents 'no known allergy'.

ADVERSE REACTION EVENT		
DATA ELEMENT	**DEFINITION**	**VALUE DOMAIN**
Adverse reaction event agent code	Code for the causative agent of a recorded adverse reaction	NZMT MP/MPUU/TP/TPUU code for medicines SNOMED CT substance otherwise
Adverse reaction manifestation code	Code for a sign or symptom experienced with a given problem	SNOMED CT Clinical finding – eg, painful joint, chest pain
Adverse reaction event severity code	Code for the severity of the manifestation of an adverse reaction	SNOMED CT severities concepts – eg, mild, moderate, severe
Adverse reaction event date	Date or approximate date of recorded adverse reaction	Date

KEY USE CASES

- Sharing information about allergies or adverse reactions for patient safety
- Clinical decision support in medication management (interactions, contraindications)
- Patient record transfer
- Consumer access

STANDARDS AND MATERIALS

- IPS section ALLERGIES AND INTOLERANCES
- FHIR resource AllergyIntolerance
- Inspired EHRs: Designing for Clinicians
- SNOMED CT NZ Edition
- SNOMED CT to MedDRA map to translate from SNOMED CT in the patient record to MedDRA codes for post market surveillance

STEPS TO CONFORMANCE

- Move to SNOMED CT and NZMT for allergy and adverse reaction recording

FUTURE SHIFTS

- Support for SNOMED CT post-coordinated expressions representing allergy to X
- Provenance of information about each allergy or adverse reaction (did the patient say they had a reaction to penicillin or was it observed by a clinician?)

ADVERSE REACTION PROPENSITY mandatory data elements		
NAME	DEFINITION	VALUE DOMAIN
Adverse reaction propensity agent code	Code for the substance that is the causative agent of a person's allergy or propensity for adverse reactions	SNOMED substance SNOMED CT NZ
Adverse reaction propensity onset date	Date or approximate date (optional)	Date
Adverse reaction propensity type code	Code that distinguishes allergies from intolerances	SNOMED CT – either allergy to substance, intolerance to substance, propensity to adverse reactions to substance
Adverse reaction propensity agent category code	Code differentiating medication, food, biologic and other environmental substances	SNOMED CT – either drug or medicament, edible substance, biological substance or other environmental substance

ADVERSE REACTION PROPENSITY optional data elements		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Adverse reaction propensity certainty code	Code for the certainty of diagnosis of an allergy or propensity for adverse actions to a given substance	SNOMED qualifier for certainty of diagnosis concept and following WHO guideline – either unconfirmed, confirmed, refuted, provisional, differential

ALLERGY CONTENT STATUS		
NAME	DEFINITION	VALUE DOMAIN
Allergy content status code	Code for an explicit statement of 'no known allergy' overall or of some kind	SNOMED CT no known allergy – including no known medicine allergy, no known food allergy, no known insect/animal allergy, no known environmental allergy

COMMON ALLERGEN REFERENCE SETS

The SNOMED CT NZ Edition has reference sets for each category of non-pharmaceutical substance:

- NZ edible substance common allergen reference set
- NZ biological substance common allergen reference set
- NZ chemical substance common allergen reference set

IMMUNISATIONS

hiso Health Information Standards Organisation
PAEREWA PĀRONGO HAUORA

WHAT THE DATA SET IS

Core personal health information includes a record of each of the person's vaccinations. This should be a complete history or as much as known. The vaccine product, target disease and details of each vaccination event are recorded. The forthcoming National Immunisation Solution (NIS) will be the system of record for all vaccinations received in New Zealand or overseas.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

Having an accurate record of vaccinations and being able to share vaccination status is more important than ever for individuals and the people in their care. The data needs to be shared within the health system, as well as being available to consumers and whānau for such purposes as producing machine readable vaccine passes and certificates. Travellers and migrants need their vaccination records in an internationally recognised form.

HOW THE DATA IS REPRESENTED

Each record represents the event of receiving a dose of a vaccine, either a single dose vaccination or one in a series. Adverse reactions to vaccinations are recorded using the same constructs as adverse reactions to other medicines. There is an explicit statement to say if there are no known vaccinations.

IMMUNISATION		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Vaccine product type code	Code for the type of vaccine product administered	SNOMED CT Vaccine product – eg, MMR vaccine, COVID-19 vaccine, COVID-19 mRNA vaccine
Vaccine product code	Non-trade medicinal product code for the vaccine administered	NZMT MP/MPUU code
Vaccine trade product code	NZMT code for the vaccine trade product administered	NZMT TP/TPUU code
CVX vaccine product code	CVX code for the vaccine product administered	CVX code
Vaccination date	Date the vaccine was administered	Date

KEY USE CASES

- Communication of a patient's vaccination status at point of care
- API access to person's immunisation status in National Immunisation Solution (NIS)
- Message notification of immunisation status to health providers
- COVID-19 immunisation register
- COVID-19 vaccine pass and certificate
- Patient record transfer
- Consumer access

STANDARDS AND MATERIALS

- IPS section IMMUNIZATIONS
- FHIR resource Immunization
- SNOMED CT NZ Edition

STEPS TO CONFORMANCE

- Use of NZMT codes and terms for vaccine trade products
- Use of SNOMED CT to represent other elements of the record
- Support for GS1 Automatic Identification and Data Capture (AIDC) standards

FUTURE SHIFTS

- National Immunisation Solution (NIS) API
- SNOMED CT Medicinal Product Model
- Identification of Medicinal Products (IDMP)
- Add diluent information

IMMUNISATION continued		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Vaccine GTIN	GTIN for the vaccine product administered	GTIN
Vaccine batch number	Lot/batch number for the vaccine product administered	String
Expiry date	Expiry date of the batch of the vaccine product administered	Date
Vaccination health worker identifier	Identifier of the health worker who performed the vaccination	HPI CPN
Vaccination facility identifier	Identifier of the facility where the vaccination was performed	HPI FAC ID
Vaccination organisation identifier	Identifier of the organisation responsible for the vaccination	HPI ORG ID
Vaccination body site code	Code for the body site of vaccine administration (if	SNOMED CT Body structure – eg, left deltoid
Vaccination administration route code	Code for the route of vaccine administration (optional)	SNOMED CT
Vaccination dose quantity	Vaccine dose quantity administered	Number
Vaccination dose number	Dose number within sequence of vaccine administered	Number
Vaccination dose series total number	Recommended number of doses in the vaccination series	Number
Vaccination country code	Code for the country where the vaccination was performed	ISO 3166-1:2020 alpha-2 code set

SMOKING

WHAT THE DATA SET IS

The core personal health data set includes the person's smoking status. Health professionals follow an ABC pathway to ask, offer brief advice and provide cessation support to anyone smoking, and these interventions are recorded.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

Coded information about smoking status and any medicinal or behavioural intervention is recorded and reused in the patient's care in different settings and in referral to stop smoking services.

HOW THE DATA IS REPRESENTED

SNOMED CT NZ reference sets for smoking status and interventions are defined.

SMOKING		
NAME	DEFINITION	VALUE DOMAIN
Smoking status code	Code for current smoking status	SNOMED CT Tobacco smoking behaviour – finding SNOMED CT NZ Smoking status reference set
Smoking status recorded date	Date smoking status recorded	Date

KEY USE CASES

- Sharing smoking status and intervention data between settings
- Patient record transfer
- Consumer access

STANDARDS AND MATERIALS

- IPS section SOCIAL HISTORY
- FHIR resource Observation
- Ministry of Health website smoking status codes

STEPS TO CONFORMANCE

- Final withdrawal of Read codes

FUTURE SHIFTS

- Add smoking intervention
- Add recreational drug and alcohol use

VAPING

WHAT THE DATA SET IS

The core personal health data set includes the person's vaping status.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

Coded information about vaping status is recorded and reused in the patient's care in different settings.

HOW THE DATA IS REPRESENTED

Vaping status is recorded using a defined SNOMED CT reference set.

SMOKING		
NAME	DEFINITION	VALUE DOMAIN
Vaping status code	Code for current vaping status	SNOMED CT NZ Vaping status reference set
Vaping status recorded date	Date vaping status recorded	Date

KEY USE CASES

- Sharing personal health information between settings
- Patient record transfer
- Consumer access

STANDARDS AND MATERIALS

- IPS section SOCIAL HISTORY
- FHIR resource Observation
- Ministry of Health website vaping status codes

STEPS TO CONFORMANCE

- Capturing codified vaping status

FUTURE SHIFTS

- Add vaping intervention
- Add recreational drug and alcohol use

MEASUREMENTS AND VITAL SIGNS

WHAT THE DATA SET IS

The physiological measurements and vital signs that are important to the person's life stage, health risks and conditions are recorded in the core personal health data set. These measurements include height, weight, heart rate, respiratory rate, blood pressure, body temperature, head circumference and body surface area, to name a few.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

Measurements and vital signs information is captured and used in many settings, for many purposes. It can be important data for self-management.

HOW THE DATA IS REPRESENTED

Some measurements are recorded as a time series per variable, others as the single, latest value. LOINC codes are used to denote the type of measurement. Physical quantities are represented by a numeric value and a UCUM-coded unit of measurement, based on SI units. For example, body height is identified by LOINC code '8302-2', with 'cm' units of measurement.

KEY USE CASES

- COVID risk assessment
- Patient record transfer
- Consumer access

STANDARDS AND MATERIALS

- IPS section VITAL SIGNS
- FHIR resource Observation

STEPS TO CONFORMANCE

- Use of NZPOCS codes

FUTURE SHIFTS

- Add other measurements
- Add provenance

MEASUREMENT		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Measurement date/time	Date of the measurement	Date/time
Measurement type code	Code for the type of measurement	LOINC code
Measurement value	Measured value	Numeric
Measurement UOM code	Code for the unit of measurement	UCUM code

DIAGNOSTIC RESULTS

WHAT THE DATA SET IS

Test results relevant to the person's health condition and risk, including pathology results, radiology results, medical imaging results, endoscopy reports, clinical results, consumer entered diagnostics and diagnostic results of all kinds. Some results are recorded in a time series.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

This objective measurement data is used and reused across many settings as an input to risk assessment, screening, diagnosis and care planning. Sharing test results can avoid duplicate tests. Test results are also important in self-management and consumers need this data to be usable in apps and presented meaningfully.

HOW THE DATA IS REPRESENTED

Some measurements are recorded as a time series per variable, others as the single, latest value. LOINC codes are used to denote the type of measurement. Quantities are represented by a numeric value and a UCUM-coded unit of measurement, based on SI units. Non-numeric results are coded using SNOMED CT.

KEY USE CASES

- COVID care in the community
- Consumer access
- Patient record transfer

STANDARDS AND MATERIALS

- IPS section RESULTS
- FHIR resource Observation

STEPS TO CONFORMANCE

- Move to native use of NZPOCS codes

FUTURE SHIFTS

- Record performer
- Include reference range and abnormality flag

NUMERIC TEST RESULT		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Observation type code	Code for the diagnostic test performed	LOINC code
Observation value	Observed value	Numeric
Unit of measurement code	Code for the unit of measurement	UCUM code

CODED TEST RESULT		
DATA ELEMENT	DEFINITION	VALUE DOMAIN
Observation type code	Code for the diagnostic test performed	LOINC code
Observation value	Observed value	SNOMED CT

CARE PLAN

WHAT THE DATA SET IS

A care plan in the context of a patient summary is a simple record of each consultation, test, treatment or other activity planned in managing some health condition or towards some health goal. For example, a care plan may exist to communicate a forward view of the planned care for a person with COVID. The same person may have other care plans for other conditions. Appointments, orders, referrals and discharge summaries are common sources of care plan data.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

A patient's care plan will be shared across the care team and whānau via different clinical and consumer health platforms and apps, making it important that the care plan as a whole and each of its components are represented in a standard way.

HOW THE DATA IS REPRESENTED

The prospective or completed actions making up a care plan are each represented as a coded statement. A SNOMED-coded data element distinguishes actions belonging to the possibly several care plans the consumer has in effect.

CARE PLAN		
NAME	**DEFINITION**	**VALUE DOMAIN**
Care plan type code	Code for the type of care plan	SNOMED CT Care plan concept – eg, cancer care plan, occupational therapy care plan
Care plan problem code	Code for the problem or condition addressed by the care plan	SNOMED CT Disorder concept
Care plan activity date	Date of itemised activity in the care plan	Date
Care plan activity type code	Code for the type of an itemised activity in the care plan	SNOMED CT Procedure – eg, consultation, vaccination, test etc of some type
Care plan activity performer id	Identifier for the health professional, facility or organisation performing the itemised care plan activity	HPI identifier
Care plan activity status code	Code indicating whether an itemised care plan activity is prospective, completed or some other status	SNOMED CT

KEY USE CASES

- COVID care in the community

STANDARDS AND MATERIALS

- IPS section PLAN OF CARE
- FHIR resource CarePlan

STEPS TO CONFORMANCE

- SNOMED-coded orders, referrals and discharge summaries

FUTURE SHIFTS

- Support for goal-oriented health and wellbeing plans

RECENT ENCOUNTERS

WHAT THE DATA SET IS

Core personal health information includes a record of the person's recent encounters and interactions with health providers and the health system. This includes planned and unplanned encounters, in-person and online, at home or at a facility. Common types of encounter includes visits and online consultations with a GP, allied health professional or specialist.

WHY THIS DATA NEEDS TO BE INTEROPERABLE

The person's recent history of encounters and interactions with health providers and the health system can be important information.

HOW THE DATA IS REPRESENTED

Each encounter, whatever the setting, is recorded in coded form, covering the specified set of parameters.

ENCOUNTER		
NAME	DEFINITION	VALUE DOMAIN
Encounter type code	Code for the type of encounter	SNOMED CT
Encounter date/time	Date and time of the encounter	Date/time
Encounter location identifier	Identifier of the health facility that was the location of the encounter	HPI identifier
Encounter disposition code	Code for the patient disposition from the encounter	SNOMED CT
Encounter diagnosis code	Code for any diagnosis made at the encounter	SNOMED CT

KEY USE CASES

- Continuity of care

STANDARDS AND MATERIALS

- IPS presently has no section for encounters

STEPS TO CONFORMANCE

- SNOMED coded encounter types

SUPPORTING PRODUCTS AND TOOLS

NZIPS is supported by the following freely-available digital products and tools

NZ Health Terminology Service (NZHTS)

NZHTS is our collection of tools for content authoring and serving real-time lookups to our standard terminologies and code sets

FHIR API endpoints are snomednz.digital.health.nz and (in future) nzhts.digital.health.nz/ using CSIRO Ontoserver

NZ FHIR Registry

The NZ FHIR Registry is the home for all HISO-endorsed FHIR profiles and extensions

NZIPS FHIR conformance artefacts are published in the NZ FHIR Registry at https://simplifier.net/nzips

SNOMED CT NZ Edition

The SNOMED CT NZ Edition is our standard SNOMED CT product, produced by Health NZ's SNOMED CT National Release Centre

NZCDI and NZIPS use the SNOMED CT NZ Edition for all SNOMED CT concepts, terms and reference sets

NZ Universal List of Medicines (NZULM)

NZULM encompasses the NZ Medicines Terminology (NZMT) and provides standard names and identifiers for the medicines used in New Zealand

A mapping to SNOMED CT promotes clinical decision support and interoperability

REFERENCES

1. HISO 10083:2020 Interoperability Roadmap
2. ISO 27269:2021 Health informatics — International patient summary
3. ISO 13940:2015 Health informatics — System of concepts to support continuity of care
4. Joint Initiative Council (JIC) Patient Summary Standards Set (PSSS)
5. HISO 10078:2021 Statement of endorsement for the Patient Summary Standards Set (PSSS) and International Patient Summary (IPS)
6. HISO 10033:2021 SNOMED CT Endorsement
7. HL7 FHIR International Patient Summary (IPS) Implementation Guide
8. International Patient Summary (IPS) website

ACKNOWLEDGEMENTS

EXPERT ADVISORY GROUP

Our sincere thanks to the expert advisory group of health professionals, software experts and consumer representatives who worked with HISO between October 2021 and April 2022 to guide the development of this document, review drafts and provide input.

INDUSTRY SPECIAL INTEREST GROUP

Thanks also to the health software industry special interest group who reviewed drafts and contributed to this document.