Australian Core Data for Interoperability Release 2

Chronic Condition Management Component

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Draft for Community Comment

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1. Document Information

1.1. Document Information

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Community Acknowledgement

We thank all community members, in particular, the Sparked Clinical and Technical Design Groups, the Clinical Leads and our founding members who contributed their time, expertise, passion, resources, and energy to deliver the second release of the Australian Core Data for Interoperability.

We look forward to the community continuing to grow and working with you all to share resources and specifications to enable the meaningful use, exchange, and reuse of clinical information.

1. Table of Contents

2. Definition of Terms

Table 1. Definition of terms.

Term / Acronym	Definition
AIR	Australian Immunisation Register (AIR) is a national register that records vaccines given to all people in Australia.[1]
AMT	Australian Medicines Terminology
Archetype	A reusable, computable information model based on the openEHR specification, that describes the structure of data for a specific clinical or other health-related concept.
AU Core IG	FHIR Implementation Guide supporting the use of HL7® FHIR®© in an Australian context. It sets the minimum expectations on FHIR resources to support conformance and implementation in systems.
AU PS	Australian Patient Summary
AU PS PT	Australian Patient Summary Project Team
AUCDI	Australian Core Data for Interoperability
AUCDI R1	The first release (Release 1) of the AUCDI – published in June 2024[2]
AUCDI R2	The second release (Release 2) of the AUCDI
AUeReqDI	Australian eRequesting Data for Interoperability
AUeReqDI R1	The first release (Release 1) of the Australian eRequesting Data for Interoperability
Clinician	Any health or care professional involved in the management, treatment, or planning of care for an individual.
Chronic Condition Management (CCM)	Management of one or more chronic condition as recognised and diagnosed by a registered medical practitioner.
Data element	An individual data component within a data group.
Data group	A standalone content specification about a single clinical concept which focuses on the structure of data and the relationships between data elements. It incorporates codes or value sets from a terminology system, as appropriate.
EDD	Estimated Date of Delivery for a pregnancy.
FHIR	Fast Healthcare Interoperability Resources[3] – an international standard for healthcare data exchange, published by HL7 International.
HL7	Heath Level Seven[4] – a standards development organisation responsible for a range of health information exchange standards, including FHIR.
IG	FHIR Implementation Guide – it is the mechanism that describes how FHIR is used to meet a specific use case. It provides detailed instructions on how to consistently implement a FHIR specification for a given use case within software applications.
IPS	International Patient Summary – a minimal and non-exhaustive set of basic clinical data of a patient, specialty-agnostic, condition-independent, but

1 https://www.servicesaustralia.gov.au/about-australian-immunisation-register?context=20

2 https://sparked.csiro.au/index.php/sparked-products-resources/australian-core-data-for-interoperability/aucdi-release-1/

3 https://fhir.org/

4 https://www.hl7.org/

	readily usable by all clinicians for the unscheduled (cross-border) patient care.
LMP	Last Menstrual Period
LOINC	Originally known as Logical Observation Identifiers Names and Codes, LOINC[5] is a terminology used for identifying health measurements, observations, and documents.
openEHR	Standards development organisation developing a specification for an electronic health record architecture, including the development and governance of standardised clinical information models, known as archetypes.[6]
SDOH	Social Determinants of Health
SNOMED CT	Systematised Nomenclature of Medicine– Clinical Terms[7] is an international comprehensive, multilingual clinical healthcare terminology.
SNOMED CT-AU (SCT-AU)	SNOMED CT-AU[8] refers to Australia's extension to SNOMED CT. It is Australia's national terminology for clinical terms.
Sparked	Australia's first FHIR accelerator, delivering national core clinical data for interoperability to support health information sharing.
Sparked AU Core TDG	Sparked AU Core Technical Design Group – responsible for the development of the FHIR AU Core implementation guide for Sparked.
Sparked CDG	Sparked Clinical Design Group – responsible for describing the clinical data requirements to inform the Sparked AU Technical Design Groups.
Value set	An agreed, defined list of coded terms to support standardised data capture and use (often using a standardised terminology system, for example SNOMED CT).

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5 https://loinc.org/

6 https://openehr.org/

7 https://www.snomed.org/

8 https://www.healthterminologies.gov.au/

3. Introduction

3.1. Purpose of document

The purpose of this document is to outline the contents of the Australian Core Data for Interoperability (AUCDI) and to provide insights into the context of its development.

3.2. Intended audience of the document

The intended audience of this document are stakeholders interested in improving health data interoperability in Australia. This includes consumers, clinical and technical subject matter experts, healthcare organisations, peak bodies, technology and software industry partner organisations, jurisdictions, and government organisations.

3.3. How to read the document

This document is organised into two main sections: Sections 4 and 5 offer background information on the Sparked Program and the AUCDI, respectively, while Section 6 and subsequent sections details the specifics of this release of AUCDI.

Note to reviewers:

This document is focused solely on the Chronic Condition Management component of AUCDI Release 2, to enable a detailed review of specific, relevant data groups and support the agile, iterative development of the AUCDI R2 specification.

The specification for the full AUCDI Release 2, intended to supersede AUCDI R1, is scheduled for publication in June 2025. It will encompass the original content from AUCDI R1, including some with enhancements, plus the addition of new data groups that represent clinical content required for the Australian Patient Summary, which underwent public comment review in late 2024, as well as the data groups detailed in this AUCDI R2 Chronic Condition Management document.

Content that has not changed from AUCDI R1 has been marked with a grey background so that it can be easily recognised by its display within tables or text boxes. Any new data elements that have been added, or supporting information that has been edited or adapted, are presented without any background colouring, distinguishing them from the unchanged content.

Review is not expected for this content that has not changed from AUCDI R1.

4. About Sparked

The Sparked program was launched in August 2023 to deliver national core clinical data for interoperability to support health information sharing.

Sparked is a community-driven collaboration comprising government, technology and software industry partners, provider organisations, clinical and industry peak bodies, healthcare practitioners, and domain experts with a common goal – to deliver core data for interoperability and to accelerate the creation and use of national FHIR standards in healthcare information exchange.

Detailed information about Sparked can be found on its website https://sparked.csiro.au/.

5. About Australian Core Data for Interoperability

5.1. Background

The Australian Health Information Technology (HIT) landscape is characterised by isolated health information systems, often confined within single clinics or organisations. This fragmentation is prevalent across primary, acute, and tertiary care sectors. The consistency in health data structure is generally limited to systems provided by the same technology industry partner, leading to a lack of health data & information alignment between different clinical systems.

This situation poses significant challenges in sharing and exchanging information across systems, impacting the development of value-added services like clinical decision support. The local and often proprietary development of these systems has necessitated the mapping or transformation of health data between systems, increasing the risk of errors and potential loss of critical clinical data.

The fragmented nature of health systems complicates the capture and reuse of health data. Data captured in one system often cannot be efficiently or accurately reused in another, leading to redundant data entry and potential inconsistencies in electronic health records. This not only increases the workload for healthcare providers but also poses risks to clinical safety and quality of care. Inaccurate or incomplete data can lead to misinformed clinical decisions and compromised health outcomes.

Additionally, the focus on developing data sets for secondary rather than primary clinical use adds to the data collection burden for care providers. This approach often overlooks the immediate clinical needs and usability, potentially compromising the effectiveness of clinical decision support systems and the overall quality of health care delivered.

5.2. Role and purpose of AUCDI

The AUCDI is changing the approach to health data and is set to become a national asset focused on establishing an independent base of reusable, standardised information models and related artefacts. As clinical systems converge their internal data structures towards AUCDI, this common, consensus-based data foundation will reduce the need for data transformations and mappings, supporting safer and simpler interoperability.

The AUCDI is intentionally agnostic of:

- Any single **clinical use case** while being constructed as a foundation for many clinical use cases,

- Any single **clinical system vendor** while being strongly informed by functionality and data available in current clinical systems, and

- Any single **technical implementation or exchange approach** while providing the clinical data requirements for developing the FHIR AU Core specifications and subsequent Implementation Guides (IG).

The AUCDI:

- Will provide the initial foundation for an evolving ecosystem of agreed data groups, purpose-built to reflect clinical requirements for the data required to support the provision of care, exchange, aggregation for analysis, and to enable clinical decision support.

- Describes and defines a set of data groups comprising one or more data elements, forming the foundation of a common language to allow systems to exchange semantically accurate data more efficiently.

- Will act as an agent for change by bridging fragmented silos of data and providing a foundation of building blocks of standardised data applicable to multiple use cases across a variety of clinical specialties, geographical locations, and professional contexts and problems.

- Incorporates and builds upon existing standards and ongoing work from national and international programs and initiatives. It has not been developed in isolation.

- Is a living artefact that will evolve and grow in future iterations to support additional use cases – adding breadth by including new clinical data groups and depth by expanding with further granular detail.

AUCDI R1 (published in June 2024) concentrated on identifying essential "core of the core" data elements that were already present within most existing clinical systems. These data elements represented the absolute minimum data required to support standardised clinical information capture at the point of care and for safe and meaningful exchange of information to other care providers. Building on this foundation, AUCDI R2 expands the focus on the "core" theme by extending the scope of some existing data groups and adding new data groups based on the drivers outlined in Section 5.4.1.

5.2.1. AUCDI as a foundation – what we have in the toolbox so far

AUCDI provides the common data foundation that can be reused across multiple common use cases. Some use cases, such as the Patient Summary (PS) and Chronic Condition Management (CCM), will be fully encapsulated within AUCDI as it develops.

Other national use cases, such as the current development of the eRequesting specification leverages AUCDI R1's 'Sex and gender summary', 'Problem/Diagnosis summary', and 'Adverse reaction risk summary', with the addition of new data groups to represent unique eRequesting requirements.

Future use-case specific data sets may be developed using the same approach, potentially reusing components from AUCDI, AUeReqDI, and other specifications as they evolve.
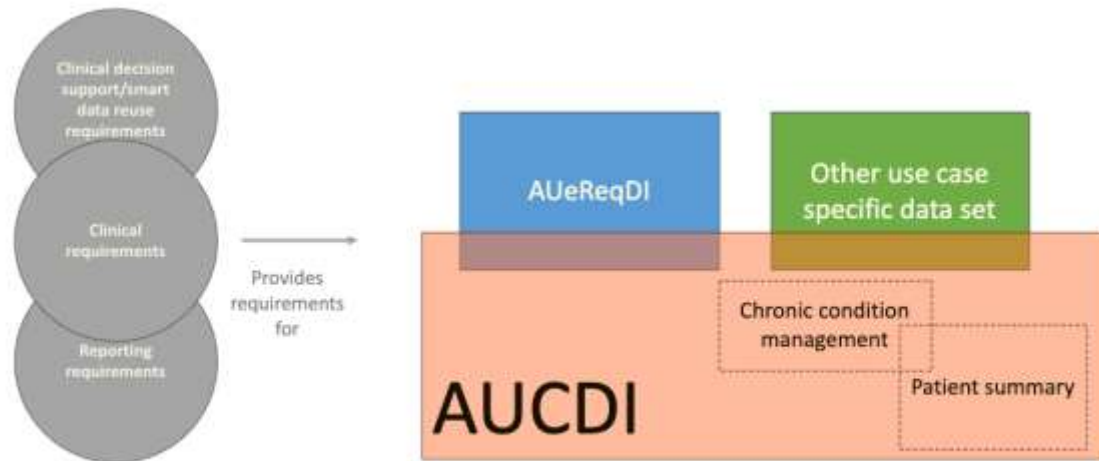
Figure 1. AUCDI as a foundation for use case specific data sets.

5.3. AUCDI data groups

The AUCDI data groups are comprised of two components – clinical information models and terminologies.

5.3.1. Clinical information models

An information model is a technical term commonly used in software engineering to describe the representation of data semantics. It is like a blueprint or map of how information and its meaning and relationships are managed and organised within a system.

Each clinical information model describes a single, discrete clinical concept and its clinically agreed data structure, pattern, and content. Some information models will be simple; others will represent a more complex grouping of related data.

Within this document, clinical information models are referred to as 'data groups'. Examples include:

- 'Adverse reaction risk summary',
- 'Procedure completed event', and
- 'Blood Pressure'.

Each information model includes:

- Metadata descriptions about the clinical concept and its intended purpose, use, and misuse,
- One or more component data elements, each associated with attributes such as data types, recommended values, and constraints, and
- Relationships between data elements.

Each data group is designed to be reused across many data sets, projects, clinical scenarios, and geographical locations. Each one will vary in detail, growing in granularity over time as requirements for applications in different contexts are further understood.

This core data for interoperability will grow towards providing a master set of data groups inclusive of all relevant data elements and their attributes. Existing projects and priorities informed the development of these models and intended to be agnostic to any use case, project, application, or

intent. As projects and clinical systems increasingly use the same data groups, interoperability becomes significantly more straightforward because of these shared information models, minimising the need for data transformation and mapping, which can lead to errors or data loss.

5.3.2. Terminologies, SNOMED CT-AU and value sets

Within each information model, data can be captured as text through free text narrative or by using structured, coded text which involves selecting words or phrases from a controlled terminology. A standardised set of these terms is known as a value set. Selection from an agreed value set from a standardised clinical terminology can dramatically improve the quality and consistency of data recording. Benefits include correct spelling, acceptable synonyms and limiting data entry selection to clinically appropriate values based on the context. Reusing agreed and validated terminology value sets within the clinical information models further enhances data exchange, clinical decision support, querying, and analysis of health data.

In Australia, SNOMED CT-AU has been adopted as the standard for recording structured clinical data in health records. In the Sparked program, SNOMED CT-AU is the primary terminology from which value sets are derived to support standardised coded data entry in the AUCDI's clinical information models. Other code systems, such as LOINC, may also be used where agreed through consultation with the community of practice. Standardised terminologies have been selected because they are internationally recognised with an existing global implementation footprint.

Many SNOMED CT-AU value sets have already been developed and published by the National Clinical Terminology Service (NCTS). These nationally agreed and published value sets are maximal in nature to support reuse across multiple use cases and support the breadth of the ecosystem to enable interoperability. Where the clinical context or use case requires it, specific IG specification or vendor implementations may specify constrained subsets of the AUCDI value sets.

5.4. Understanding the scope of AUCDI

The AUCDI focuses on core health data necessary to support high quality healthcare delivery and quality data for exchange and reuse. The first release of AUCDI was as an initial, carefully curated data foundation that is being enhanced and extended as standards, policies, technical implementations, and clinical requirements mature and evolve.

Key considerations in determining the scope were to:

- Support clinical safety and best practice,

- Create a foundational layer of common data groups that are tightly controlled and governed to provide a robust and clear structure for information sharing,

- Include data that is well understood, commonly used, and well supported by existing clinical systems, and

- Identify incremental change that will create benefits and support broad reuse across multiple use cases.

5.4.1. Scope drivers

In developing the initial releases of AUCDI as a new national data standard, the focus was on striking a balance between meeting clinicians' data requirements and maintaining the integrity of data captured by existing clinical systems. The goal of future releases of AUCDI is to progressively refine the specification towards best practice in clinical data documentation. This approach supports clinical

workflow and optimises the potential for the reuse of health data in data-driven initiatives such as Clinical Decision Support (CDS) and Artificial Intelligence (AI). At the same time, AUCDI has been carefully curated to avoid the future risk of backwardly incompatible changes and their inherent cost in clinical system rework. This balance creates a solid foundation for future development.

5.4.2. Scope of AUCDI

AUCDI focuses on the representation of the clinical content for each of these clinical concepts.

AUCDI includes the following data groups:

- Problem/Diagnosis summary,
- Adverse reaction risk summary (Allergies and intolerances),
- Procedure completed event,
- Vaccination administration event (Immunisations),
- Medication use statement,
- Sex and gender,
- Pregnancy information, and
- Vital signs, measurements and other biomarkers for Chronic Condition and preventative health with an initial scope of cardiovascular risk calculation and diabetes care.

AUCDI does not include:

- Representations of
    - The patient, including date of birth, Aboriginal and Torres Strait Islander status) and
    - Related people, such as carers
    - Health care providers
    - Organisations
- System information, or system-derived information – including information related to technical aspects of recording data (such as author and record date/timestamp) and will be managed in the technical implementation specifications (for example in a FHIR IG),
- Administrative information that is not relevant for recording or reuse within a health record,
- Workflow,
- Payment information, such as credit card details,
- User interface or form implementation requirements,
- Higher-level technical concepts such as security, access, privacy, and consent, and
- Non-clinical recording context such as author, location of service.

Each data group can be considered a standalone building block. Data sets, comprising one or more clinical concepts, will include a corresponding data group for each concept, aggregating and constraining the building blocks to meet the requirements of a specific clinical use case.

Within each data group, most data elements are deliberately designated as optional to keep AUCDI neutral to any specific use case and optimise the reusability of data groups across all implementation

scenarios. Data elements are made mandatory only where they are essential in every possible use case or when the rest of a data group relies on a mandatory index data element to make sense, such as the name of a diagnosis in the Problem/Diagnosis summary data group. In specific technical specifications, implementations, or FHIR IGs, the optional data elements can subsequently be made mandatory to suit the clinical use case.

Some data elements, for example, 'Comment' or 'Clinical indication', might be found in many data groups. This is a deliberate design pattern to promote coherence across the data groups. For example, 'Comment' serves as a universal data element with a uniform description across all data groups where it is relevant. The overarching context of the data group ensures that the content of one comment can be distinguished from another. Similarly, 'Clinical indication' is represented within only a few data groups, however, the consistent naming and description across each data group, such as 'Procedure completed' and 'Medication use statement', supports design coherence and consistency of AUCDI. However, the specific semantics of each value set may be tailored to most accurately represent the clinical concept.

The scoped data groups represent the foundational beginnings, "the core of the core", on which to further build upon and fill out as the AUCDI progresses, and as further use cases and requirements mature.

Data elements needing further community consultation or those not widely implemented and lacking significant clinical importance were omitted from the AUCDI and deferred to a backlog for consideration in future updates.
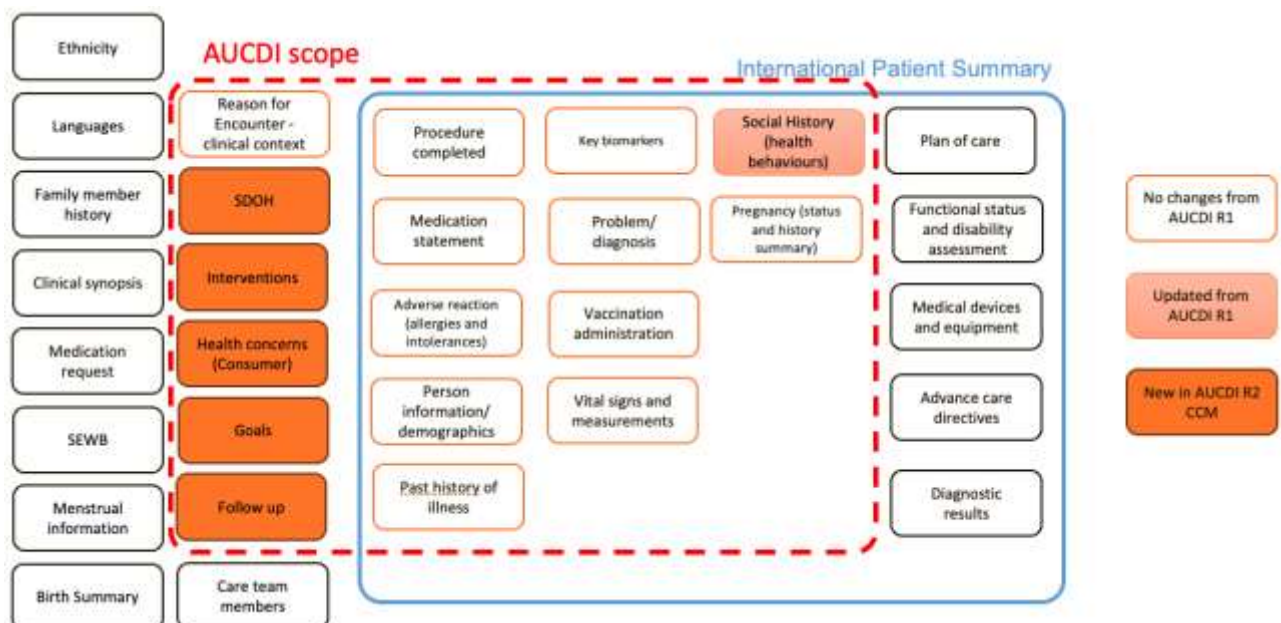
Figure 2. Current AUCDI scope.

5.4.3. AUCDI use cases

For each phase of development, the Sparked Clinical Design Group (CDG) focuses on identified priority use cases to guide the scope of data groups and data elements included in each release.

Table 2. AUCDI use cases.

Release	Identified priority use cases to inform scope of release
AUCDI R1	• A transfer of care summary, such as a discharge summary from acute care • Chronic Condition management • Decision support, such as a cardiovascular disease risk assessment • Referral
AUCDI R2	• A Patient Summary • Chronic Condition Management, including requirements for a care plan • Encounter information (including reason for encounter).

Future releases of AUCDI will continue to be guided by additional use cases identified by the community.
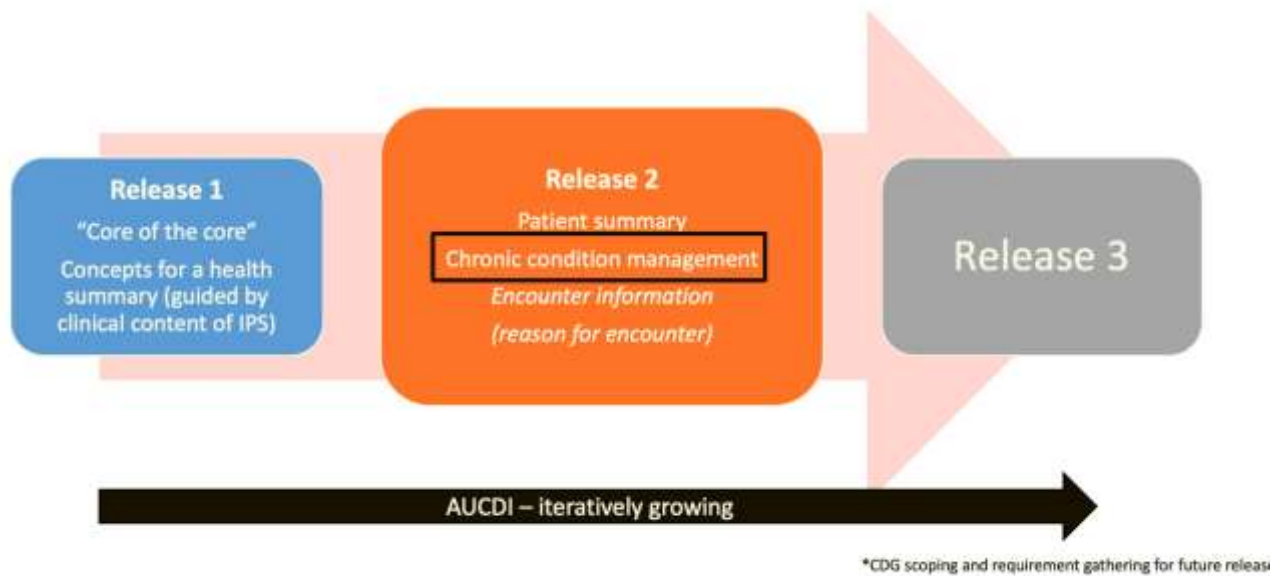
Figure 3. AUCDI release iterations – the focus of this document is Patient Summary.

6. How to read the AUCDI

Each data group represents one or more data elements about a single, discrete concept. The sections below (6.1 through to 6.2.2) provide examples of how the data groups and elements are represented in the AUCDI. The guide offers a straightforward framework for all the resources included in the AUCDI. Each resource is defined by a) data group context: a summary of the health concept and its metadata, b) mind map: a visual representation of the health concept, and c) the information model. Each of these is outlined in more detail with examples below.

6.1. <Data group name> (e.g., Adverse reaction risk summary)

6.1.1. Data group context

Each data group is introduced with a table that:

- Defines the clinical concept underpinning the data group,

- Outlines essential attributes supporting its implementation, such as intended use and potential misuse, and

- Provides references to source standards or other relevant information resources that have influenced the design and scope of the data group.

Table 3 *Example context.*

Clinical description	A definition or description of the data group concept.
Purpose	An explanation of the reason and objective for the data group.
Representation	A description of how a clinician might anticipate the data might be recorded within a clinical information system.
Alias(es)	Identification of one or more alternative terms used in systems to describe the data group concept.
Considerations for use	A description of factors that may impact the implementation or use of this data group within a clinical system.
Misuse	Guidance for implementers about possible scenarios or use cases in which this specific data group (as a whole) is not recommended, incorrect, or inappropriate. Where applicable, a suitable alternative data group will be suggested.
References	Identifies relevant national and international standards, specifications, or projects.

Content that has not changed from AUCDI R1 and has been marked with a grey background so that it can be easily recognised by its display within tables. Any new data elements that have been added, or supporting information that has been edited or adapted, are presented without any background colouring, distinguishing them from the unchanged content.

Review is not expected for this content that has not changed from AUCDI R1.

6.2. Concept representation

An image of a mind map for each data group showing all AUCDI data elements, including those previously published as part of AUCDI R1 and enhancements proposed for AUCDI R2.

Each mind map has a legend:

- Nodes displayed as black text on an orange background and containing a green tick icon have been published in AUCDI R1, and

- Nodes displayed as black text on a white background and containing an orange star are candidate data elements for AUCDI R2.
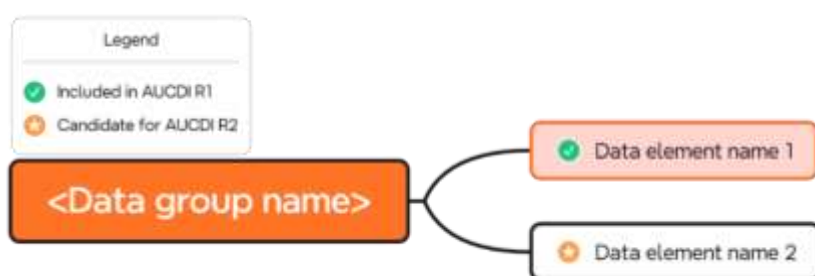
Figure 4. Data group – Concept representation.

6.2.1. Information model

Every data group also contains a table that explains the specific attributes for each data element comprising:

Table 4. Example information model.

Data element		
<Data element name>	Description	A description or definition of the name of the data element.
	Element occurrence	Optional or mandatory: single occurrence only or allows more than one occurrence, for example, to record more than one coded value.
	Data type	An indication of the type of data allowed to be captured; a choice of data type is allowed if more than one data type is noted.
	Units	An indication of the units of measure to record properties or dimensions
	Proposed code system/value set	For CodeableConcept data types, a proposed value set will be recommended or proposed. For example: an agreed value set of SNOMED CT-AU terms limited to the context of the data element.
	Examples	Examples of acceptable data entries may be provided to clarify what information could be recorded in this data element.

	Alias(es)	Identification of one or more alternative terms used in systems to describe a data element.
	Considerations	A description of factors that may impact the implementation or use of this data element within a clinical system.

Content that has not changed from AUCDI R1 and has been marked with a grey background so that it can be easily recognised by its display within tables. Any new data elements that have been added, or supporting information that has been edited or adapted, are presented without any background colouring, distinguishing them from the unchanged content.

Review is not expected for this content that has not changed from AUCDI R1.

Table 5*. Explanation of data types.*

Data type[9]	Description
String	A sequence of Unicode characters, used to record free text as a narrative.
Coding	A direct reference to a code defined by a code system. The code may be part of a terminology value set.
CodeableConcept	A value that is usually supplied by providing a reference to one or more terminologies or ontologies but may also be defined by the provision of text.
dateTime	A date, date and time, or partial date (e.g. just year or year + month) as used in human communication.
Quantity	A measured amount (or an amount that can potentially be measured).
Reference	A reference from one FHIR resource to another.
Timing	A timing schedule that specifies an event that may occur multiple times.

6.2.2. For future consideration

Each data group or collection contains a description of how the content might evolve. Specific considerations may be highlighted, and issues that may have been identified as controversial may require further investigation and discussion.

A mind map of a proposed, comprehensive data group is considered a potential road map for future AUCDI releases and clinical information system evolution is included, where relevant.

Each road map mind map has a legend:

- Nodes displayed as black text on an orange background and containing a green tick icon have been published in AUCDI R1,

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[9] Datatypes. FHIR CI-Build. Health Level Seven International; [cited 2024 May 21]. Available from: https://build.fhir.org/datatypes.html.

- Nodes displayed as black text on a white background and containing an orange star are candidate data elements for AUCDI Release 2, and

- Nodes displayed as grey text on a white background and containing a grey flag are candidate data elements for future AUCDI releases.
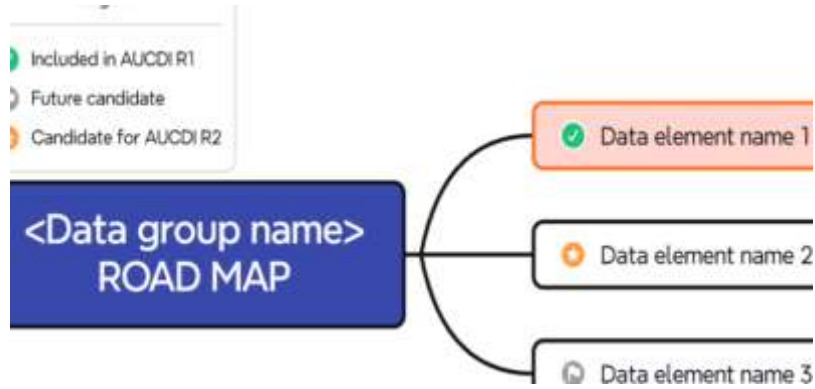
Figure 5. Data group concept - representation of proposed roadmap.

7. AUCDI and Chronic Condition Management

Approximately 6 out of every 10 of Australians have more than one chronic condition at any one time[10]. The Australian Institute of Health and Welfare (AIHW) indicate there are 12 main conditions that make up chronic conditions:

- Arthritis,

- Asthma,

- Back problems,

- Cancer,

- Cardiovascular disease,

- Chronic obstructive pulmonary disease,

- Dementia,

- Diabetes,

- Chronic kidney disease,

- Endometriosis,

- Mental health and

- Osteoporosis.

Evidence has shown that individuals and their care team members favour the multidisciplinary approach to chronic condition management, due to the overlapping nature of symptoms and the high degree of burden conditions have on quality of life.

With a focus on 'core', AUCDI provides data groups to help support care planning and chronic condition management. AUCDI Release 2 CCM contains new data groups and data elements that were identified by the Sparked CDG as important for inclusion as a first step towards standardising data to support and enable information capture, exchange, and meaningful use across an individual's health care and care team for chronic condition management. These workshops were held throughout the second half of 2024, where teams of clinicians, informaticians, patient advocate representatives, government representatives and technicians gathered in workshops across the country to help focus on the necessary data group requirements to support chronic care.

Figure 6 below outlines the scope of the current data groups offered in AUCDI. Data groups marked with a circle are anticipated for use within a Patient Summary context and those marked with a star are anticipated for use within a Chronic Condition Management ecosystem, including a care plan. It is expected that future enhancements to the data groups will evolve as clinical requirements for chronic condition management are identified and agreed.

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[10] Australian Institute of Health and Welfare (2024) Australia's health 2024: data insights, catalogue number AUS250, AIHW, Australian Government. Available from: https://www.aihw.gov.au/reports/australias-health/chronic-conditions-challenge
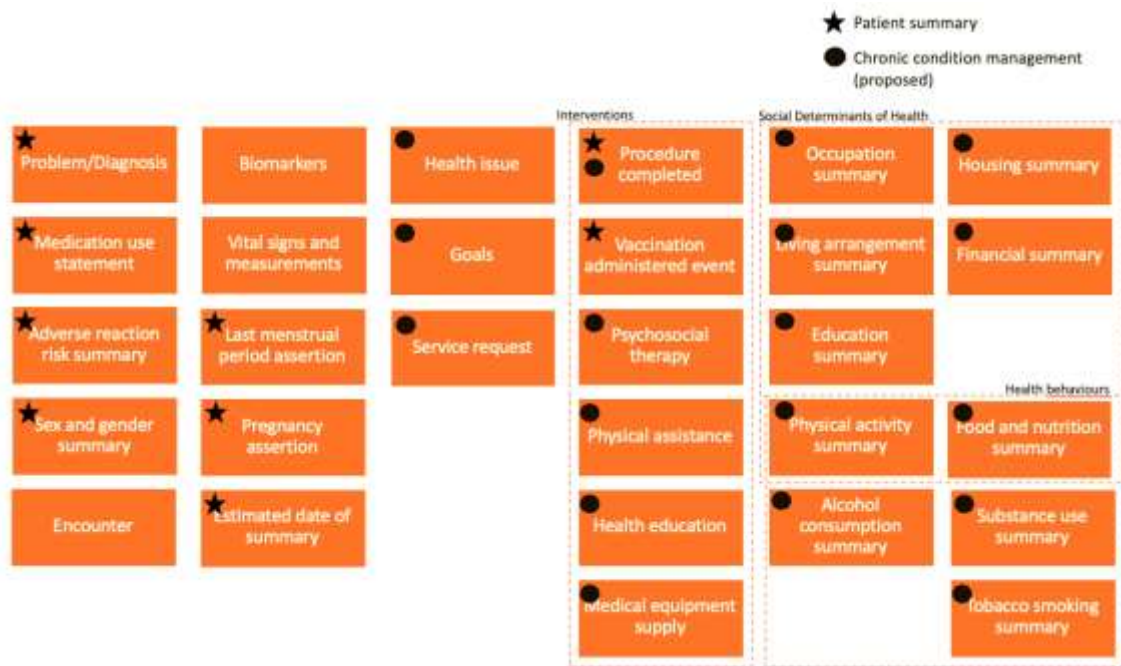
Figure 6 – Current scope of AUCDI identifying components for Patient Summary and Chronic Condition Management

8. AUCDI Release 2 Chronic Condition Management Library

The scope and level of detail of the clinical content in AUCDI R2 has been driven and agreed by the Sparked Clinical Design Group, comprising clinicians, informaticians, subject matter experts, terminologists and implementers. The design is tightly focused on prioritising the most efficient and practical 'core of the core' ready for use within clinical systems, rather than providing the complete or final data groups. The underlying intent is that over time the data groups will grow towards more comprehensive models, while striving to maintain backward compatibility with previous releases.

Some data groups contain only a few data elements, while others are more extensive, depending on the clinical concept and its use in the contexts of the priority use cases: Patient Summary, Chronic Condition Management, and Reason for Encounter.

In this release of AUCDI R2:

- One data group from AUeReqDI R1 has been included, unchanged:
    - Service request

- Two data groups from AUCDI R1 have been extended by the addition of new data elements which the Sparked CDG deemed necessary in the context of CCM:
    - Procedure
    - Tobacco smoking summary

- 15 new data groups have been added to support CCM and care planning:
    - Health issue
    - Goal
    - Alcohol consumption summary
    - Substance use summary
    - Interventions:
        - Health education
        - Medical equipment supply
        - Psychosocial therapy
        - Physical assistance
    - Data groups that incorporate elements that will support Social Determinants of Health (SDOH) assessments:
        - Food and nutrition summary
        - Physical activity summary
        - Living arrangement summary
        - Occupational summary
        - Education summary
        - Housing summary
        - Financial summary

The initial selection of data groups in the AUCDI and their level of detail, were principally guided by alignment to existing clinical systems implementations in Australia; ensuring that they can meet identified clinical requirements and maintain support for safe clinical care.

The intention, however, is that the selection of data groups would grow and expand over time so that additional clinical use cases are addressed and included. The AUCDI will also therefore grow to include more clinical content to address data groups that are not currently well recorded in existing implementations. It is recognised that some clinical information systems do not natively support structured data groups and elements specifically relating to social determinants of health and goals, therefore, it is expected that Smart Forms currently under development to support health care assessments and team care arrangements, will implement these data groups in the short term.

This approach allows data groups to expand whilst simultaneously addressing previously un-recorded/ or inconsistently recorded health data against specifically defined use case examples. Such use cases represent consensus driven clinical requirements expressed by the clinical design group. It is acknowledged that content from newly added clinical concepts may also not be immediately represented in the AU Core FHIR IG and other national technical specifications, however, will provide the roadmap to inform future technical implementations.

Additional concepts and data elements proposed by the Sparked CDG for potential inclusion in chronic condition management during scoping workshops have been added to the AUCDI backlog for future consideration.
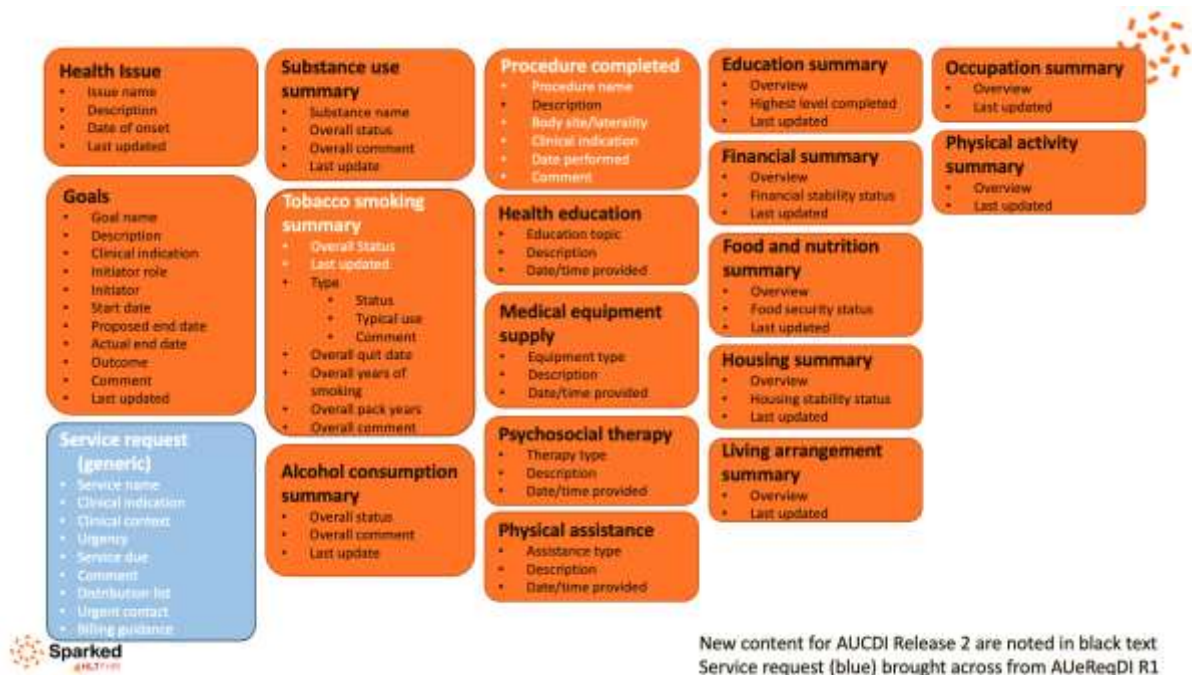
Figure 7 AUCDI R2 Chronic Condition Management scope

8.1. Service request

The 'Service request' data group, first published in AUeReqDI R1, has been included within this AUCDI R2 CCM specification without change. Initially serving as the basis for the specialised Laboratory and Imaging test requests in AUeReqDI, this generic 'Service Request' data group is expected to support the ordering of a broad range of follow-up services and activities. These will be essential for ensuring continuity of care and the effective long-term management of chronic conditions.

The 'Service request' data group is designed as a universal, foundational framework intended for any type of health-related service or activity request, which may be fulfilled by a clinician, organisation, or agency. It includes the common data elements that underpin many of the typical request types in healthcare. This makes it highly adaptable for use across both clinical and social care settings (see 'Considerations for use' in Table 6, below, including 'follow-up'. More information about the use of Service request to support follow-up can be found in Appendix 1.

In AUeReqDI R1, the customisation of the generic 'Service request' into specialised versions for 'Pathology test request' and 'Medical imaging request' highlights the versatility of this generic data group. Although the core data elements remain consistent across these three data groups, each specialisation adds unique data elements tailored to its respective use case. It is expected that future releases of AUCDI will further extend this approach by adding more specialisations.

In the documentation for this data group, content that has not changed from AUeReqDI R1 has a grey background. New content or context that has been added to this resource is presented without any background colouring, visually distinguishing them from the R1 content.

Review is not expected for this content that has not changed from AUCDI R1.

8.1.1. Data group context

Table 6. Service request - Data group context.

Concept description	Request for a health-related service to be delivered by a clinician, an organisation**,** or an agency.
Purpose	A generic framework for a request for a health-related service to be delivered by a clinician, an organisation, or an agency.
Representation	Record a separate instance of this data group for each unique request, including those with multiple components. Each request contains: • One or more 'Activity' groups, each containing the clinical data elements that describe a specific activity. For example, multiple related services to be performed simultaneously by the same service provider or a sequence of related services being carried out by the same service provider over time; and • A single Protocol, which contains the non-clinical data elements applicable to all 'Activity' groups within the request.

Alias(es)	Referral, order
Considerations for use	Use to record a request for a health-related service to be delivered by a clinician, an organisation**,** or an agency.

This generic data group has been designed as a framework that can be used as the basis for a wide range of requests.

Examples include:

- A referral to a specialist clinician for assessment, treatment or a second opinion;

- Transfer of care to an emergency department;

- Hourly vital signs monitoring;

- Provision of home services from a municipal council; and

- A request for a follow-up service:

  - With the same clinician, organisation, or agency, such as a blood pressure check in 1 week or a plaster check in 24 hours; or

  - With a different clinician, organisation or agency, such as a post-operative outpatient review in 6 weeks.

If multiple services are to be requested and the information recorded in the 'Protocol' is identical, create a separate 'Activity' instance within this data group for each service component and send as a single service request.

If multiple services are to be requested and the information recorded in the 'Protocol' is different, create a separate instance of this data group for each service and send as multiple service requests.

Implementation examples:

1. Referral to a Respiratory physician

   - **Service Name:** Sleep apnoea assessment

   - Clinical Indication: Sleep apnoea

   - **Clinical Context:** A narrative description highlighting clinically significant issues such as snoring and poor concentration during the previous 12 months. Also identifying recent weight gain and the death of their spouse six months ago.

2. Ordering a series of education sessions with a Diabetes nurse educator

   - **Service Name:** Diabetes education

   - **Clinical Indication:** Type 1 Diabetes mellitus

	• **Clinical Context:** A narrative description of the patient being newly diagnosed with diabetes, with a focus on the need for initial education and instruction in insulin administration.
	3. Ordering a meal home-delivery service from the municipal council
	• **Service Name:** Meals on Wheels Program
	• Clinical Indication:
	o Emphysema, and
	o General frailty
	• **Clinical Context:** A narrative description about the individual's dietary needs and overall health condition.
	4. Requesting post-operative follow-up appointment
	• **Service Name:** Postoperative follow-up visit
	• Clinical Indication: Cataract surgery
	• **Clinical Context:** Routine post-operative follow-up
	• **Timing:** If '6 weeks' is entered as the proposed timing for the appointment in the User Interface, the clinical system can automatically record the date six weeks from today in the 'Timing' data element.
Misuse	• Not to be used to represent a request for a pathology test - use the purpose-specific 'Pathology test request' data group for this purpose.
	• Not to be used to represent a request for a medical imaging examination – use the purpose-specific 'Medical imaging request' data group for this purpose.
References	• Service request, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2024 May 09]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.614
	• ServiceRequest, HL7 FHIR Resource [Internet]. Health Level Seven International; [cited: 2024 May 09]. Available from: https://hl7.org/fhir/R4/servicerequest.html

8.1.2. Concept representation
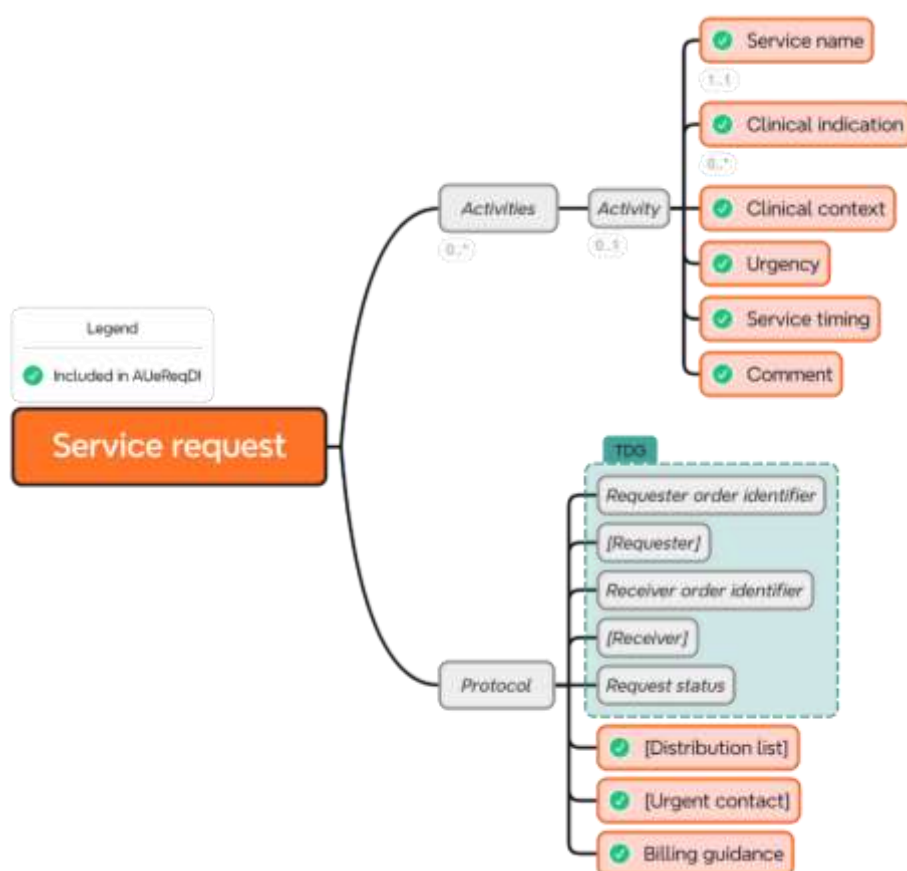
Figure 8. Service Request - Concept representation.

Specific notes on the scope of Service Request as represented in the mind map (Figure 8), above:

- Details about the Requester, Receiver, order identifiers and request status, highlighted in the green box, are assumed to be included within any Service request implementation. Specification of these parties, identifiers and request status are not considered within the scope of AUCDI. Instead, their technical specification defers to a standardised national approach determined by the Sparked Technical Design Group (TDG) in the appropriate FHIR Implementation Guide (IG).

- The 'Distribution list' and 'Urgent contact' data elements are included within scope of the data group due to strong clinician demand, but are not explicitly represented in AUCDI. Instead, their technical specification defers to a standardised national approach determined by the Sparked TDG in appropriate FHIR IGs.

- The 'Billing guidance' data element is also included within the scope of the data group due to strong clinical demand, as described in this AUCDI specification. This inclusion enables the sending clinician to recommend a payment method to the receiving service, which is particularly helpful when the clinician is aware of financial hardship. However, it is important to note that the representation of actual billing or payment transactions is explicitly excluded from the scope of AUCDI and should defer to a standardised national approach.

8.1.3. Information model

Table 7. Service request - Information model.

Data elements		
Service name	Description	The name of the service requested.
	Occurrence	Mandatory, single occurrence
	Data type	CodeableConcept
	Proposed code system / value set	The Procedure value set published by the National Clinical Terminology Service (NCTS) is a value set containing a broad range of procedures and clinical interventions that can be associated with a person.
	Examples	SNOMED CT-AU: • 183681001 |Arrange Meals on Wheels | • 385765002| Hospice care management| • 164783007| Ambulatory blood pressure recording| • 444638005| Screening for skin cancer| • 103750000| Sleep apnoea assessment| • 439740005| Postoperative follow-up visit|
	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Clinical indication	Description	The symptom, sign or diagnosis that prompts the need for the requested service.
	Occurrence	Optional, multiple occurrences
	Data type	CodeableConcept
	Proposed code system / value set	The Reason for Request value set published by the NCTS is a broad reference set including clinical findings, procedures, situation with explicit context, and event concepts.
	Examples	SNOMED CT-AU: • 46635009 | Type 1 diabetes mellitus | • 87433001 | Pulmonary emphysema | • 418399005 | Motor vehicle accident | • 275109007 | FH: Bowel cancer |
	Alias(es)	Reason for service

	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Clinical context	Description	Narrative information providing an overview of the individual's current clinical situation.
	Occurrence	Optional, single occurrence
	Data type	String
	Alias(es)	Clinical notes
	Considerations	• This data element describes the broader clinical background or circumstances related to the request, supporting the service provider in making informed decisions about service delivery. • Historically, many paper forms featured a section labelled 'Clinical notes' to document relevant background content for each service request. This data element has been purposefully named 'Clinical context' to semantically differentiate it from the more generic 'Comment' which allows clinicians to record any additional information not captured in semantically specific data elements.
Urgency	Description	Recommended priority level for delivery of the service.
	Occurrence	Optional, single occurrence
	Data type	Coding
	Proposed code system / value set	A SNOMED CT value set is to be developed. Proposed values: • 25876001 |Emergency| • 103391001 |Urgent| • 50811001 |Routine|
	Considerations	• Specific definitions of emergency and urgent will vary between clinical contexts, clinical systems, and the nature of the request itself. • If more precise timing is required, use the 'Timing' data element.
Service timing	Description	Requested timing for provision of the service.
	Occurrence	Optional, single occurrence
	Data type	Timing or String
	Considerations	This data element supports recording the intended timing for the service in a variety of formats, ranging from precise details, such as a specific date and time, to textual

		descriptions, such as 'Next available'. The Timing data type also supports handling complex scheduling scenarios, including recurring services.
Comment	Description	Additional narrative about the service request not captured in other fields.
	Occurrence	Optional, single occurrence
	Data type	String
	Alias(es)	Note
Distribution list	Description	Contact details of one or more clinicians, organisations or agencies that need to be informed of the outcome of this service request.
	Occurrence	Optional, multiple occurrence
	Data type	Reference
	Alias(es)	Cc list
	Considerations	Clinicians recommended the inclusion of a 'Distribution List' as a documentation requirement, so it has been incorporated as a concept in AUeReqDI. However, it is intended that formal representation of the 'Distribution list' will adhere to standardised representations of healthcare providers already established in national technical specifications. For example: other healthcare providers who need to be notified of outcomes or available reports.
Urgent contact	Description	Contact details of one or more designated contact people or organisations for urgent notifications.
	Occurrence	Optional, multiple occurrence
	Data type	Reference
	Considerations	• Details about each urgent contact can include their name, organisation, role, and preferred method of communication for urgent or emergency notifications concerning this request. • Clinicians recommended the inclusion of an 'Urgent contact' as a documentation requirement, so it has been incorporated as a concept in AUeReqDI. However, it is intended that formal representation of the 'Urgent contact' will adhere to standardised representations of healthcare providers already established in national technical specifications. • Use this data element if the outcome of the request requires an urgent or emergency response

		by the requester or requesting organisation, or if the requestor is not contactable at the time of testing and an alternative contact is nominated. • While the occurrence of the data element is singular, the 'Reference' data type will permit more than one contact to be recorded.
Billing guidance	Description	A recommendation from the requester to the receiver regarding the payment method for the service.
	Occurrence	Optional, single occurrence
	Data type	CodeableConcept
	Considerations	• For example: 'Private'; Medicare'; DVA; or 'Private health insurance'. • Clinicians may suggest a billing recommendation in specific circumstances, such as advising bulk billing for a patient experiencing financial hardship. • Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.

8.1.4. For future consideration

It is expected that this data group will evolve over time to include more detailed information about the service request.

The FHIR 'ServiceRequest' resource and the published openEHR 'Service request' archetype are mature information models that have been used globally in a broad range of implementations over many years. They form the basis for this AUCDI R2 data group and provide guidance for potential future augmentation.

The mind map below demonstrates a proposed roadmap for the 'Service request' data group, based on the openEHR archetype.
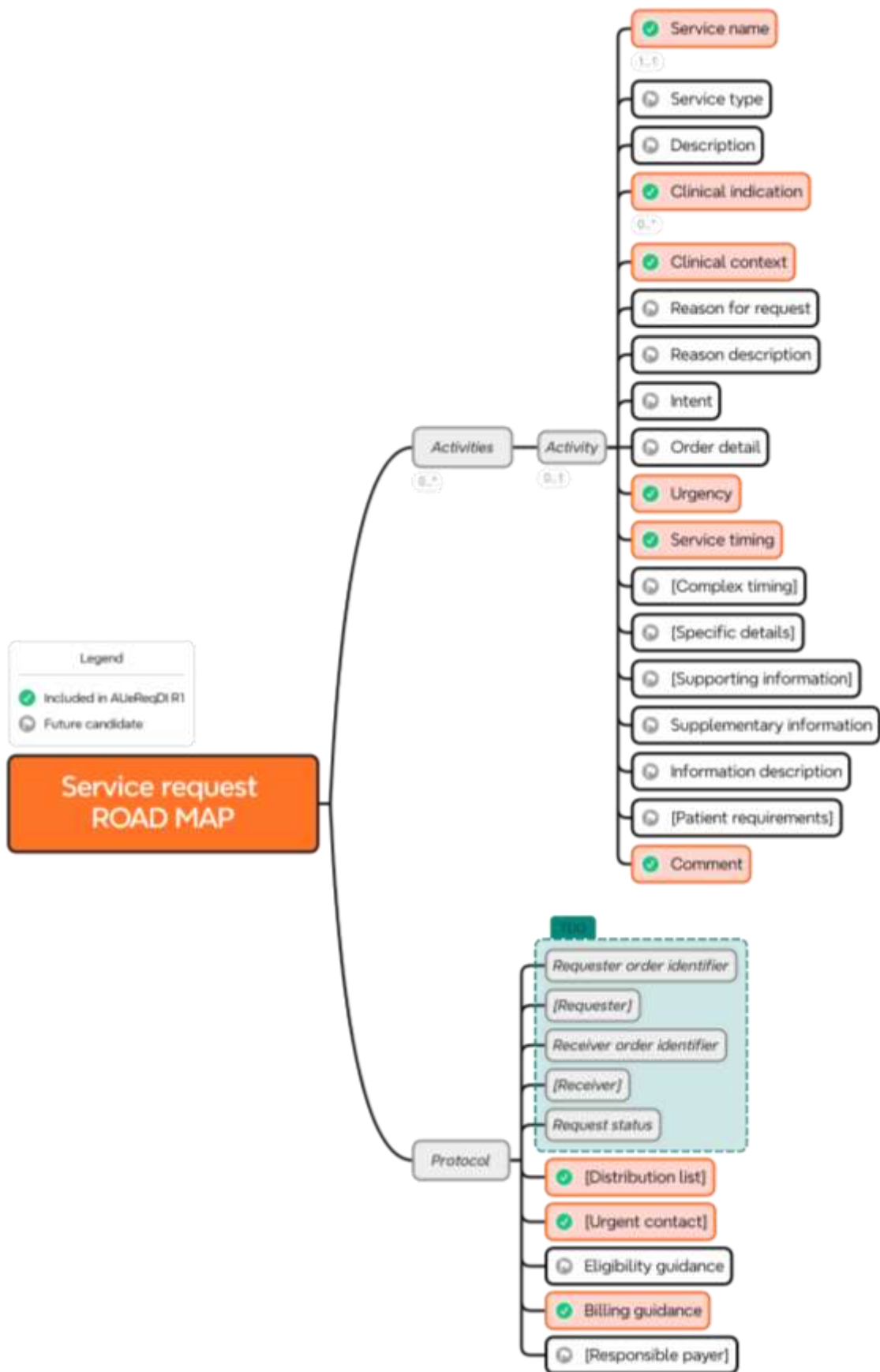
Figure 9. Service request - Proposed roadmap.

8.2. Tobacco smoking summary

The minimal approach to the 'Tobacco smoking summary' data group published in AUCDI R1 has been extended in AUCDI R2 with the inclusion of additional data elements. These new elements provide more detailed information regarding the typical quantity and frequency of tobacco consumption.

In the documentation for this data group, content that has not changed from AUCDI R1 can be easily recognised by its display within tables or text boxes that have a grey background. Any new data elements that have been added, or supporting information that has been edited or adapted, are presented without any background colouring, visually distinguishing them from the R1 content.

Review is not expected for this content that has not changed from AUCDI R1.

8.2.1. Data group context

Table 8. Tobacco smoking summary – Data group context.

Concept description	Summary information about an individual's pattern of smoking tobacco and tobacco–containing products.
Purpose	To record summary information about tobacco smoking behaviour.
Representation	Record only once in the health record; changes or updates over time are captured as revisions rather than new entries.
Alias(es)	Smoking
Considerations for use	• Tobacco smoking summary is one component of a larger group of data groups recording lifestyle risk factors and related behaviour, such as alcohol consumption and other substance use. • In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	• Not to be used for recording nicotine ingestion or use from e-cigarettes, nicotine patches, nicotine chewing gum or other sources. Use either of the 'Medication statement' or the 'Substance use summary' data groups depending on whether the nicotine use is being medically supervised. • Not to be used to record a smoking diary that tracks actual daily use or average use over defined intervals. • Not to be used to record information about smokeless tobacco use - for example: snus; snuff; chewing tobacco; dip; and gutka. • Not to be used to record vaping or the use of e-cigarettes: o Vaping tobacco involves inhaling tobacco-containing liquid which results in a different harm profile compared to tobacco combusted during smoking

	- Vaping of non-tobacco containing products will require documentation about each substance in the vaping liquid, each of which may result in a different harm profile. - Not to be used to record evidence of nicotine dependency. - Not to be used to record details about unintended exposure to tobacco smoke or passive smoking.
References	- Tobacco smoking summary, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2024 May 21]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.2466. - US Core Smoking Status Observation Profile, US Core Implementation Guide [Internet]. Health Level Seven International; [cited 2024 May 21]. Available from: https://build.fhir.org/ig/HL7/US-Core/StructureDefinition-us-core-smokingstatus.html. - Current Smoking Status profile, International Patient Summary Implementation Guide, [Internet]. Patient Care Working Group, Health Level Seven International; [cited: 2024 May 21]. Available from: https://build.fhir.org/ig/HL7/fhir-ips/ValueSet-current-smoking-status-uv-ips.html - AU Core Smoking Status profile, AU Core Implementation Guide, [Internet]. Health Level Seven Australia; [cited: 2025 Feb 05]. Available from: https://hl7.org.au/fhir/core/0.3.0-ballot/StructureDefinition-au-core-smokingstatus.html.

Accurate documentation of an individual's tobacco smoking history and behaviour in clinical systems is essential for assessing their future risk of serious disease and making informed decisions to mitigate the risk. The current approach of recording this information varies significantly between clinical systems, resulting in inconsistently captured and recorded data. Across different services, there is a lack of a common or standardised approach to record information, which presents a significant barrier to the safe exchange of medical history between healthcare providers. Particularly as individuals move through the health system and require them to repeat their medical history to each new healthcare provider and organisation.

Adopting a simple, standardised data framework for documenting a summary of tobacco smoking behaviour will support the provision of coordinated and integrated health care.

The clinical concept has been limited to an overview of tobacco smoking behaviour to support potential tobacco smoking behaviour change interventions. This data group does not include smoking of other substances, smokeless tobacco use, nicotine consumption, or vaping; all of which require separate purpose-specific data groups.

In AUCDI R2, the scope of the 'Tobacco smoking summary' data group has been expanded to include documentation of various forms of tobacco, with options to specify the quantity smoked per day or

per week. While cigarettes are expected to be the most commonly recorded type in Australia, this enhancement ensures precise documentation of cigarette smoking and also accommodates the recording of less common tobacco types as needed.

In addition, several new data elements apply to all types of tobacco smoking and across all episodes:

- 'Overall quit date', which represents the most recent date the individual stopped smoking any type of tobacco. This data element will need to be updated if smoking resumes.

- 'Overall years of smoking', capturing the total duration the individual has smoked throughout their lifetime.

- 'Overall pack years', calculated across all types of tobacco smoked, and not limited to cigarettes, and

- 'Overall comment' to provide additional context or details about all tobacco smoking, as needed.

8.2.2. Concept representation
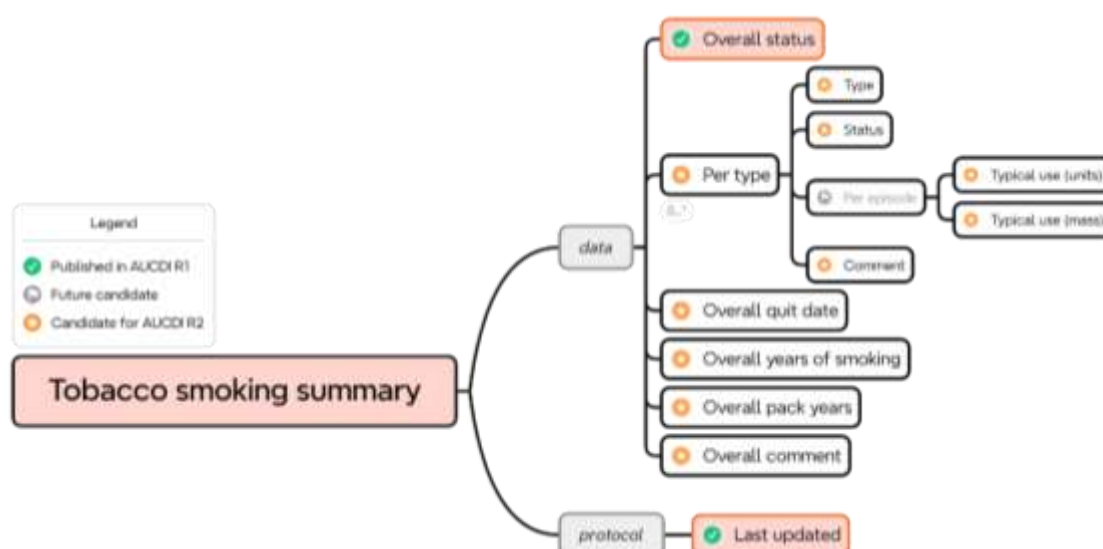
Figure 10. Tobacco smoking summary – Concept representation.

8.2.3. Information model

Table 9. Tobacco smoking summary - Information model.

Data elements		
Overall status	Description	Statement about current smoking habits for all types of tobacco.
	Occurrence	Optional, single occurrence
	Data type	Coding
	Recommended Code system/value set	The Smoking Status value set published by NCTS includes concepts from SNOMED CT-AU that may be used to represent an individual's current behaviour of tobacco smoking.

	Proposed code system/value set	The Smoking Status value set published by NCTS includes concepts from SNOMED CT-AU that may be used to represent an individual's current behaviour of tobacco smoking.
	Examples	SNOMED CT-AU: • 266919005 |Lifetime non-smoker| • 77176002|Current Smoker| • 8517006|Ex Smoker |
	Alias(es)	Overall smoking status, Tobacco smoking status
	Considerations	Some proposed value sets for 'Smoking status' also include values such as 'Occasional smoker' or 'Heavy tobacco smoker'. However, these values represent complementary data elements about the frequency of smoking, or the amount smoked. In this context, these values relate to other clinical concepts which may be represented in future releases for this data group.
Per type	Description	Details about typical smoking activity for a specified type of tobacco.
	Occurrence	Optional, multiple occurrences
	Data type	Backbone (as a data element group heading)
	Considerations	This data element grouping contains: • Type • Status • Typical use in units and by mass • Comment Record one instance of this group in the health record for each type of tobacco smoked. NOTE: In AUCDI R2, the term 'typical' activity or use refers to a pattern of use over a lifetime. In future releases this grouping can be further detailed to describe specific episodes of use, if necessary.
Per type: Type	Description	The type of tobacco smoked by the individual.
	Element occurrence	Mandatory, single occurrence
	Data type	CodeableConcept
	Proposed code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.

	Examples	SNOMED CT-AU: • 722496004 |Cigarette| • 722497008|Cigar| • 35001000087102| Smoking Pipe • 722495000 | Hookah pipe | Other examples • Hand-rolled cigarettes • Cigarillos • Bidis • Kreteks
	Alias	Form
Per type: Status	Description	Statement about current smoking behaviour for the specified 'Type' of tobacco.
	Element occurrence	Optional, multiple occurrences
	Data type	Coding
	Proposed code system/value set	The Smoking Status value set published by NCTS includes concepts from SNOMED CT-AU that may be used to represent an individual's current behaviour of tobacco smoking for the selected type of tobacco.
	Examples	SNOMED CT-AU: • 266919005 |Lifetime non-smoker| • 77176002|Current Smoker| • 8517006|Ex Smoker |
	Considerations	Some proposed value sets for 'Smoking status' also include values such as 'Occasional smoker' or 'Heavy tobacco smoker'. However, these values represent complementary data elements about the frequency of smoking, or the amount smoked.
Per type: Typical amount (units)	Description	Estimate of typical amount of the specified 'Type' of tobacco smoked, by 'units'.
	Element occurrence	Optional, single occurrence
	Data type	Quantity: Frequency
	Considerations	• In this context a 'tobacco unit' refers to a 'stick' such as a cigarette or cigar.

		- Measurement units: number of 'tobacco units' per day or per week. - For example: 20 cigarettes/day 5 cigars/week - This data element is redundant if a value is recorded for 'Typical amount (mass)'.
Per type: Typical amount (mass)	Description	Estimate of the typical weight of loose-leaf tobacco smoked, by weight.
	Element occurrence	Optional, single occurrence
	Data type	Quantity: Frequency
	Considerations	- This data element will typically be used for recording the amount of tobacco smoked using pipes and hand-rolled cigarettes. - For example 5 grams per day 10 grams per week - This data element is redundant if a value is recorded for 'Typical amount (units)'.
Per type: Comment	Description	Additional narrative about smoking of the specified 'Type' of tobacco, not captured in other fields.
	Occurrence	Optional, single occurrence
	Data type	String
	Alias(es)	Clinical Note
	Considerations	None
Overall quit date	Description	The date when the individual last ceased using tobacco of any type.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	Partial dates are permitted. For example: 2015 - February 2015 7 February 2015

Overall years of smoking	Description	Estimate of the total cumulative duration, in years, that an individual has smoked any form of tobacco.
	Occurrence	Optional, single occurrence
	Data type	Quantity: time
	Considerations	• This data element does not consider the amount of tobacco smoked, nor significant periods of cessation. It may be used to calculate the 'Smoking index' or 'Pack years'. • UCUM units: year (a)
Overall pack years	Description	Estimate of the cumulative amount of tobacco smoked for all types of tobacco smoked.
	Occurrence	Optional, single occurrence
	Data type	Count
	Considerations	Usually recorded as a whole number.
Overall comment	Description	Additional narrative about all tobacco smoking not captured in other fields.
	Occurrence	Optional
	Data type	String
	Alias(es)	Note
	Considerations	None
Last updated	Description	The date when this 'Tobacco smoking summary' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.2.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the smoking of tobacco by the individual.

The published openEHR 'Tobacco smoking summary' archetype is a mature information model that has been used globally in a broad range of implementations over many years. It forms the basis for this AUCDI R2 data group and provides guidance for potential future augmentation in future releases.

The proposed roadmap for the 'Tobacco smoking summary' data group, shown below in Figure 11, includes the potential to record the amount of tobacco smoked during specific intervals, known as 'episodes'. This capability will be valuable in documenting complex smoking histories, where individuals may have experienced periods of heavy smoking and others of cessation, such as before and during a pregnancy. Recording smoking amounts per episode could also improve accuracy in the calculation of Pack Years or other risk assessments. However, for AUCDI R2, this level of detail was considered too complex at this point. Instead, the proposed representation is that tobacco consumption of a given type reflects the typical amount smoked over a single episode, averaged across an individual's lifetime. This approach ensures a consistent and manageable structure while allowing for future extensions to support recording multiple smoking episodes as needed.
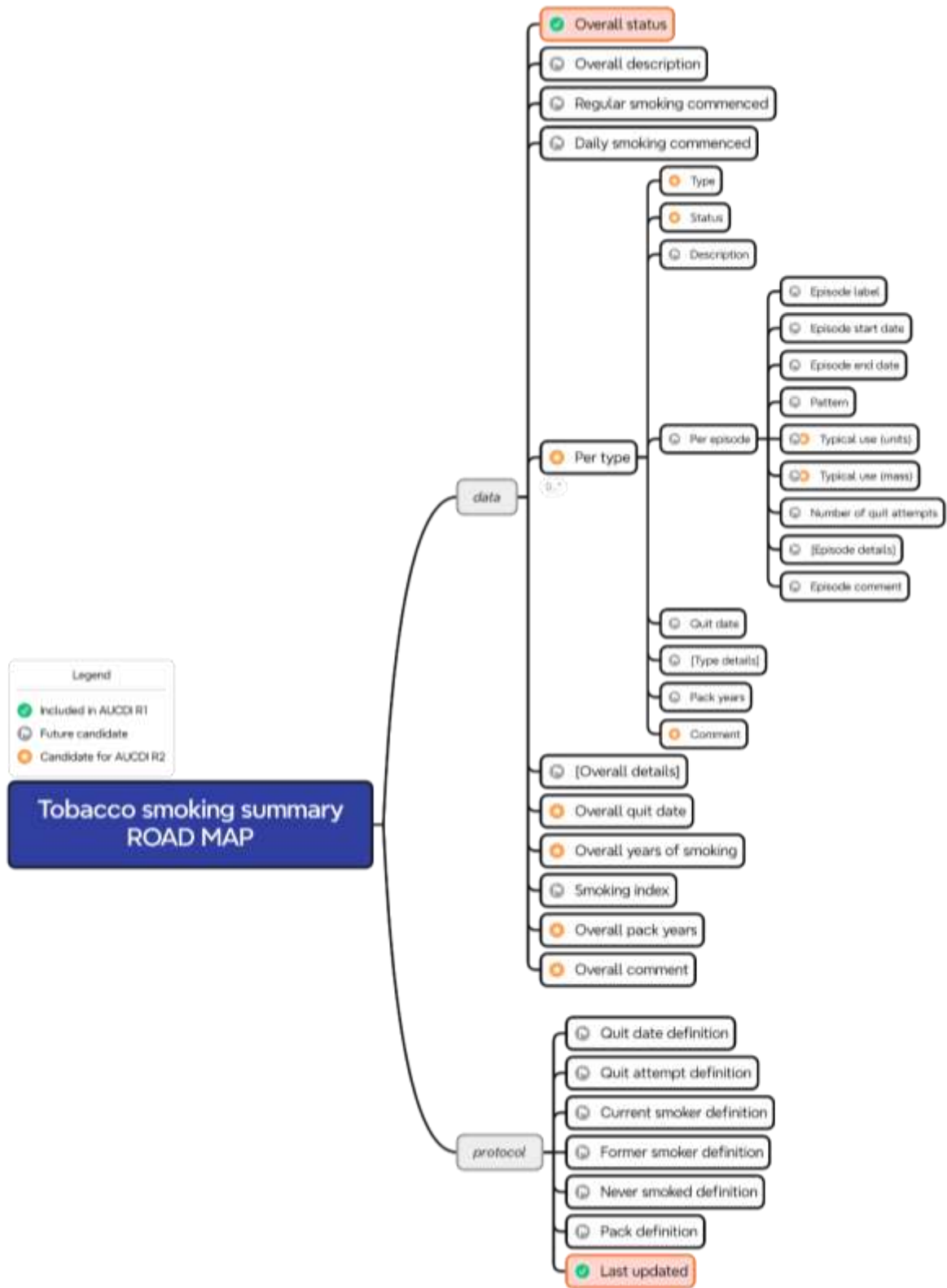
Figure 11. Tobacco Smoking summary - Proposed roadmap.

8.3. Alcohol consumption summary

8.3.1. Data group context

Table 10. Alcohol consumption summary - Data group context.

Concept description	Summary information about an individual's pattern of alcohol consumption.
Purpose	To record summary information about an individual's pattern of alcohol consumption.
Representation	Record only once in the health record; changes or updates over time are captured as revisions rather than new entries.
Alias(es)	Alcohol summary
Considerations for use	• This data group is part of a family of data groups sharing common patterns to record health risk behaviours. • In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	• Not to be used to record an alcohol consumption diary that tracks actual daily use or average use over defined intervals. • Not to be used to record evidence of alcohol dependency.
References	• Alcohol consumption summary, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-05]. Available from https://ckm.openehr.org/ckm/archetypes/1013.1.1521

The intended purpose of this data group is to document an overview of alcohol consumption behaviour over the lifetime of an individual. In this initial AUCDI R2 representation, the scope is limited to capturing an overall status, a narrative comment, and a last updated date to indicate the currency of the information.

8.3.2. Concept representation
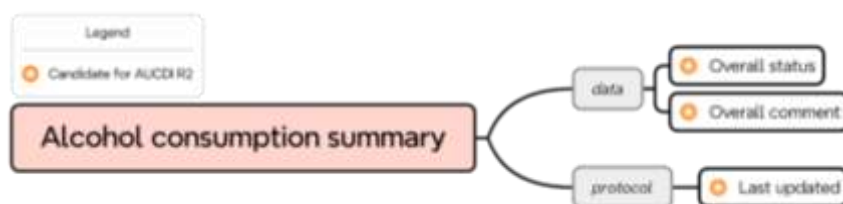
Figure 12. Alcohol consumption summary – Concept representation.

8.3.3. Information model

Table 11. Alcohol consumption summary.

Data elements		
Overall status	Description	Statement about current consumption for all types of alcohol.
	Occurrence	Optional, mandatory
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Examples:	SNOMED CT-AU • 219006 |Current drinker| • 82581004 |Former drinker| • 783261004 |Lifetime non-drinker of alcohol|
	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Overall comment	Description	Additional narrative about all alcohol consumption, not been captured in other fields
	Occurrence	Optional, single occurrence
	Data type	String
	Alias	Note
	Considerations	None
Last updated	Description	Date when this 'Alcohol consumption summary' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime

	Considerations	For example:
		• 7 February 2015
		• 7 February 2015, 1:28 pm
		• 2015-02-07T13:28:17-05:00

8.3.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the consumption of alcohol by the individual, in the same way that more detail is being added to the 'Tobacco smoking summary' in this second AUCDI release.

The published openEHR 'Alcohol consumption summary' archetype is a mature information model that has been used globally in a broad range of implementations over many years. It forms the basis for this AUCDI Release 2 data group and provides guidance for potential future augmentation in future releases.

The framework of the mind map demonstrates the data elements that describe overall alcohol consumption information. Nested within that framework, it is possible to record more detailed history about different patterns of alcohol consumption over time, for example before and during pregnancy.

Potential candidate data elements for AUCDI R3:

• Age of onset of drinking,

• Identifying discrete episodes of use, and

• Binge drinking patterns.

Legend
- Future candidate
- Candidate for AUCDI R2

Alcohol consumption summary ROAD MAP

data
- Overall status
- Overall description
- Regular consumption commenced
- Daily consumption commenced
- Date first intoxicated
- Per episode
  - Status
  - Episode description
  - Episode label
  - Episode start date
  - Episode end date
  - Pattern
  - Binge drinking frequency
  - Binge drinking description
  - Alcohol free days
  - Typical consumption (alcohol units)
  - Per type
    - Type
    - Description
    - Typical consumption (alcohol units)
    - [Type details]
    - Comment
  - Number of quit attempts
  - Quit date
  - [Episode details]
  - Episode comment
- [Overall details]
- Overall quit date
- Overall comment

protocol
- Quit date definition
- Quit attempt definition
- Current drinker definition
- Former drinker definition
- Lifetime non-drinker definition
- Alcohol unit definition (mass)
- Last updated

Figure 13. Alcohol consumption summary – Proposed roadmap.

8.4. Substance use summary

8.4.1. Data group context

Table 12. Substance use summary - Data group context

Concept description	Summary information about an individual's pattern of use of a specific substance or class of substances that may harm an individual's health or social well-being.
Purpose	To record summary information about an individual's pattern of use of a specific substance or class of substances that may harm an individual's health or social well-being.
Representation	Record only once per substance in the health record; changes or updates over time are captured as revisions rather than new entries.
Considerations for use	This data group has been designed as a framework for documenting the use or administration of a single substance. While it supports the recognition of abuse and dependence, it is not intended exclusively for this purpose. Substances that fall within the scope of this data group include harmful or potentially addictive substances as well as medications that are misused. Medication misuse may involve intentional administration without clinical supervision, use for non-recommended purposes, or consumption in quantities or frequencies that exceed safe dosages. Examples of substances that may be recorded using this data group include but are not limited to: • Caffeine, • Nicotine, • Psychostimulants, • Barbiturates, • Cannabis, • Hallucinogens, • Opioids, • GHB, • MDMA, • Sniffing of hydrocarbons or other solvents, • "Bath salts", and • Medication administration, such as a laxative for purposes other than relief of constipation, beta blockers to reduce

	the heart rate in elite athletes and anabolic steroids in weightlifters. On the other hand, substances that are commonly recorded in health records, have a well-documented harm profile and are recorded using existing purpose-specific data groups, are excluded from the scope of this data group, including: • Tobacco smoking, • Smokeless tobacco use, • Vaping/e-cigarette use, • Alcohol consumption, and • Medication administration according to established medical guidelines and standards, including the correct dosage and appropriate indication, timing and route of administration. This data group is intended to be used to record information about both current and previous substance use behaviour patterns and can be updated over time. In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	• Not to be used to record summary or persistent information about tobacco smoking - use the 'Tobacco smoking summary' data group for this purpose. • Not to be used to record summary or persistent information about alcohol consumption use the 'Alcohol consumption summary' data group for this purpose. • Not to be used to record summary or persistent information about smokeless tobacco use. • Not to be used to record the summary or persistent information about vaping behaviour. Not to be used to record the summary or persistent information about, or monitor the cumulative dose of, a medication. • Not to be used to record a substance use diary that tracks actual daily use or average use over defined intervals. • Not to be used to record adverse events such as accidental administration of a substance or medication, overdoses or poisonings, etc. • Not to be used for recording information about appropriate medication use under clinical supervision, for recommended therapeutic intent and at appropriate dosages - use an appropriate medication data group for this purpose.

References	• Substance use summary, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-05]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.354

The intended purpose of this data group is to document an overview of substance use behaviour over the lifetime of an individual. In this initial AUCDI R2 representation, the scope is limited to capturing an overall status, a narrative comment, and a last updated date to indicate the currency of the information.

8.4.2. Concept representation
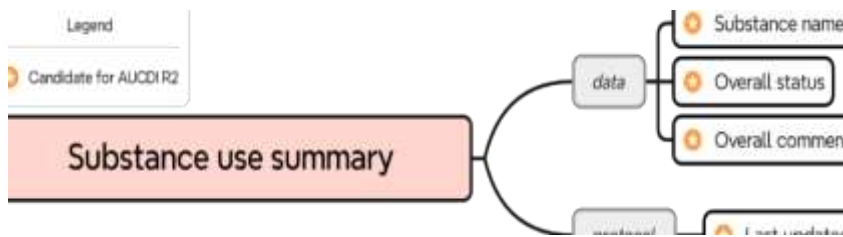
Figure 14. Substance use summary - Concept representation.

8.4.3. Information model

Table 13. Substance use summary information model.

Data elements		
Substance name	Description	The name of the substance or class of substance.
	Occurrence	Mandatory, single occurrence
	Data type	Coding
	Recommended code system / value set	The Substance value set published by the NCTS is a broad reference set that supports the representation of a broad range of substances.
	Examples	• Hairspray • Anabolic steroids • Crystal meth SNOMED CT-AU: • 387085005 |Cocaine | • 229006007 |Hallucinogenic mushrooms | • 398705004 |Cannabis| • 387494007 |Codeine| • 387264003 |Diazepam| • 31086004 |Petrol|

		• 412231002 |Kava extract|
		• 387173000 |Buprenorphine|
	Considerations	It is strongly recommended that Substance name be coded with a terminology capable of triggering decision support, where possible. Free text entry should only be permitted if no appropriate coded value is available.
Overall status	Description	Statement about current use of the substance, for all forms and all routes of administration.
	Occurrence	Optional, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Examples	Proposed new SNOMED CT-AU codes: • Never used • Current user • Former user
	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Overall comment	Description	Additional narrative about overall use of the substance, not previously captured in other fields.
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Last updated	Description	The date when this 'Substance use summary' was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.4.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the use of each substance, in the same way that more detail is being added to the 'Tobacco smoking summary' in this second AUCDI release.

The published openEHR 'Substance use summary' archetype is a mature information model that has been used globally in a broad range of implementations over many years. It forms the basis for this AUCDI R2 data group and provides guidance for potential future augmentation in future releases.

The framework of the mind map demonstrates the data elements that describe overall alcohol consumption information. Nested within that framework, it is possible to record more detailed history about different patterns of substance over time, for example for before and during pregnancy.

Potential candidate data elements for AUCDI R3:

- Onset of regular use, and
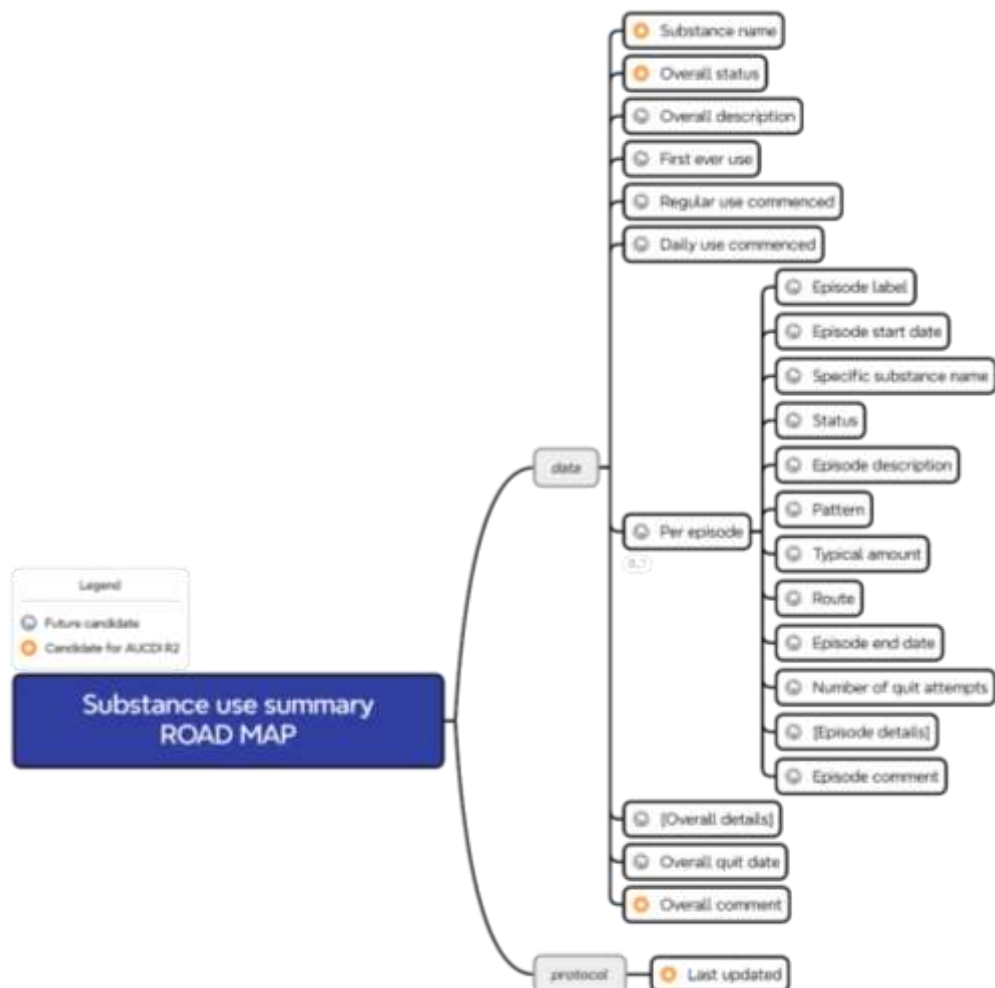- Identifying discrete episodes of use.

Figure 15. Substance use summary - Proposed roadmap.

8.5. Health Issue

8.5.1. Data group context

Table 14. Health Issue – Data group context.

Concept description	A concern or worry that can negatively affect an individual's physical, mental, or emotional well-being or quality of life.
Purpose	To record an issue or concern and its impacts on an individual's health.
Representation	Record one instance per issue in the health record; any changes or updates over time are captured as revisions to the original entry rather than creating a new entry.
Alias(es)	Health concern
Considerations for use	• Can be identified by the clinician or the individual • If a concern or worry needs to be recorded within a Problem list, it should be recorded using a more specific Problem/Diagnosis data group. • The term "Health concern" is used differently in other standards contexts, such as US Core and CONTSYS, so is not proposed as a name to avoid confusion.
Misuse	• Not to be used to record details about a problem of diagnosis - use the 'Problem/Diagnosis summary' data group for this purpose. • Not to be used to record details about a symptom or sign. • Not to be used to record details about a health-related event, such as a fall or accident.
References	• Issue, Draft archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-06]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.115

The intended purpose of this data group is to document an overview of a single health issue. In this initial AUCDI R2 representation, the scope is limited to capturing the issue name, a narrative description, date of onset and a last updated date to indicate data currency.

8.5.2. Concept representation
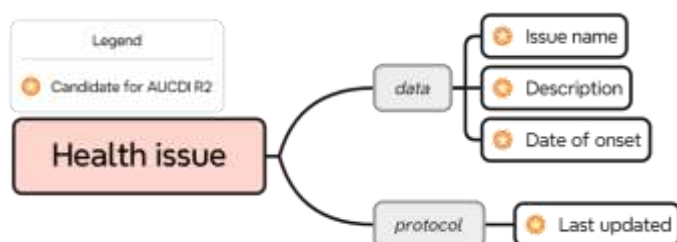
Figure 16. Health Issue – Concept representation.

8.5.3. Information model

Table 15. Health issue - Information model.

Data elements		
Issue Name	Description	The name of the concern or worry.
	Occurrence	Mandatory, single occurrence
	Data type	Codeable concept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Examples	- Financial strain - Can't walk the length of the driveway - Need to sleep upright in a chair to prevent reflux - Partner is undergoing chemotherapy SNOMED CT-AU 315018008 |Dizzy spells| 36163009 | Night pain | 301345002 |Difficulty sleeping| 15936461000119100 |Stressful work schedule|
Description	Description	Narrative description about the health issue.
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Date of onset	Description	The date when the health issue began.
	Occurrence	Optional, single occurrence
	Data type	dateTime

	Examples	For example: • 7 February 2015 • 7 February 2015, 1:28 pm 2015-02-07T13:28:17-05:00
Last updated	Description	The date when this 'Health Issue' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.5.4. For future consideration

The scope for 'Health issue' data group is currently considered inclusive of all relevant data elements, however it may be further expanded in the future if additional clinical requirements are identified.

8.6. Goal

8.6.1. Data group context

Table 16. Health issue - Information model.

Concept description	A specific future objective intended to improve or maintain an individual's physical, mental, emotional or social well-being.
Purpose	To record details about a goal and any associated targets and deadlines.
Representation	Record one instance per goal within a health record; changes or update over time are captured as a revision rather than a new entry.
Considerations for use	• A goal can be initiated by the clinician or the individual • In future updates, it is anticipated this data group will be extended to incorporate additional detail.
References	• Goal, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-06]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.124. • Goal, HL7 FHIR Resource [Internet]. Health Level Seven International; [cited: 2025 Feb 06]. Available from: https://hl7.org/fhir/R4/goal.html.

The intended purpose of this data group is to document an overview of a single goal. In this initial AUCDI R2 representation, the scope is focused on the basic information for any goal, although it is worth noting that the future road map includes the capacity to record one or more targets per goal, to support tracking of progress towards achieving the named goal.

The data element for 'Initiator role' is a new data element proposed by Sparked CDG members, that are not currently in any openEHR or FHIR information model, although the Goal FHIR profile does have an 'expressedBy' element which could be considered to have similar semantics.

8.6.2. Concept representation
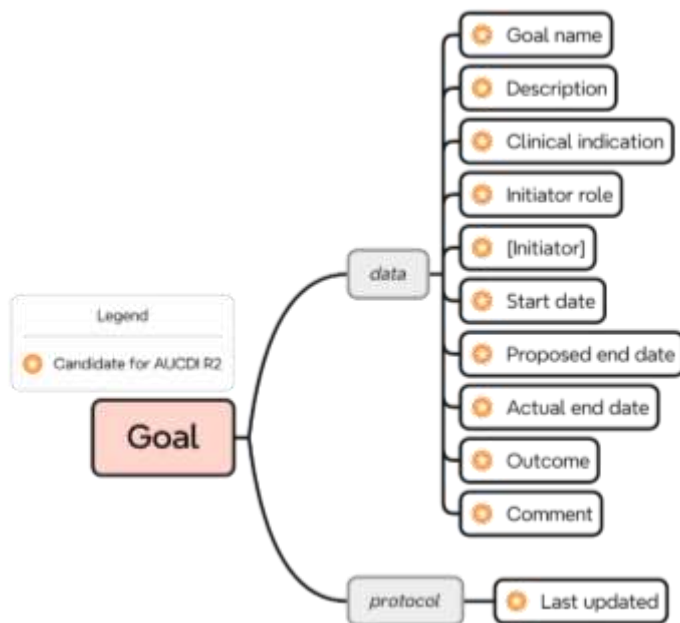
Figure 17. Goal – Concept representation.

8.6.3. Information model

Table 17. Goal - Information model.

Data elements		
Goal Name	Description	The name or focus of the goal or objective.
	Occurrence	Mandatory, single occurrence.
	Data Type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Examples	• Reduce blood pressure to 125/85 • Improve diabetes control • HbA1c less than 7.5 • "Travel to London to visit son"

		• "Lose 10kg before the wedding" SNOMED CT-AU: • 1157021003 |Blood oxygen pressure within reference range| • 123823007 |Decreased blood oxygen pressure| • 123822002 |Increased blood oxygen pressure| • 165679005 |Haemoglobin A1c less than 7 percent indicating good diabetic control| • 444074000 |Well controlled type 1 diabetes mellitus| • 444110003 |Well controlled type 2 diabetes mellitus| • 89362005 |Weight loss| • 284979006 |Able to put on footwear| • 284282006 |Able to use scissor grip| • 285689000 | Able to weight-bear on left leg| • 170805002 |Wants to lose weight|
	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Description	Description	A narrative description of the goal, including target/s to be achieved if relevant.
	Occurrence	Optional, single occurrence
	Data type	String
Clinical indication	Description	The health issue, symptom, sign, problem or diagnosis intended to be impacted by achieving the goal
	Occurrence	Optional, multiple occurrences
	Data type	CodeableConcept
	Recommended code system/value set	The Clinical Condition value set published by the NCTS currently includes all members of the *Problem/Diagnosis reference set* in SNOMED CT-AU. This includes (most) subtypes of • 272379006|Event| • 243796009|Situation with explicit context| • 404684003|Clinical Finding|
	Examples	SNOMED CT-AU:

		• 195967001|Asthma|
		• 46635009|Diabetes Mellitus Type 1|
		• 102587001|Acute Chest Pain|
	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Initiator role	Description	The role of the individual who originally set the goal.
	Occurrence	Optional, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Examples	• Consumer • Clinician
	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Initiator	Description	Contact details for the individual or organisation that initiated the goal.
	Occurrence	Optional, single occurrence
	Data type	Reference
	Considerations	Clinicians recommended the inclusion of an Initiator as a documentation requirement; however, it is intended that formal representation of the 'Initiator' will adhere to standardised representations of 'Person' or 'Organisation' already established in national technical specifications.
Start date	Description	The date when the activities designed to achieve the goal were initiated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Examples	For example: • 2026 • February 2025 • 7 February 2025 • 7 February 2025, 1:28 pm • 2025-02-07T13:28:17-05:00
	Alias(es)	Commencement date

	Considerations	None
Proposed end date	Description	The desired or proposed date for achieving the goal.
	Occurrence	Optional, multiple occurrences
	Data type	dateTime
	Examples	For example: • 2026 • February 2025 • 7 February 2025 • 7 February 2025, 1:28 pm • 2025-02-07T13:28:17-05:00
Actual end date	Description	The actual date when the goal was achieved or abandoned.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Examples	For example: • 7 February 2025 • 7 February 2025, 1:28 pm • 2025-02-07T13:28:17-05:00
Outcome	Description	Single word, phrase or brief description which represents the final outcome achieved.
	Occurrence	Optional, multiple occurrences
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Example	• Target weight achieved • Target blood pressure achieved • Able to walk 10m unassisted SNOMED CT-AU: • 390802008 |Goal achieved| • 390801001 |Goal not achieved| • 706906006 | No progress toward goal| • 443694000 | Type 2 diabetes mellitus uncontrolled|

	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Comment	Description	Additional narrative about the goal, not captured in other fields.
	Occurrence	Optional, single occurrence
	Data type	String
	Alias (es)	Note
	Considerations	None
Last updated	Description	The date when this 'Goal' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.6.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the health-related goal.

The published openEHR 'Goal' archetype is a mature information model that has been used globally in a broad range of implementations over many years. It forms the basis for this AUCDI R2 data group and provides guidance for potential future augmentation in future releases. The FHIR goal resource is designated as maturity level two and for trial use.

The mind map below demonstrates a proposed roadmap for the 'Goal' data group, based on the openEHR archetype.

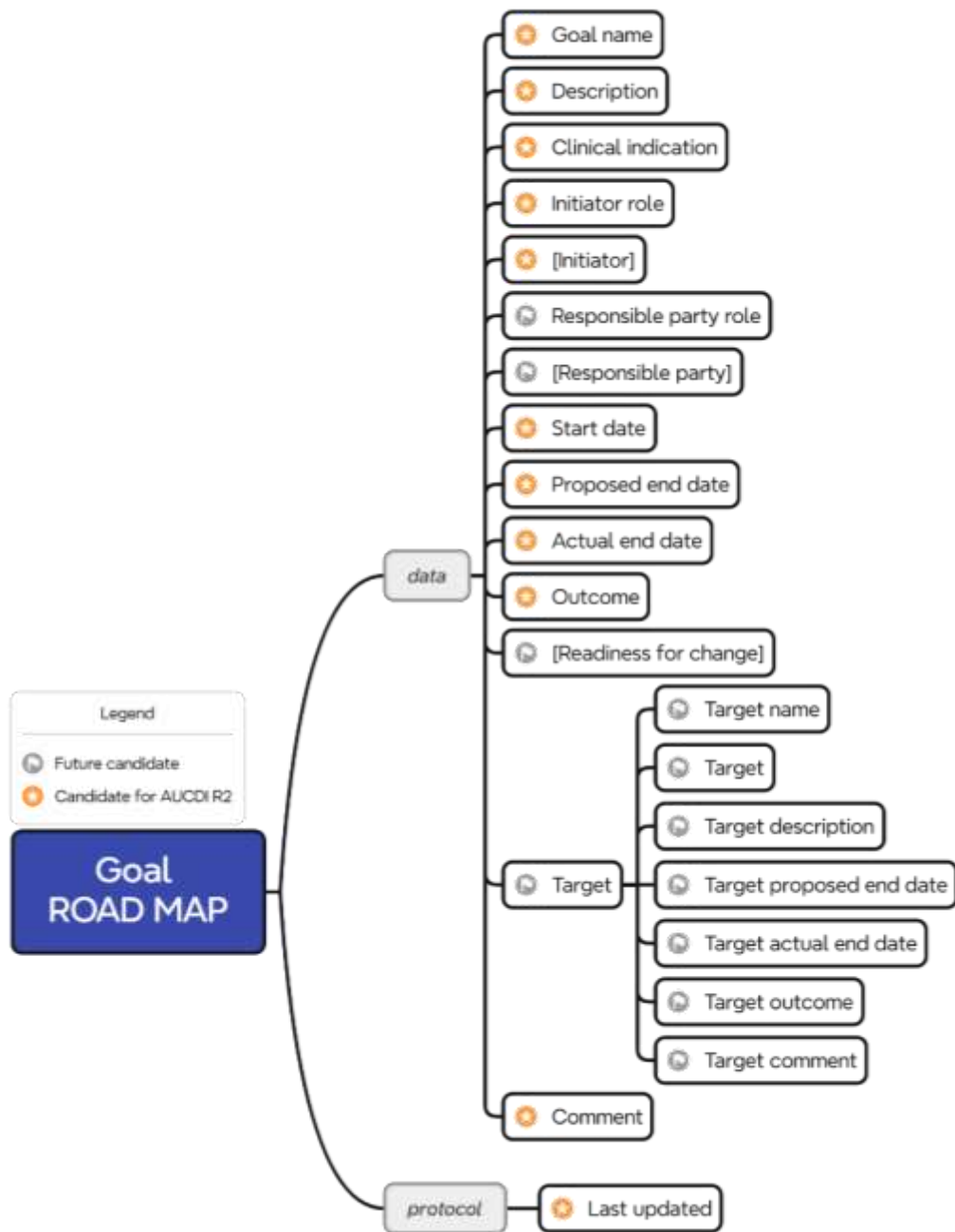Potential candidate data elements for inclusion in AUCDI R3 include all target-related data elements.

Figure 18. Goal - Proposed roadmap.

8.7. Interventions

The term 'intervention' is widely used within the clinical care domain, although often with an equally broad interpretation. Clinicians typically understand each other's intent during verbal communications, however, for documentation purposes in electronic health records, a more precise definition is necessary. This precision ensures that each type of intervention can be appropriately recorded within appropriate data groups. Accurate semantics underlying these data groups will be required to safely support data-driven tools like clinical decision support systems or AI applications.

In a series of workshops held in late 2024 and early 2025, the Sparked CDG explored and discussed how the concept of an 'intervention' was defined and used by a broad range of healthcare professionals. Outcomes from these workshops identified:

- The term 'intervention' referred to a range of activities carried out by clinicians, rather than representing a single generic activity.

- Different clinicians used a range of different types of interventions.

- The universal need to be able to track the progress of interventions from initiation through to completion, especially within the context of a distributed care management team and a shared, team-based care plan.

Definition of Intervention:

Based on the Sparked CDG's feedback, the working definition of an intervention for AUCDI R2 is:

A single therapeutic activity, or a series of activities, intended to prevent, diagnose, treat, or manage a health condition, support mental or physical well-being, or address social and environmental factors that influence health outcomes.

Interventions in AUCDI Release 1:

In AUCDI Release 1, two data groups aligned with this definition:

- Procedure completed

- Vaccination administered

For the purposes of the initial AUCDI R1, these two data groups were intentionally limited to record single events that have occurred, specifically whether a procedure has been performed, or a vaccine has been administered. While they effectively record the completion of a specific event, they do not currently support tracking the broader sequence of events or activities associated with an intervention. This broader continuum encompasses key stages such as initiation, planning, scheduling, and execution, as well as potential deviations from the original plan, including postponement, cancellation, suspension, or abandonment of the intervention.

This continuum includes key phases such as planning, scheduling, and execution, as well as potential deviations from the 'ideal' sequence, such as postponing, cancelling, suspending, or abandoning the intervention. As a result, the AUCDI Procedure and Vaccination data groups did not yet capture the full lifecycle of an intervention from start to finish.

Modelling approach for AUCDI R2:

Following the Sparked CDG's guidance, design of a single data group to represent all 'interventions' was considered but ultimately dismissed. While the notion of a generic, reusable data group had broad appeal and the potential to simplify implementation, it also lacked the necessary specificity

required to accurately document and track the diverse range of interventions. Experience gained from modelling Procedure and Vaccination reinforced this conclusion.

An analysis of documentation patterns across a broad range of interventions revealed that, while mature and complete 'intervention' data groups vary in their specific documentation requirements, a common underlying pattern was identified as the starting point for each new intervention-related data group. The proposed initial Intervention pattern is represented in the mind map below, and it is expected that each new intervention-related data group will evolve and expand as specific new requirements are identified.

Figure 19. Proposed concept representation for a common pattern to initiate each new Intervention data group.

Scope of additional AUCDI R2 Intervention-related data groups

For AUCDI R2, the Sparked CDG recommended the inclusion of four additional data groups to document common interventions in clinical practice:

- Health education

- Medical equipment supply

- Psychosocial therapy

- Physical assistance

In future AUCDI releases, it is anticipated that a more comprehensive library of intervention-related data groups will gradually be developed, including medication-related interventions, such as medication administration and dispensing.

Enhanced structure of AUCDI R2 intervention-related data groups

In response to the Sparked CDG's requirements for tracking the progress of interventions, AUCDI R2 introduces a significant structural enhancement to the intervention data groups. This enhancement enables more detailed tracking of clinical activities throughout their lifecycle, extending beyond a simple status attribute by introducing a new category of state-related 'careflow steps' designed to support the detailed tracking of a single intervention's progress. Each careflow step represents key events or activities that clinicians have identified as critical points in the clinical workflow where documentation should take place.

More information can be found in Appendix 2.

8.7.1. Procedure

In AUCDI R1 and AUeReqDI R1, this data group was initially named 'Procedure completed event'. It included only the data required to document a 'completed' procedure, maintaining simplicity in the model for the early stages of this data specification.

In AUCDI R2, this data group has been renamed to 'Procedure' as it has been expanded by introducing one new data element while maintaining its focus on recording only completed procedures. However, the addition of a specific 'Procedure performed' careflow step has been added, which includes the pre-existing 'Date performed' data element, and will support further enhancement towards a comprehensive model that can document and track the detailed progress of a procedure from planning through to completion.

In the documentation for this data group, content that has not changed from AUCDI R1 can be easily recognised by its display within tables or text boxes that have a grey background. New content or context that has been added have been presented without any background colouring, visually distinguishing them from the R1 content.

Review is not expected for this content that has not changed from AUCDI R1.

8.7.1.1. Data group context

Concept description	A clinical procedure is an intentional intervention to diagnose, treat or manage a health condition, often involving invasive or potentially harmful techniques requiring skin or mucosal penetration or tissue manipulation.
Purpose	To record details about a procedure that has been performed or carried out.
Representation	Record one instance per procedure event within a health record.
Alias	Operation, Intervention, Surgery
Considerations for use	• Significant procedures can be persisted within a curated Procedure or Surgical History list (or similar). • In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	• Not to be used to record vaccination administration – use the 'Vaccination administration' data group for this purpose. • Not to be used to record problem/diagnosis – use the 'Problem/Diagnosis summary' data group for this purpose. • Not to be used to record information about the imaging component of an imaging procedure. • Not to be used to record procedures or services that are out of scope for this data group even though they are found in some procedure-related terminology hierarchies. For example: non-clinical or administrative concepts such as

	patient transportation, care services, home modification or exercise.
References	• Procedure, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2024 May 21]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.204 • AU Core Procedure, HL7 AU Base FHIR Profile [Internet]. Health Level Seven Australia; [accessed 2025 Feb 11]. Available from: https://build.fhir.org/ig/hl7au/au-fhir-core/StructureDefinition-au-core-procedure.html • Procedure profile, International Patient Summary Implementation Guide, [Internet]. Patient Care Working Group, Health Level Seven International; [cited: 2024 May 21]. Available from: https://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-Procedure-uv-ips.html.

The definition of a procedure can be challenging as it is often used inconsistently across different healthcare settings and by different professionals. In clinical terminologies such as SNOMED CT, the scope of a procedure can be extremely broad, including clinical activities such as patient transportation, day care services, home modification, or exercise. However, the data structure for the 'Procedure' data group is specifically designed to capture activities performed on an individual to diagnose, treat, or manage a health condition, often involving invasive or potentially harmful techniques. In this context, there is no precise definition of what exactly is, or is not, a procedure; there will likely be some 'grey zones' that require clinical documentary discretion, depending on the clinical context – for example, procedures combined with to diagnostic investigations or a rectal examination which may also be considered a part of routine physical examination.

While the AUCDI R1 data group was limited to the minimal data elements necessary to document details about a single procedure event that has been performed and/or completed, the AUCDI R2 Procedure data group has been enhanced in three ways:

1. Addition of a single data element - a narrative 'Description' of the procedure. This has been added to support documentation of a more descriptive and nuanced context for the procedure that has been carried out, especially for non-surgical procedures. In addition, some addition examples of procedures have been added that indicate how this data group can be used for non-surgically oriented procedures, especially in nursing and allied health domains.

2. Addition of chronic condition examples.

3. Addition of a 'careflow step' which, by default, includes a date attribute to denote the completion date of each specific careflow step or event. For the newly added 'Procedure Performed' careflow step, this date corresponds to the existing 'Date Performed' data element. The full set of proposed Procedure careflow steps can be viewed in the road map displayed in Figure 21.
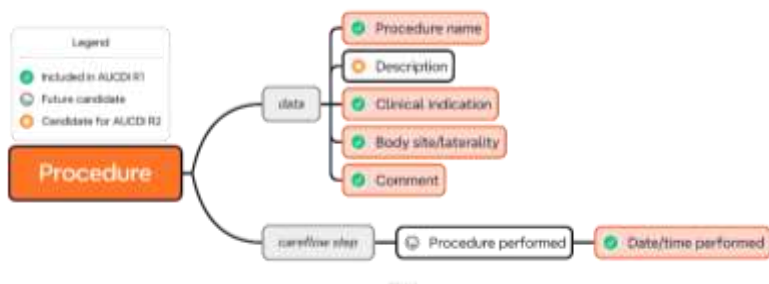
8.7.1.2. Concept representation

Figure 20. Procedure – Concept representation.

8.7.1.3. Information model

Table 18. Procedure – Information model.

Data elements		
Procedure name	Description	Identification of the procedure by name.
	Occurrence	Mandatory, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	The Procedure value set published by the NCTS currently includes all Procedure concepts within SNOMED CT-AU. Groupers that are considered artefacts of the terminology and not useful for clinical records are excluded.
	Examples	SNOMED CT-AU: • 232722009|Coronary artery bypass grafts x 4| • 312681000|Bone density scan| • 239592001|Forefoot amputation| • 34309001|Drainage of tonsil| • 307998000|Excision of pigmented skin lesion| • 428923005|Radiotherapy to breast|
	CCM specific examples	SNOMED CT-AU: • 229488002 |Lymphoedema massage| • 386565009 |Postural drainage therapy| • 182531007 |Dressing of wound| • 312733004 |Debridement of foot ulcer| • 229412005 |Mobilisation of thoracic spine| • 305105009 |Therapeutic hip adductor stretching|

		• 397964005 | Bronchial suction via tracheostomy| • 1234817009 | Changing of drainage bag|
	Alias (es)	Operation name, Intervention
	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Clinical description	Description	Narrative description about the procedure.
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Clinical indication	Description	The clinical symptom, sign or diagnosis that necessitates the procedure.
	Occurrence	Optional, multiple occurrences
	Data type	CodeableConcept
	Recommended code system/value set	The Reason For Encounter value set published by the NCTS is a broad reference set including (most) clinical findings, situation with explicit context, and event concepts.
	Examples	SNOMED CT-AU: • 102587001|Acute Chest Pain| • 59848001|Obstructive jaundice| • 33261009|Abscess of tonsil| • 80201000119103|Atypical pigmented lesion|
	Alias	Reason for procedure
	Considerations	• This data element has multiple occurrences to allow the recording of more than one clinical indication per procedure. • Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Body site/laterality	Description	The anatomical location or body structure where the procedure was performed.
	Occurrence	Optional, multiple occurrences
	Data type	CodeableConcept
	Recommended code system/value set	The Body Site value set published by the NCTS is a subset of the SNOMED CT-AU Body structure hierarchy. It includes anatomical structures (including acquired structures) with

		laterality but excludes morphologic abnormalities and cellular/intercellular structures.
	Examples	• 761920005 | Bone structure of shaft of right humerus • 51636004 | Left ankle • 38033009 | Amputation stump • 110501003|Upper outer quadrant of left breast|
	Alias(es)	Anatomical location
	Considerations	• Specification of 'Body site' is only required when the 'Procedure name' does not include or imply a specific body site. • This data element has multiple occurrences to allow the recording of more than one body site for each named procedure – for example, to record multiple related skin sites requiring excision of pigmented lesions in one procedure. • Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Date/time performed	Description	The date when the procedure was performed.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Alias	Date completed

	Considerations	• Partial dates are permitted.
		
		• For example:
		
		   o 2015
		
		   o February 2015
		
		   o 7 February 2015
		
		   o 7 February 2015, 1:28 pm
		
		   o 2015-02-07T13:28:17-05:00

Comment	Description	Additional narrative about the procedure not captured in other fields.
	Occurrence	Optional, single occurrence
	Data type	string
	Alias	Note
	Considerations	None

8.7.1.4.   For future consideration

The openEHR 'Procedure' archetype and the FHIR 'Procedure' resource are mature information models that have been used globally in a broad range of implementations over many years. They form the basis for this initial AUCDI R2 data group and provide guidance for potential future augmentation.

It is expected that this data group will evolve over time to add more data elements about the procedure, by not only increasing the level of detail through the addition of more data elements but also by broadening the scope to encompass the entire process of conducting a procedure activity, moving beyond the initial 'Procedure completed' careflow step.

The mind map below demonstrates a proposed roadmap for developing the 'Procedure' data group based on the published openEHR 'Procedure' archetype. It includes a list of proposed careflow steps that identify specific events or phases in the process of carrying out a procedure where recording significant information could be beneficial. This approach supports the documentation of both ad-hoc procedures and the systematic tracking of progress of procedure carried out in response to a specific order or request.
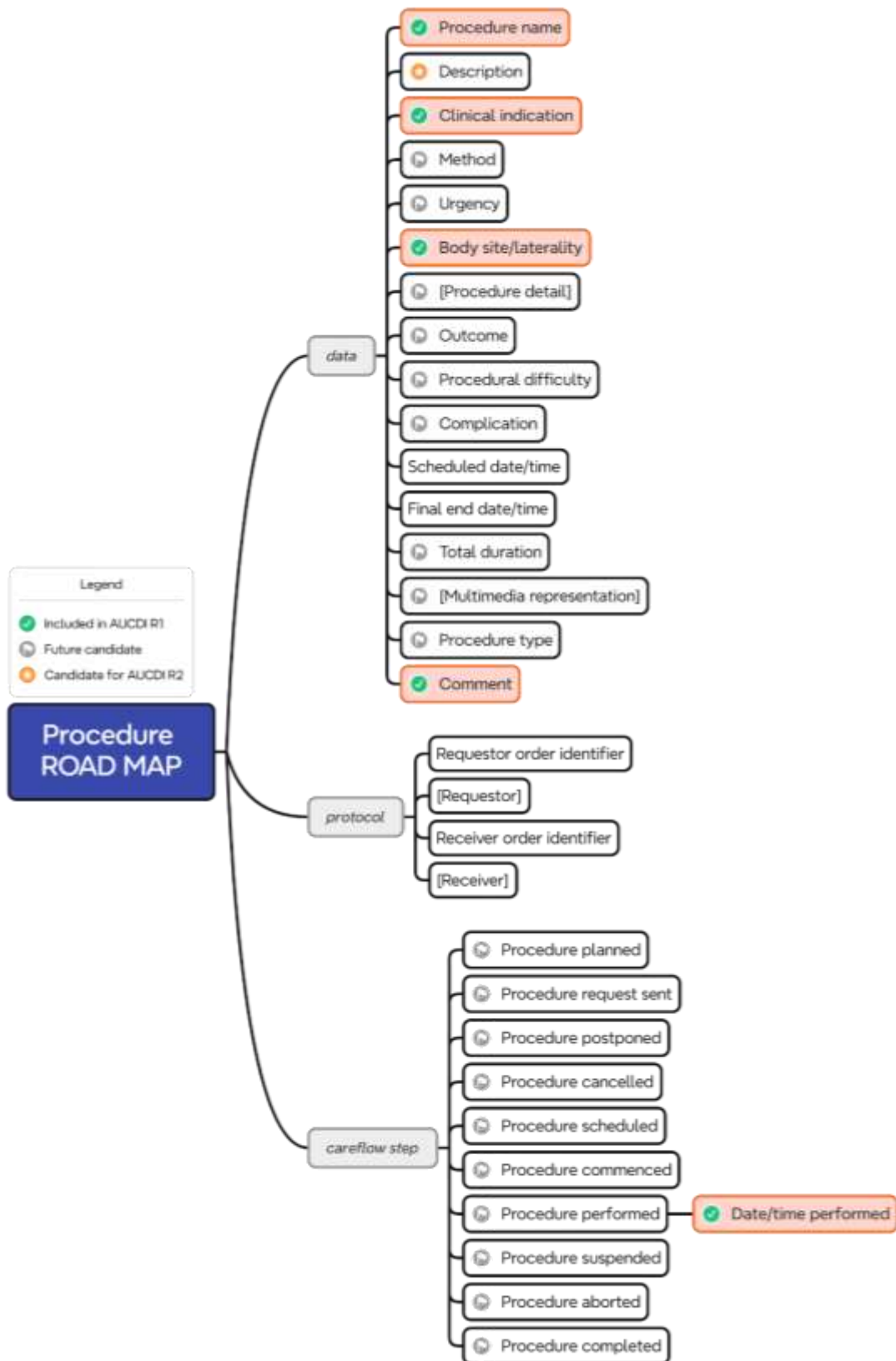
Figure 21. Procedure - Future roadmap.

8.7.2. Health education

8.7.2.1. Data group context

Table 19. Health education - Data group context.

Concept description	Provision of information and resources about health-related topics to improve knowledge and understanding, develop health-related skills, and promote positive changes in behaviour.
Purpose	To record a careflow step or event related to the provision of health education.
Representation	Record one instance per careflow step or event related to each specified education topic in a health record.
Considerations for use	- Health education can be provided face-to-face or remotely. - The scope of health education includes, but is not limited to: - verbal information or advice; - a demonstration of a technique, such as administration of subcutaneous heparin or changing a colostomy bag; - guidance to track progress of self-management using a mobile phone application; or - handing out physical material - for example, fact sheets about the risks of a vasectomy. - In future updates, it is anticipated this data group will be extended to incorporate additional detail.
References	Health education, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-07]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.1395.

The intended purpose of this data group is to document a summary of the health education provided to an individual who is receiving healthcare and/or self-managing their own health. In this initial AUCDI Release 2 representation, the scope is limited to capturing the topic of education, a narrative description about the education provided, and the date it was provided.

In AUCDI Release 2, the scope of this data group is limited to the minimal data elements necessary to document that an education activity has been provided. The intention is to further develop this data group by not only increasing the level of detail through the addition of more data elements but also by broadening the scope to encompass the entire process of conducting an education activity, moving beyond the initial 'Education Provided' careflow step.
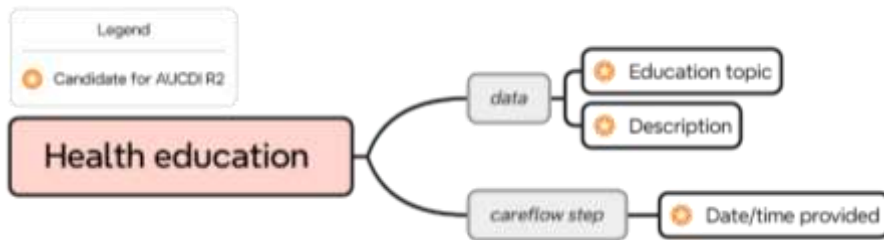
8.7.2.2.   Concept representation

Figure 22. Health education - Concept representation.

8.7.2.3.   Information model

Table 20. Health education - Information Model.

Data elements		
Education topic	Description	Name of the topic of health education.
	Occurrence	Mandatory, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Examples	SNOMED CT-AU • 1308221000168108 |Low FODMAP diet advice| • 698610002 | Education about self-management of diabetes mellitus | • 225323000 | Smoking cessation education|
	Consideration	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Description	Description	Narrative description about the health education provided
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Date/time provided	Description	Point in time when the health education was provided.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Examples	For example: • 7 February 2015

		• 7 February 2015, 1:28 pm
		• 2015-02-07T13:28:17-05:00

8.7.2.4.   For future consideration

The openEHR 'Health education' archetype is a published information model that has been used globally in a broad range of implementations over many years. It forms the basis for this initial R2 data group and provides guidance for potential future augmentation.

It is expected that this data group will evolve over time to add more data elements about the procedure, by not only increasing the level of detail through the addition of more data elements but also by broadening the scope to encompass the entire process of conducting a health education activity, moving beyond the initial 'Education provided' careflow step.

The mind map below demonstrates a proposed roadmap for developing the 'Health education' data group based on the published openEHR 'Health education' archetype. It includes a list of proposed careflow steps that identify specific events or phases in the health education delivery process where recording significant information could be beneficial. This approach supports the documentation of both ad-hoc health education sessions and the systematic tracking of progress of single- or multi-session education delivered in response to a specific order or request.
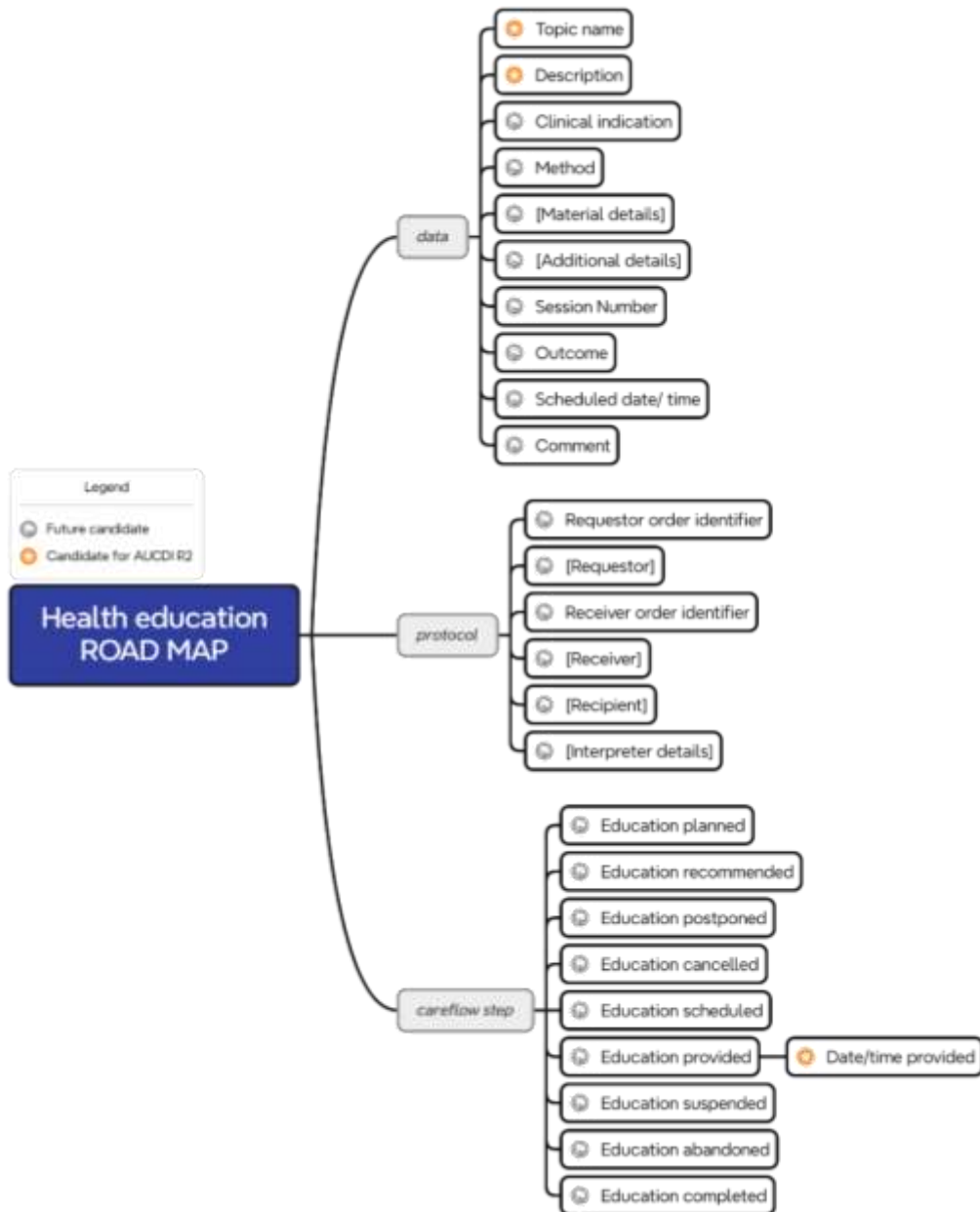
Figure 23. Health education - proposed roadmap.

8.7.3. Medical equipment supply

8.7.3.1. Data group context

Table 21. Medical equipment supply – Data group context.

Concept description	Provision of an aid, device, or tool to support clinical care and activities of daily living.
Purpose	To record a careflow step or event related to the supply of an item of medical equipment.
Representation	Record one instance per careflow step or event related to each specified item of medical equipment supplied, in a health record.
Alias(es)	Supply of medical equipment

Considerations for use	The scope of medical equipment includes, but is not limited to:
	
	• Mobility aids
	    o Wheelchairs
	    o Walkers
	    o Crutches
	
	• Diagnostic equipment
	    o Blood pressure monitors
	    o Glucometers
	    o Pulse oximeters
	
	• Therapeutic devices
	    o CPAP machine
	    o Nebuliser
	    o TENS unit
	
	• Hospital beds and accessories
	    o Bed rails
	    o Pressure mattress
	
	• Home care supplies
	    o Oxygen concentrators
	    o IV stands and pumps
	
	• Prosthetics and orthotics
	    o Artificial limb
	    o Braces and supports
	
	• Home safety equipment or modifications

	o Shower chairs
	
	  o Grab bars
	
	  o Ramps
	
	  o Stair lifts
	
	In future updates, it is anticipated this data group will be extended to incorporate additional detail.

Misuse	Not to be used to information about implantation of devices - use the 'Procedure' or 'Implanted device summary' data groups for this purpose.
References	Clinician requirements – Sparked CDG meeting 9

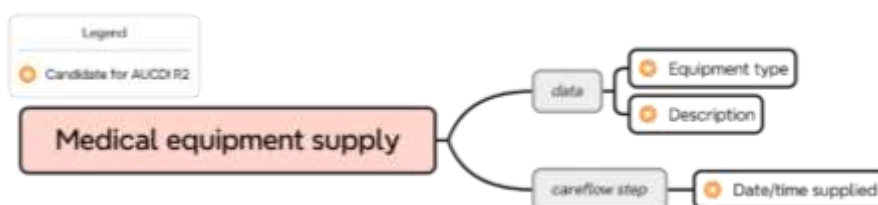### 8.7.3.2. Concept representation

Figure 24. Medical equipment supply - Concept representation.

8.7.3.3. Information model

Table 22. Medical equipment supply - Information Model.

Data elements		
Equipment type	Description	Name of the type of equipment.
	Occurrence	Mandatory, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however, there is currently no NCTS value set recommended for this data element.
	Examples	SNOMED CT-AU: • 363753007 |Crutches| • 6012004 |Hearing aid| • 360008003 |Commode| • 701154000 |Sleep apnoea pillow| • 182578008 |Forearm brace|

	Consideration	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Description	Description	Narrative description about the medical equipment supplied.
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Date/time supplied	Description	Point in time when the medical equipment was supplied.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.7.3.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the procedure, by not only increasing the level of detail through the addition of more data elements but also by broadening the scope to encompass the entire process of process of supplying medical equipment, moving beyond the initial 'Equipment supplied' careflow step.

The mind map below demonstrates a proposed roadmap for developing the 'Medical equipment supply' data group. It includes a list of proposed careflow steps that identify specific events or phases in the medical equipment supply process where recording significant information could be beneficial. This approach supports the documentation of both ad-hoc supply of medical equipment and the systematic tracking of progress of medical equipment supply in response to a specific order or request.
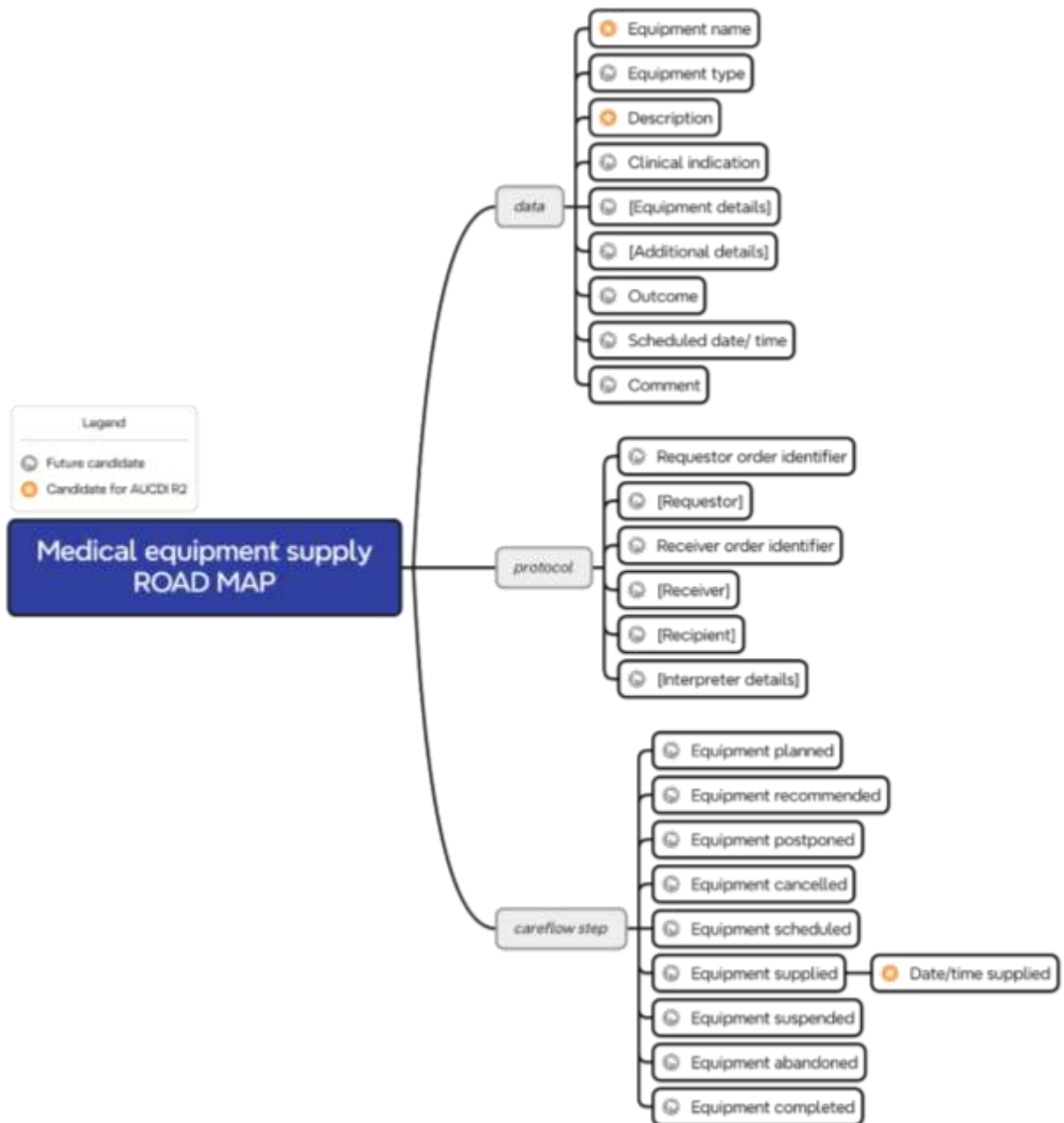
Figure 25. Medical equipment supply - Proposed roadmap.

8.7.4. Psychosocial therapy

8.7.4.1. Data group context

Table 23. Psychosocial therapy - Data group context.

Concept description	A therapeutic approach that integrates psychological and social strategies to improve mental health and emotional well-being, strengthen interpersonal relationships, and support positive behavioural change.
Purpose	To record a careflow step or event related to provision of psychosocial therapy to an individual.
Representation	Record one instance per careflow step or event related to each specified therapy activity in a health record.
Alias(es)	Social therapy, Psychotherapy
Considerations for use	The scope of this data group includes a wide range of psychological and social therapies, not limited to: • Cognitive Behavioral Therapy (CBT), • Dialectical Behavior Therapy (DBT), • Narrative therapy, • Family Therapy, • Group Therapy, • Social Skills Training, • Assertiveness training, • Anger management, • Interpersonal Therapy (IPT), • Grief counselling, • Motivational Interviewing, • Crisis Intervention, • Mindfulness-based stress reduction, • Art therapy, and • Music therapy. The target of the therapy may be the individual, their family or a group. In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	Not to be used to record health education - use the 'Health education' data group for this purpose.

References	Clinician requirements – [Sparked CDG meeting 9](#)

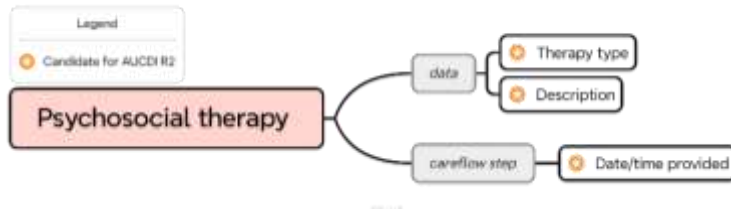### 8.7.4.2.   Concept representation

Figure 26. Psychosocial therapy- Concept representation.

8.7.4.3.   Information model

Table 24. Psychosocial therapy - Information model.

Data elements		
Therapy type	Description	Name of the type of therapy.
	Occurrence	Mandatory, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Examples	SNOMED CT-AU: • 1037611000168108|Mindfulness-based cognitive therapy| • 405780009 |Dialectical behaviour therapy| • 228574008 | Assertiveness training| • 702471009 | Functional family therapy| • 171006007 |Grieving counselling| • 24172008 |Crisis intervention| • 21065008 |Music therapy| • 228559006 |Social skills training|
	Consideration	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Description	Description	Narrative description about the psychosocial therapy provided.
	Occurrence	Optional, single occurrence

	Data type	String
	Considerations	None
Date/time provided	Description	Point in time when the therapy was supplied.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Examples	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00
	Considerations	None

8.7.4.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the procedure, by not only increasing the level of detail through the addition of more data elements but also by broadening the scope to encompass the entire process of providing psychosocial therapy, moving beyond the initial 'Therapy provided' careflow step.

The mind map below demonstrates a proposed roadmap for developing the 'Psychosocial therapy' data group. It includes a list of proposed careflow steps that identify specific events or phases in the delivery of psychosocial therapy where recording significant information could be beneficial. This approach supports the documentation of both ad-hoc psychosocial therapy and the systematic tracking of progress of single- or multi-session therapy delivered in response to a specific order or request.
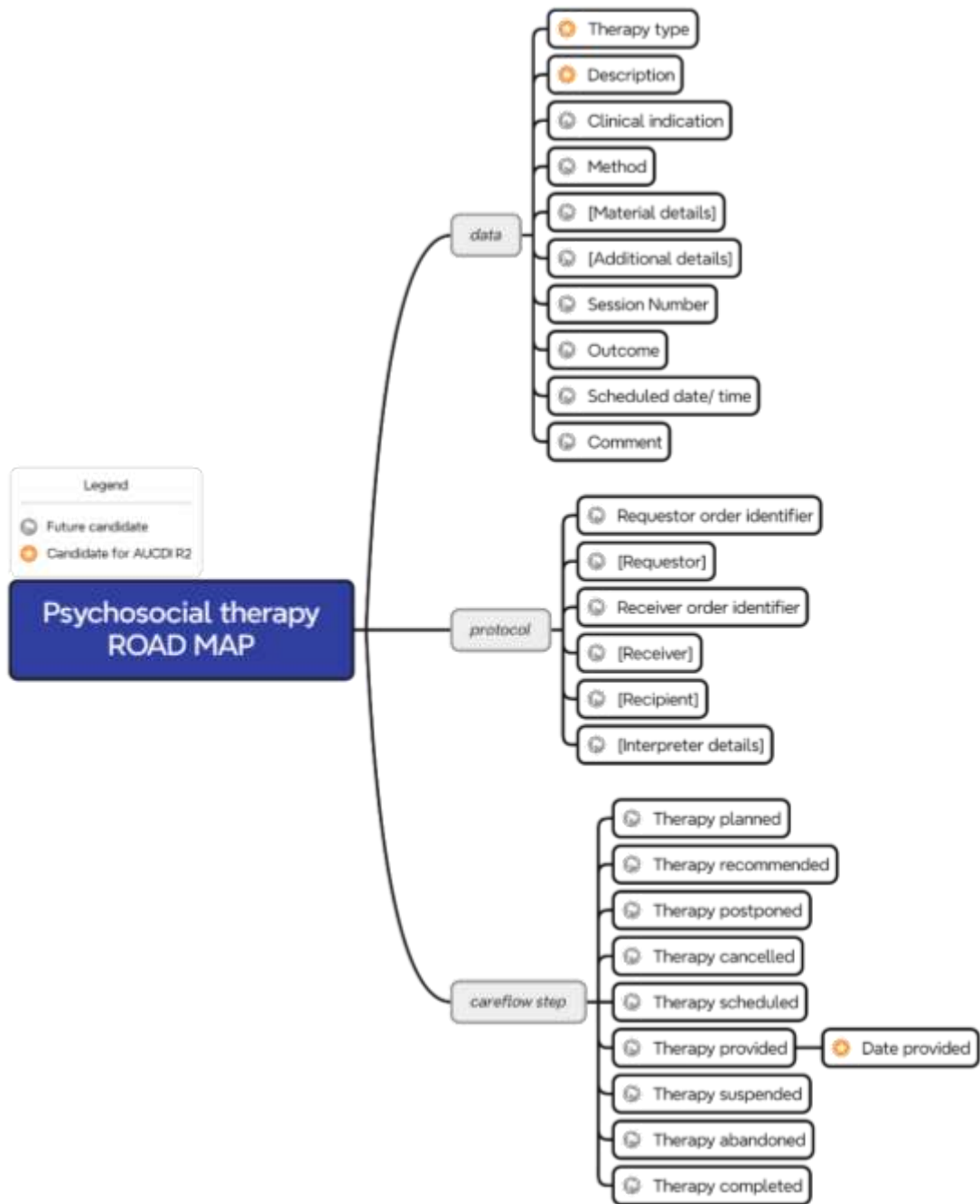
Figure 27. Psychosocial therapy - Proposed roadmap.

8.7.5. Physical assistance

8.7.5.1. Data group context

Table 25. Physical assistance - Data group context.

Concept description	Hands-on support provided by a caregiver to enable an individual to complete a task they cannot perform independently and/or safely due to a limitation in strength, mobility, coordination, communication, cognition, or sensory abilities, such as visual or auditory impairments.
Purpose	To record a careflow step or event related to provision of physical assistance to an individual.
Representation	Record one instance per careflow step or event in a health record. Record one instance per careflow step or event related to each specified physical assistance activity, in a health record.
Considerations for use	The scope of this data group includes a wide range of psychological and social therapies, not limited to: • Mobility assistance – such as walking, standing, or transferring • Personal activities and hygiene – such as bathing, dressing, grooming, and toileting. • Feeding assistance • Therapeutic exercises – such as hands-on support during physical therapy exercises or rehabilitation activities • Use of assistive devices – such as helping with the use of mobility aids, prosthetic device, or communication devices. In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	Not to be used to record other types of assistance, other than physical or hands-on support.
References	Clinician requirements – Sparked CDG meeting 9

8.7.5.2. Concept representation

Figure 28. Physical assistance - Concept representation.

8.7.5.3. Information model

Table 26. Physical assistance - Information model.

Data elements		
Assistance type	Description	Name of the specific kind of physical support or help required.
	Occurrence	Mandatory, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however there is currently no NCTS value set recommended for this data element.
	Examples	• Washing hair • Toileting • Transfer from wheelchair **to car** • Use of a **communication device** SNOMED CT-AU • 464338006|Assistive bathing sponge| • 710803000|Assistance with mobility|
	Consideration	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Description	Description	Narrative description of the physical provided.
	Occurrence	Optional, single occurrence
	Data type	String
	Alias(es)	Explanation or account
	Considerations	None

Date/time provided	Description	Point in time when the physical assistance was provided.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Examples	For example: • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.7.5.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the procedure, by not only increasing the level of detail through the addition of more data elements but also by broadening the scope to encompass the entire process of providing physical assistance, moving beyond the initial 'Assistance provided' careflow step.

The mind map below demonstrates a proposed roadmap for developing the 'Physical assistance' data group. It includes a list of proposed careflow steps that identify specific events or phases in the delivery of physical assistance where recording significant information could be beneficial.
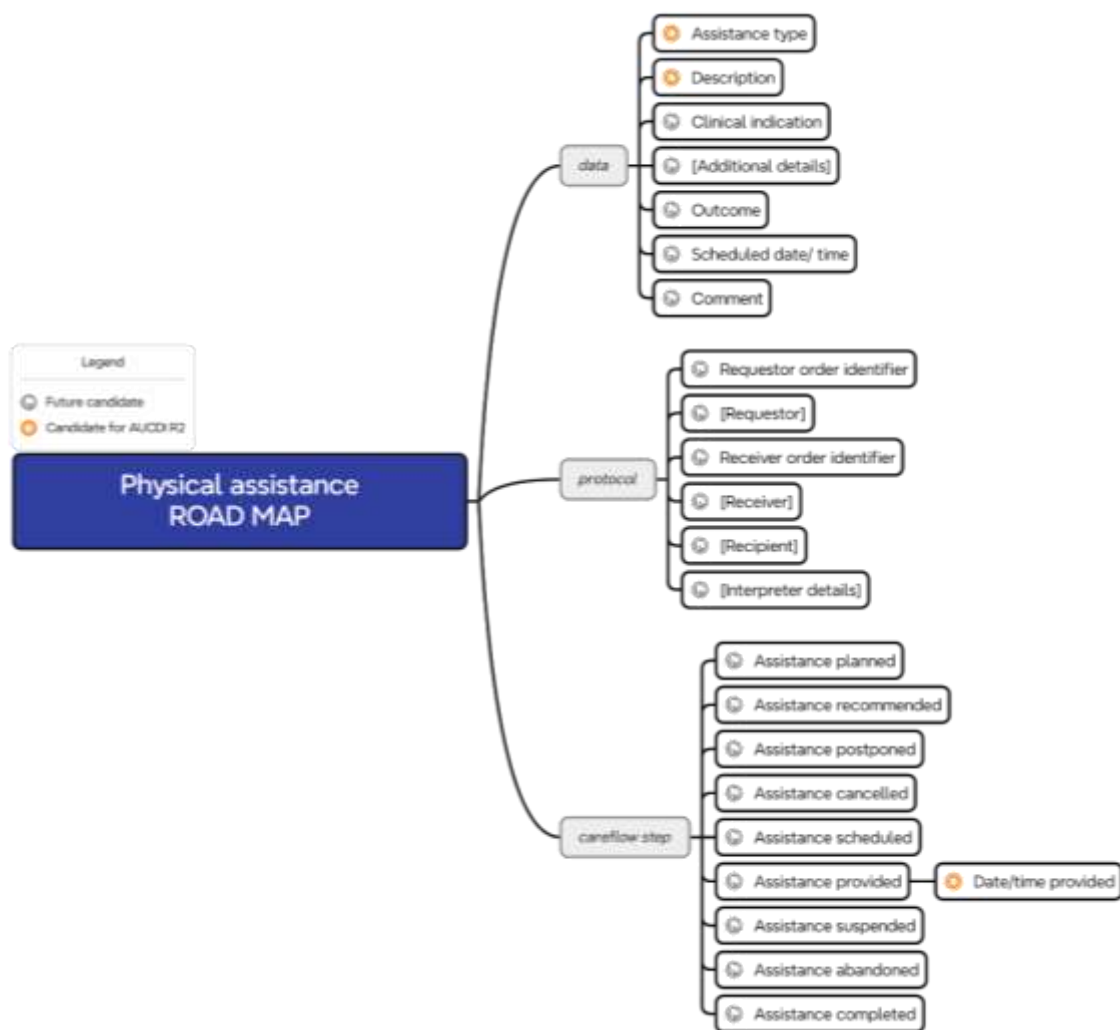
Figure 29. Physical assistance - Proposed roadmap.

8.8. Social Determinants of Health

The World Health Organization[11] describes Social Determinants of Health (SDOH) as "*the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems.*"

It has been noted that there is a lack of a standardisation about SDOH data collection and reporting[12]. While questionnaire-based assessments are the most commonly used methods for collecting SDOH data, primarily to identify problems or risks, there is also no consensus on which key SDOH domains need to be collected[13&14] nor how it should be represented.

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[11] https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1

[12] Social Determinants of Health Data: Survey results on the collection, integration and use https://www.ahima.org/media/03dbonub/ahima_sdoh-data-report.pdf

[13] Social Determinants of Health Data: Survey results on the collection, integration and use https://www.ahima.org/media/03dbonub/ahima_sdoh-data-report.pdf

[14] https://thegravityproject.net/advancing-sdoh-and-health-equity-data-interoperability/

In Australia there are significant gaps in data on SDOH and health inequities that needed to be addressed[15]. Recognising the importance of this issue, the Sparked CDG has prioritised the inclusion of SDOH data in AUCDI.

There appears to be little prior research on how to standardise the recording of SDOH data in a neutral manner within electronic health records. Consequently, the initial data groups outlined in this section are designed for comprehensive documentation of health and care information within clinical systems, building on previous AUCDI data group design and philosophy. This includes incorporating specific data elements that are particularly significant and relevant for SDOH initiatives, and which can be reused in risk assessments or for reporting purposes, as needed.

8.8.1. Food and nutrition summary

8.8.1.1. *Data group context*

Table 27. Food and nutrition summary - Data group context.

Concept description	Overview information about the food consumption and nutritional status of an individual.
Purpose	To record summary information about the food consumption and nutritional status of an individual.
Representation	Record one instance per data group within a health record; changes or updates over time are captured as a revision rather than a new entry.
Considerations for use	- This data group will support the provision of healthcare to the individual in a variety of ways, including, but not limited to: - Supporting SDOH initiatives by recognising the impact of food and nutrition on health and social outcomes - Documenting food security status - Assessing dietary habits, including food intake, eating patterns, and risk of malnutrition - Supporting weight management - Identifying dietary restrictions or preferences - In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	Not to be used to record problems or formal diagnoses related to food or nutrition, such as anorexia or bulimia nervosa – use the 'Problem/Diagnosis summary' data group for this purpose.

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[15] The need for improved Australian data on social determinants of health inequities
https://onlinelibrary.wiley.com/doi/pdf/10.5694/mja2.51495

	• Not to be used to record a concern or worry identified by the individual or their clinician – use the 'Health issue' data group for this purpose. • Not to be used to record a food diary, comprising actual food consumption at specified points in time.
References	• Food and nutrition summary, Draft archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-05]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.2755. • Food insecurity [Internet]. The Gravity Project, collaborative public-private initiative (United States). Available from: https://confluence.hl7.org/spaces/GRAV/pages/91994432/Food+Insecurity. • Food instability; Australian Food Story: Feeding the Nation and Beyond. House of Representatives Standing Committee on Agriculture; Parliament of Australia, Canberra [Nov 2023; cited 2025-02-09] . Available from https://www.aph.gov.au/Parliamentary_Business/Committees/House/Agriculture/FoodsecurityinAustrali/Report/Chapter_7_-_Food_insecurity. • Rabbitt, M. P., Reed-Jones, M., Hales, L. J., & Burke, M. P. (2024). Household food security in the United States in 2023 (Report No. ERR-337) [Internet]. U.S. Department of Agriculture, Economic Research Service. https://doi.org/10.32747/2024.8583175.ers. Available from: https://www.ers.usda.gov/publications/pub-details?pubid=109895.

The intended purpose of this data group is to document an overview of various aspects related to food and nutrition, including food security, dietary patterns, food preferences and constraints. In this initial AUCDI R2 representation, the scope is limited to capturing an overall description, an assessment of food security and a last updated date to indicate the currency of the information.
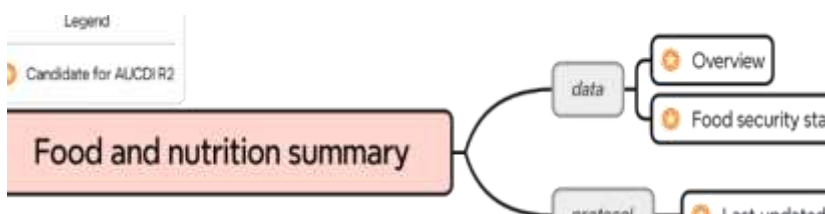
8.8.1.2. Concept representation

Figure 30. Food and nutrition summary - Concept representation.

8.8.1.3. Information model

Table 28. Food and nutrition summary - Information model.

Data elements		
Overview	Description	Narrative description about an individual's food consumption and nutritional status.
	Occurrence	Optional, single occurrence
	Considerations	None
Food security status	Description	Assessment about consistent and reliable access to sufficient, affordable, nutritious, culturally suitable, and safe food obtained in socially acceptable ways.
	Occurrence	Optional, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however, there is currently no NCTS value set recommended for this data element.
	Examples	- High - Marginal - Low - Very low
	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Last updated	Description	The date when this 'Food and nutrition summary' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: 7 February 2015 7 February 2015, 1:28 pm 2015-02-07T13:28:17-05:00

8.8.1.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the individual's food consumption and nutritional status, including active diets and food preferences or restrictions.

The draft openEHR 'Food and nutrition summary' archetype serves as the basis for this initial AUCDI R2 data group and provides additional guidance for potential augmentation in future releases.

The mind map below outlines a proposed development roadmap for ongoing the 'Food and nutrition summary' data group, based on the published openEHR 'Food and nutrition summary' archetype.
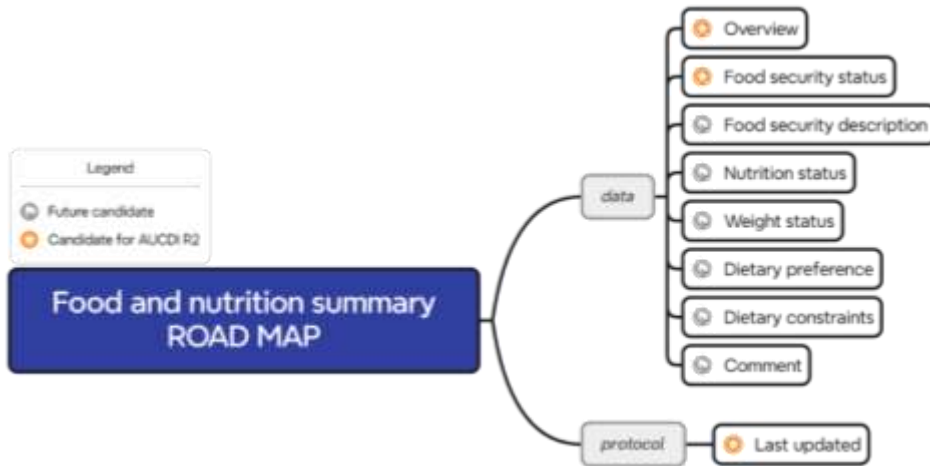

Figure 31. Food and nutrition summary - Proposed roadmap.

8.8.2. Physical activity summary

8.8.2.1. Data group context

Table 29. Physical activity summary - Data group context.

Concept description	Overview information about an individual's level of physical activity.
Purpose	To record summary information about an individual's typical level of physical activity.
Representation	Record one instance per data group within a health record; changes or updates over time are captured as a revision rather than a new entry.
Considerations for use	This data group will support the provision of healthcare to the individual in a variety of ways, including, but not limited to: • Supporting SDOH initiatives by recognising the impact of impact of physical activity on health and social outcomes. • Risk assessment related to sedentary behaviour • Assessing the impact of the individual's level of physical activity on all aspects of health and wellness, including chronic conditions, mental health and preventive health practices • Customising rehabilitation programs • Promoting healthy ageing • Facilitating behavioural change • Encouraging community engagement In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	Not to be used to record an exercise log that tracks specific activities at a single point in time or across defined intervals.
References	• Physical activity summary, Draft archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-05]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.2877

This data group is designed to document an overview of various aspects related to physical activity and exercise. In this initial AUCDI R2 representation, the scope is deliberately limited to capturing an overall description and a last updated date to indicate the currency of the information.
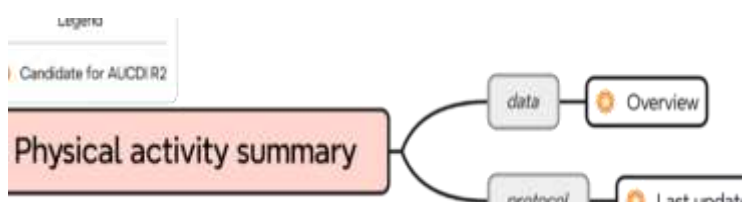
8.8.2.2. Concept representation

Figure 32. Physical activity summary - Concept representation.

8.8.2.3. Information model

Table 30. Physical activity summary - Information model.

Data elements		
Overview	Description	Narrative description about an individual's usual patterns of physical activity.
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Last updated	Description	The date when this 'Physical activity summary' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.8.2.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the individual's typical patterns of physical activity.

The draft openEHR 'Physical activity summary' archetype serves as the basis for this initial AUCDI R2 data group and provides additional guidance for potential augmentation in future releases.

The mind map below outlines a proposed development roadmap for ongoing the 'Physical activity summary' data group, based on the published openEHR 'Physical activity summary' archetype.
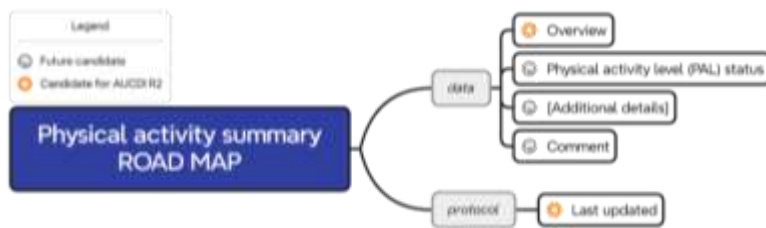
Figure 33. Physical activity summary - Proposed roadmap.

8.8.3. Living arrangement summary

8.8.3.1. Data group context

Table 31. Living arrangement summary - Data group context.

Concept description	Summary information about the social and interpersonal aspects about the individual's home environment.
Purpose	To record information about the individual's usual living arrangement, including household composition.
Representation	Record one instance per data group within a health record; changes or updates over time are captured as a revision rather than a new entry.
Alias(es)	Household summary
Considerations for use	- This data group will support the provision of healthcare to the individual in a variety of ways, including, but not limited to: - Supporting SDOH initiatives by recognising the impact of the social and interpersonal aspects of an individual's living situation on their health and social outcomes. - Identifying the household composition, including family members, non-family members, and animals. - Assessing social connectedness in the context of the individual's household - Identifying carers, for individuals who are dependent on others for the provision of daily care - Identifying caring responsibilities, for individuals who provide care for other people or animals - Understanding the social and cultural dynamic 'at home'. - Support planning for transitions of care back to 'home' - Optimising home health services

	• In future updates, it is anticipated this data group will be extended to incorporate additional detail.
Misuse	• Not to be used to record information about an individual's current and past housing situation - use the 'Housing summary' data group for this purpose. • Not to be used to record details of the dwelling or structure where the individual usually lives. A 'Dwelling' data group has been added to the backlog for future consideration. • Not to be used to describe the social connections of the individual. A 'Social network' data group has been added to the backlog for future consideration.
References	• Living arrangement, Draft archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-04]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.3280

This data group is designed to document an overview of various aspects related to the living arrangements of an individual. In this initial AUCDI R2 representation, the scope is deliberately limited to capturing an overall description and a last updated date to indicate the currency of the information.
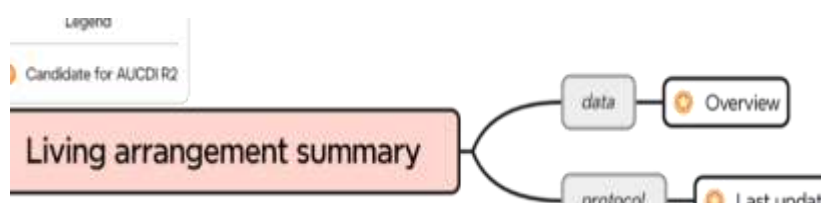
8.8.3.2. Concept representation

Figure 34. Living arrangement summary - Concept representation.

8.8.3.3. Information model

Table 32. Living arrangement summary - information model.

Data elements		
Overview	Description	Narrative description about the social and interpersonal aspects within an individual's usual residential setting.
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Last updated	Description	The date when this 'Living arrangement summary' data group was last updated.
	Occurrence	Optional, single occurrence

	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.8.3.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the social and interpersonal aspects about the individual's home environment, including whether they live alone or with others and the household composition, including the presence of pets.

The draft openEHR 'Living arrangement summary' archetype serves as the basis for this initial AUCDI R2 data group and provides additional guidance for potential augmentation in future releases.

The mind map below outlines a proposed development roadmap for ongoing the 'Living arrangement summary' data group, based on the published openEHR 'Living arrangement summary' archetype.
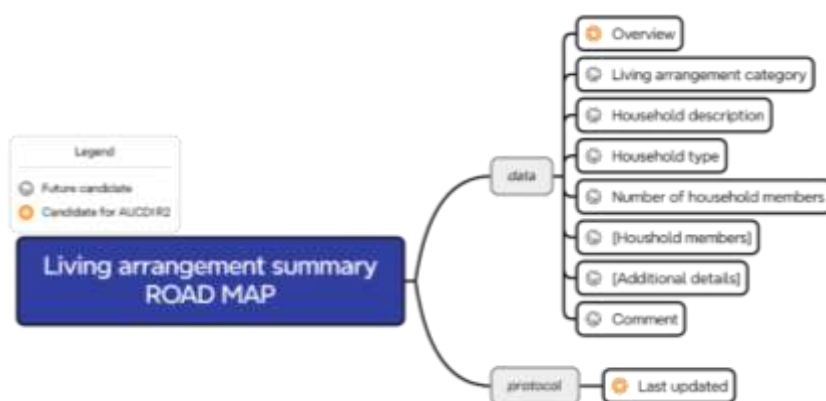

Figure 35. Living arrangement summary - Proposed roadmap.

8.8.4. Housing summary

8.8.4.1. Data group context

Table 33. Housing summary - Data group context.

Concept description	Summary information about the physical context and characteristics of an individual's residential setting.
Purpose	To record summary information about the individual's current housing, shelter or accommodation, including an assessment of their housing stability.
Representation	Record one instance per summary data group within a health record; changes or updates over time are captured as a revision rather than a new entry.
Alias(es)	Accommodation summary
Considerations for use	• This data group can be extended to include two repeatable data groups in the future. Firstly the 'Housing record' as a structured summary about the context of each residential setting, whether either current or past, and including the category of the setting, type of housing, and tenure. Nested within the 'Housing record' can be recorded an optional

	structured data group documenting the physical characteristics and attributes about the associated 'Dwelling', such as layout, equipment, construction materials, safety features, and accessibility options.
	
	• This family of housing-related data groups will support the provision of healthcare to the individual in a variety of ways, including, but not limited to:
	
	    o Supporting SDOH initiatives by recognising the impact of housing on health and social outcomes, particularly in assessing the suitability and safety of the housing environment for the individual and other occupants.
	
	    o Assessing housing stability and security
	
	    o Assessing housing adequacy and living conditions, such as
	
	        ▪ Access to basic utilities and infrastructure
	
	            • Reliable access to clean water, electricity and waste disposal
	
	            • Reliable and appropriate heating, cooling and food storage/refrigeration
	
	            • Identify internet and phone connectivity, which may impact telehealth accessibility and emergency response.
	
	        ▪ Identify health risks from overcrowding
	
	        ▪ Identify unsafe building structures
	
	        ▪ Identify inadequate accessibility
	
	    o Identifying environmental hazards, such as the presence of mould, lead, asbestos, and pest infestations
	
	    o Enable referrals to housing assistance programs, community shelters, or support services for at-risk populations
	
	• In future updates, it is anticipated this data group will be extended to incorporate additional detail.

Misuse	• Not to be used to record information about the social and interpersonal aspects of the individual's home environment - use the 'Living arrangement summary' data group for this purpose.

|	
	• Not to be used to describe the social connections of the individual. A 'Social network' data group has been added to the backlog for future consideration.
References	• Housing summary, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-04]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.3287. • Person – living arrangement. METEOR metadata online registry; Australian Institute of Health and Welfare, Canberra [cited: 202502-09]. Available from: https://meteor.aihw.gov.au/content/269813.

8.8.4.2. Concept representation
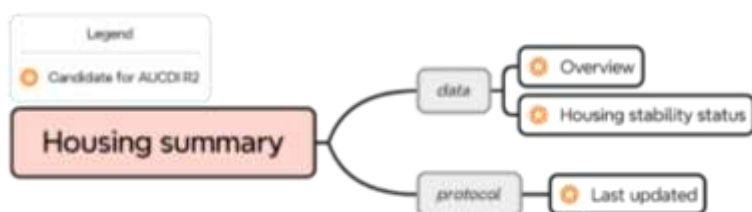
Figure 36. Housing summary - Concept representation.

8.8.4.3. Information model

Table 34. Housing summary - Information model.

Data elements		
Overview	Description	Narrative description about the physical context and characteristics of an individual's residential setting.
	Occurrence	Optional, single occurrence
	Considerations	None
Housing stability status	Description	An assessment of the extent of consistency and continuity of housing over time.
	Occurrence	Optional, single occurrence
	Data type	CodeableConcept
	Recommended codesystem/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however, there is currently no NCTS value set recommended for this data element.
	Examples	• High • Marginal • Low

		• Very low
		SNOMED CT-AU:
		• 1472091000168102 |Stable housing|
		• 1471851000168109 |Unstable housing|
	Considerations	• This data element primarily focuses on whether individuals or households can remain in one location without frequent moves, which can be disruptive and indicative of financial or social instability.
		• Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Last updated	Description	The date when this 'Housing summary' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example:
		• 7 February 2015
		• 7 February 2015, 1:28 pm
		• 2015-02-07T13:28:17-05:00

Please note that the concept of 'homelessness' is intentionally omitted from this data group. While it is important to identify individuals who need support due to involuntary homelessness, this condition is usually inferred from evidence of low or very low housing stability and/or inadequate living conditions. Classifying someone as homeless also implies that the individual does not choose this situation. However, for those who choose a nomadic lifestyle or willingly live in what may be deemed inadequate housing by others, the label 'homeless' should not be assumed. Therefore, it is more appropriate to document a more neutral assessment of housing stability and adequacy in this data group. The identification of 'homelessness' as a problem or social diagnosis can be added to the individual's Problem List when it accurately reflects their specific circumstances.

8.8.4.4.   For future consideration

It is expected that this data group will evolve over time to add more data elements about the individual's housing situation. It may also be extended with an additional 'Housing record' data group that captures summary details of each residential setting, both current and past, including category of residential setting.

The published openEHR 'Housing summary' archetype serves as the basis for this initial AUCDI R2 data group and provides additional guidance for potential augmentation in future releases.

The mind map below outlines a proposed development roadmap for ongoing the 'Housing summary' data group, based on the openEHR 'Housing summary' archetype. The mind map demonstrates the proposed data elements that describe summary-related data elements, plus the more detailed 'Housing record' archetype that can capture additional details about each discrete housing or accommodation episode.

Another openEHR archetype 'Dwelling', not shown here, can further extend this 'Housing summary' archetype to capture the physical characteristics of a specific dwelling where the individual resides. This includes details such as, such as room configuration, building accessibility, appliances, disability aids, technology and security.
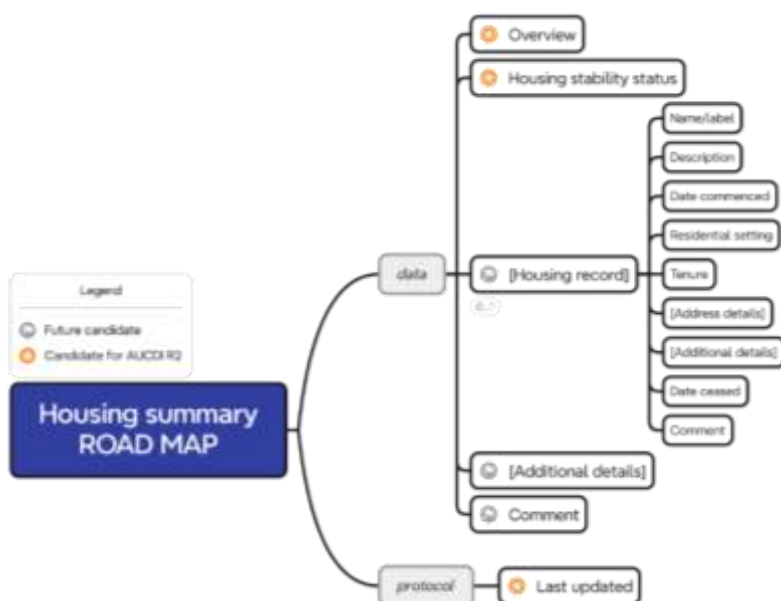

Figure 37. Housing summary - Proposed roadmap.

8.8.5. Financial summary

8.8.5.1. Data group context

Table 35. Financial summary - Data group context.

| Concept description	Summary information about the financial situation of an individual.
Purpose	To record summary information about the financial situation of an individual, including financial security.
Representation	Record one instance per summary data group within a health record; changes or updates over time are captured as a revision rather than a new entry.

Considerations for use	• This data group will support provision of healthcare to the individual in a variety of ways including, but not limited to:
	
	   o Supporting SDOH initiatives by recognising the impact of financial considerations on health and social outcomes, particularly in assessing the impact of financial security and stability for the individual.
	
	   o Identifying financial barriers to care
	
	   o Guiding cost-effective treatment planning
	
	   o Assessing eligibility for financial aid
	
	   o Evaluating economic stress
	
	• In future updates, it is anticipated this data group will be extended to incorporate additional detail.

Misuse	None
References	• Financial summary, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-05]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.2989https://ckm.openehr.org/ckm/archetypes/1013.1.3287.

8.8.5.2. Concept representation
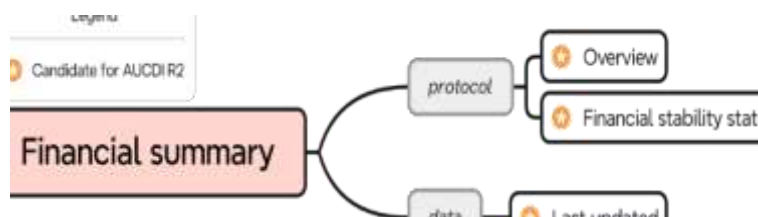
Figure 38. Financial summary - Concept representation.

8.8.5.3. Information model

Table 36. Financial summary – Information model.

Data elements		
Overview	Description	Narrative description about the financial situation of the individual.
	Occurrence	Optional, single occurrence
	Considerations	None
Financial stability status	Description	An assessment of the individual's ability to consistently meet financial obligations without falling into financial distress.
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however, there is currently no NCTS value set recommended for this data element.
	Data type	CodeableConcept
	Examples	• High • Marginal • Low • Very low
	Considerations	• The concept of 'financial stability' focuses on short to medium term consistency and balance, such as the availability of a steady income, manageable debt, and cash flow that ensure day-to-day financial operations remain stable. This contrasts with 'financial security' which is focused on long-term protection and resilience, ensuring financial well-being even in uncertain times. • Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Last updated	Description	The date when this 'Financial summary' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm

		• 2015-02-07T13:28:17-05:00

8.8.5.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the individual's financial situation where this is relevant to the provision of healthcare services.

The published openEHR 'Financial summary' archetype serves as the basis for this initial AUCDI R2 data group and provides additional guidance for potential augmentation in future releases.

The mind map below outlines a proposed development roadmap for ongoing the 'Financial summary' data group, based on the openEHR 'Financial summary' archetype.
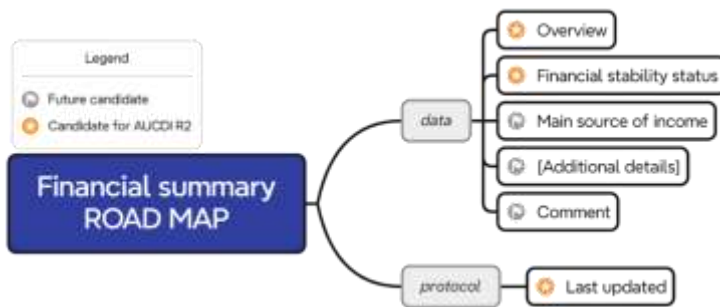

Figure 39. Financial summary - Proposed roadmap.

8.8.6. Occupation summary

8.8.6.1. Data group context

Table 37. Occupation summary - Data group context.

Concept description	Summary information about regular, meaningful, and purposeful activities or roles that significantly occupy an individual's time and contribute to their identity and societal role, regardless of whether they receive financial compensation.
Purpose	To record summary information about an individual's current situation and insight into an individual's occupations over time.
Representation	Record one instance per summary data group within a health record; changes or updates over time are captured as a revision rather than a new entry.
Alias(es)	Employment summary
Considerations for use	• The scope of 'occupation' in this data group extends beyond traditional paid employment to include activities such as caregiving, volunteering, studying, and pursuits typically associated with retirement. It excludes leisure or recreational pursuits.

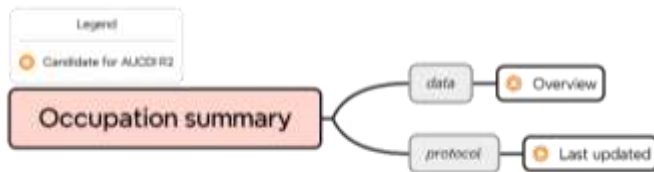|	

	• This data group can be extended to provide a repeatable 'Occupation record', as a structured summary about each job or role, either current or past. Multiple occupation records can be active at any one time, to allow descriptions of more than one concurrent occupation or role. The occupation episodes may also support development of a long-term occupational health and safety history.
	
	• This family of occupation-related data groups will support the provision of healthcare to the individual in a variety of ways, including, but not limited to:
	
	    ◦ Supporting SDOH initiatives by recognising the impact of daily meaningful activity on health and social outcomes,
	
	    ◦ Supports identifying social and economic factors that influence well-being,
	
	    ◦ Aid in understanding demands on their time that may impact health,
	
	    ◦ Assessments of current or past occupational health risk related to different types of work environments or job roles,
	
	    ◦ Providing context for workplace-related injuries or conditions, and
	
	    ◦ Supports documentation and planning related to workplace injuries or modifications needed for return-to-work programs.
	
	• In future updates, it is anticipated this data group will be extended to incorporate additional detail.

Misuse	• Not to be used to record information about sources of income or income details for the individual – use the 'Financial summary' data group for this purpose. • Not to be used for detailed descriptions of health risks or exposure to hazardous substances in the workplace.
References	• Occupation summary, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-09]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.2965. • Occupation record, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-09]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.2380.

8.8.6.2. Concept representation

Figure 40. Occupation summary - Concept representation.

8.8.6.3. Information model

Table 38. Occupation summary - Information model.

Data elements		
Overview	Description	Narrative description about the occupation history of the individual.
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Last updated	Description	The date when this 'Occupation summary' was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.8.6.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the individual's occupational situation and demands on their time. It may also be extended with an additional 'Occupation record' data group that captures summary details of each job or role, both current and past.

The published openEHR 'Occupation summary' archetype serves as the basis for this initial AUCDI R2 data group and provides additional guidance for potential augmentation in future releases.

The mind map below outlines a proposed development roadmap for ongoing the 'Occupation summary' data group, based on the openEHR 'Occupation summary' archetype. The mind map demonstrates the proposed data elements that describe summary-related data elements, plus the more detailed 'Occupation record' archetype that can capture additional details about each job or role.
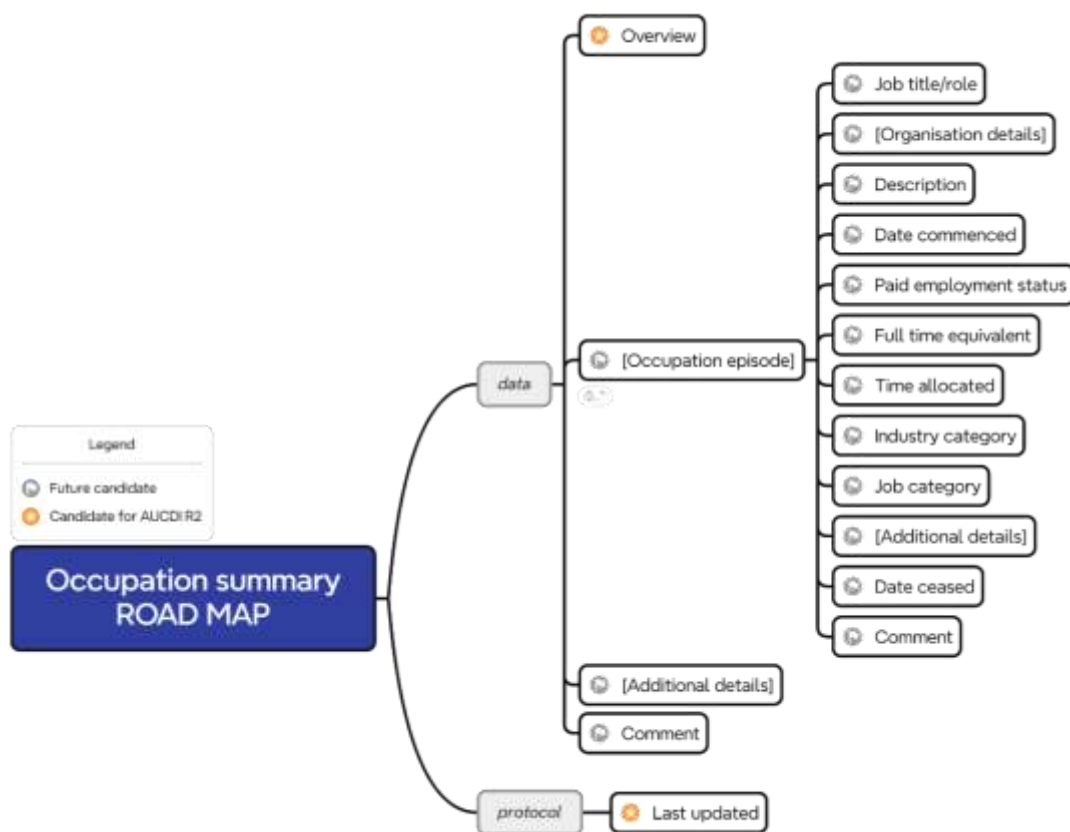

Figure 41. Occupation summary - Proposed roadmap.

8.8.7. Education summary

8.8.7.1. Data group context

Table 39. Education summary - Data group context.

Concept description	Summary information about an individual's formal learning and training experiences.
Purpose	To record summary information about an individual's educational background and current learning activities
Representation	Record one instance education update within a health record; changes or update over time are captured as a revision rather than a new entry.

Considerations for use	• This data group can be extended to provide a repeatable 'Education record', as a structured summary about each current or past education qualification or role.
	
	• This family of education-related data groups will support the provision of healthcare to the individual in a variety of ways, including, but not limited to:
	
	    o Supporting SDOH initiatives by recognising the impact of education on health and social outcomes.
	    o Assessing cognitive abilities and literacy levels to improve health communication and decision-making,
	    o Identifying education-related stress, mental health challenges, or learning disabilities,
	    o Guiding rehabilitation planning related to education and vocational needs,
	    o Directing return-to-learning or return-to-work programs following injury or illness, and
	    o Identifying barriers to care, such as language proficiency or health literacy.
	• In future updates, it is anticipated this data group will be extended to incorporate additional detail.

Misuse	Not to be used to record information about health education provided to individuals by healthcare providers – use the 'Health education' data group for this purpose.
References	• Education summary, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-09]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.3184. • Education record, Published archetype [Internet]. openEHR Foundation, openEHR Clinical Knowledge Manager [cited: 2025-02-09]. Available from: https://ckm.openehr.org/ckm/archetypes/1013.1.3718.

8.8.7.2.   Concept representation

Figure 42. Education summary - Concept representation.

8.8.7.3.   Information model

Table 40. Education summary - Information model.

Data elements		
Overview	Description	Narrative description about the overall education or training history of an individual.
	Occurrence	Optional, single occurrence
	Data type	String
	Considerations	None
Highest level completed	Description	A classification of the most advanced degree, certification or level of schooling an individual has obtained.
	Occurrence	Optional, single occurrence
	Data type	CodeableConcept
	Recommended code system/value set	SNOMED CT-AU is the preferred clinical terminology in Australia, however, there is currently no NCTS value set recommended for this data element.
	Examples	Australian Standard Classification of Education (ASCED): • Doctorate degree • Master degree • Graduate diploma or certificate • Bachelor degree • Diploma or Advanced diploma • Certificate I, II, III or IV • Junior or Senior secondary education • Primary education • Pre-primary education Note: The ASCED classification can provide further granularity if required

	Considerations	Use of a clinical terminology is recommended whenever possible. Free text entry should be allowed only when an appropriate coded value is not available.
Last updated	Description	The date when this 'Education summary' data group was last updated.
	Occurrence	Optional, single occurrence
	Data type	dateTime
	Considerations	For example: • 7 February 2015 • 7 February 2015, 1:28 pm • 2015-02-07T13:28:17-05:00

8.8.7.4. For future consideration

It is expected that this data group will evolve over time to add more data elements about the individual's educational background. It may also be extended with an additional 'Education record' data group that captures summary details of each of educational achievement, milestone or qualification.

The published openEHR 'Education summary' archetype serves as the basis for this initial AUCDI R2 data group and provides additional guidance for potential augmentation in future releases.

The mind map below outlines a proposed development roadmap for ongoing the 'Education summary' data group, based on the openEHR 'Education summary' archetype. The framework of the mind map demonstrates the data elements that describe overall current situation and highest level of education attained, plus the more detailed 'Education record' archetype that can capture additional details about each discrete episode of education, both full-time and part-time, current and past.
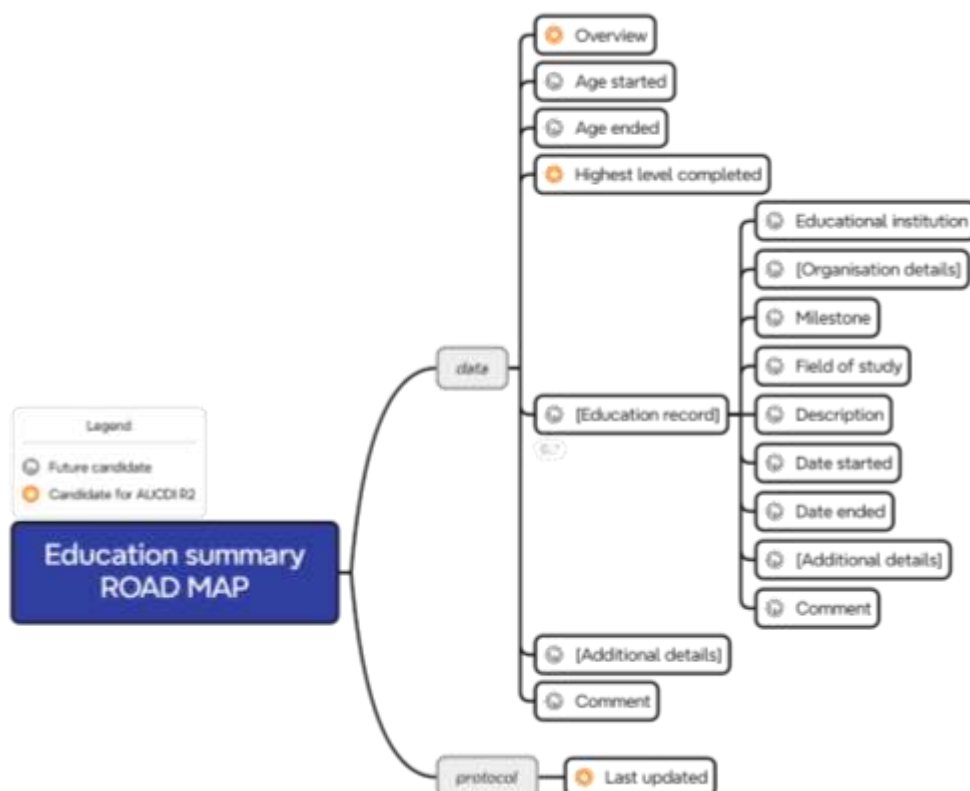

Figure 43. Education summary - Proposed roadmap.

Appendix 1: Follow-up, recall and reminders

As part of developing AUCDI R2 to support Chronic Condition Management (CCM), a fundamental aspect was understanding how the terms 'follow-up', 'recall' and 'reminder' are applied in routine clinical practice. Initial discussions revealed that these terms are often used inconsistently, interchangeably, and sometimes incorrectly.

Building on work initiated by the RACGP[16], the Sparked CDG was consulted to develop working definitions that clearly distinguish each term from another. This clarification will ensure that related AUCDI data groups can be built and implemented consistently within electronic health records.

The following three working definitions developed are:

Follow-up is the process of delivering ongoing, intentional care by a healthcare provider, beyond the initial encounter or intervention.

Follow-up is typically used to track progress, manage ongoing treatment, and assess the outcomes of previous interventions. This process commonly involves scheduling one or more follow-up activities at intervals recommended by the healthcare provider, each tailored to the condition and specific needs of the individual.

The service request data group can be used for follow-up as it contains the necessary information to support the follow up process and practical application.

For example: a single six-week post-surgery check-up to assess healing and recovery; 6 monthly liver function tests after commencing a hepatotoxic medication; regular 3 monthly visits with a podiatrist to manage long-term foot care; or a palliative care nurse making twice-daily home visits until the end of an individual's life.

A recall is an intentional action, verified by a clinician, to actively address an emerging health concern in an individual.

A recall is typically associated with the detection of a potential health need or risk since the last appointment or contact, and the recall advice is sent or given to the individual with the intent they receive the necessary follow-up care to effectively and safely manage or monitor their health.

For example: if an abnormality is found in test results, the individual may be recalled for additional testing or treatment.

A reminder is a clinical or administrative notification sent to the individual, or their caregiver or healthcare provider, to assist in managing scheduled, routine, or preventive health and care activities.

A reminder is typically an automated or system-generated message, such as email or text, that proactively help individuals, carers, and families stay up to date with regular preventive health activities and appointments.

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[16] Royal College of General Practitioners (RACGP) Standards for general practices 5th ed.(2023) available from https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/general-practice-standards/gp-standard-2/criterion-gp2-2-follow-up-systems

For example: reminding the individual about routine vaccinations; or regular cancer screenings that are due or scheduled.

In AUCDI R2:
- The 'Service request' will be a broadly reusable data group that will support a wide range of follow-up activities. It is anticipated that further investigation will identify the need for additional data groups to accommodate more specific types of follow-up.
- Requirements for a standardised approach to recalls and reminders at the national level have not yet been determined and therefore have not yet been proposed as data groups. Instead, Recalls and Reminders have been placed on the backlog for future exploration and evaluation.

Appendix 2: Design of the 'Intervention' family of data groups

Significant structural enhancements have been necessary in the initial intervention data groups, specifically the Procedure and Vaccination models, to improve the documentation of intervention-related activities in electronic health records and to support detailed tracking of their progression, especially within a shared or distributed care plan.

These enhancements include the introduction of a set of state-related attributes that both incorporate and expand upon the initial 'completed' state established in the initial AUCDI R1 Procedure and Vaccination data groups. A comprehensive set of state-related attributes is proposed, organised into two levels of detail: the first introduces a standardised set of universal state categories, known as 'ISM states', while the second level provides more granular details specific to each clinical activity necessary for carrying out an intervention, known as 'careflow steps'. This addition will support the documentation and tracking of data-related events relevant for any clinical intervention or activity along a clinical pathway, from initiation thought to completion. The resulting health record will contain essential information against each clinically or medicolegally relevant event along a clinical pathway, including the capacity to document deviations from the expected pathway and the reasons for these deviations.

1. ISM states (universal categories) – a standardised set of states which draws from, and closely aligned to, openEHR's Standard Instruction State Machine (ISM)[17].
   The ISM states define an agnostic model for documenting clinically relevant data in an electronic health record and tracking progress transitions from state to state along an anticipated care pathway. For example, the ISM state transitions support tracking a procedure from the initial 'Planned' state to 'Scheduled', then on through 'Active', eventually marking the procedure as 'completed'. It also supports documentation of any deviation from the anticipated workflow which is common in clinical practice. For example: a 'Planned' and 'Scheduled' procedure for insertion of ear grommets in a child with chronic otitis media may diverge to a different and more significant actual procedure performed after examination of the child's ear under anaesthesia, so the actual procedure 'Completed' is varied or adjusted as necessary as part of clinical workflow.
   Within the FHIR specifications, this ISM approach is echoed in the 'Procedure.status' attribute of the Procedure FHIR resource.

2. Careflow steps – identify events along a clinical pathway'. Each 'careflow step[18] is associated with a relevant ISM state. A single ISM state may comprise multiple careflow steps. These steps are customised for each data group, representing events that are significant from a clinical or medicolegal perspective, where clinicians and other contributors are required to document data in the health record. The data captured at each careflow step enables subsequent querying to monitor progression along the clinical pathway.

The openEHR technical ISM states can be viewed within the openEHR Procedure archetype[19] and the status data element can be viewed in the FHIR Procedure profile[20]. As an example, an expanded version of the proposed Procedure roadmap from Figure 44, featured below, now includes the

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[17] openEHR Standard Instruction State Machine [Internet]. EHR Information Model (2020); openEHR International. Available from: https://specifications.openehr.org/releases/RM/latest/ehr.html#_the_standard_instruction_state_machine_ism

[18] Careflow Process to State Machine Mapping Machine [Internet]. EHR Information Model (2020); openEHR International. Available from: https://specifications.openehr.org/releases/RM/latest/ehr.html#_careflow_process_to_state_machine_mapping

[19] https://ckm.openehr.org/ckm/archetypes/1013.1.204

[20] https://hl7.org.au/fhir/core/0.2.1-preview/StructureDefinition-au-core-procedure.html

generic ISM states along with the related Procedure-specific careflow steps. Note that in some instances more than one careflow step may be necessary per ISM state.

The ISM states are depicted in grey hexagonal shapes and will be consistent across all Intervention data groups that are based on the openEHR ACTION class of archetypes. Procedure-specific careflow steps have been assigned to each ISM state. By default, the 'Date/time' and 'Reason' for transitioning to a new state will be available for recording against each careflow step, along with any or all of the relevant data elements from the 'data' grouping in the mind map.
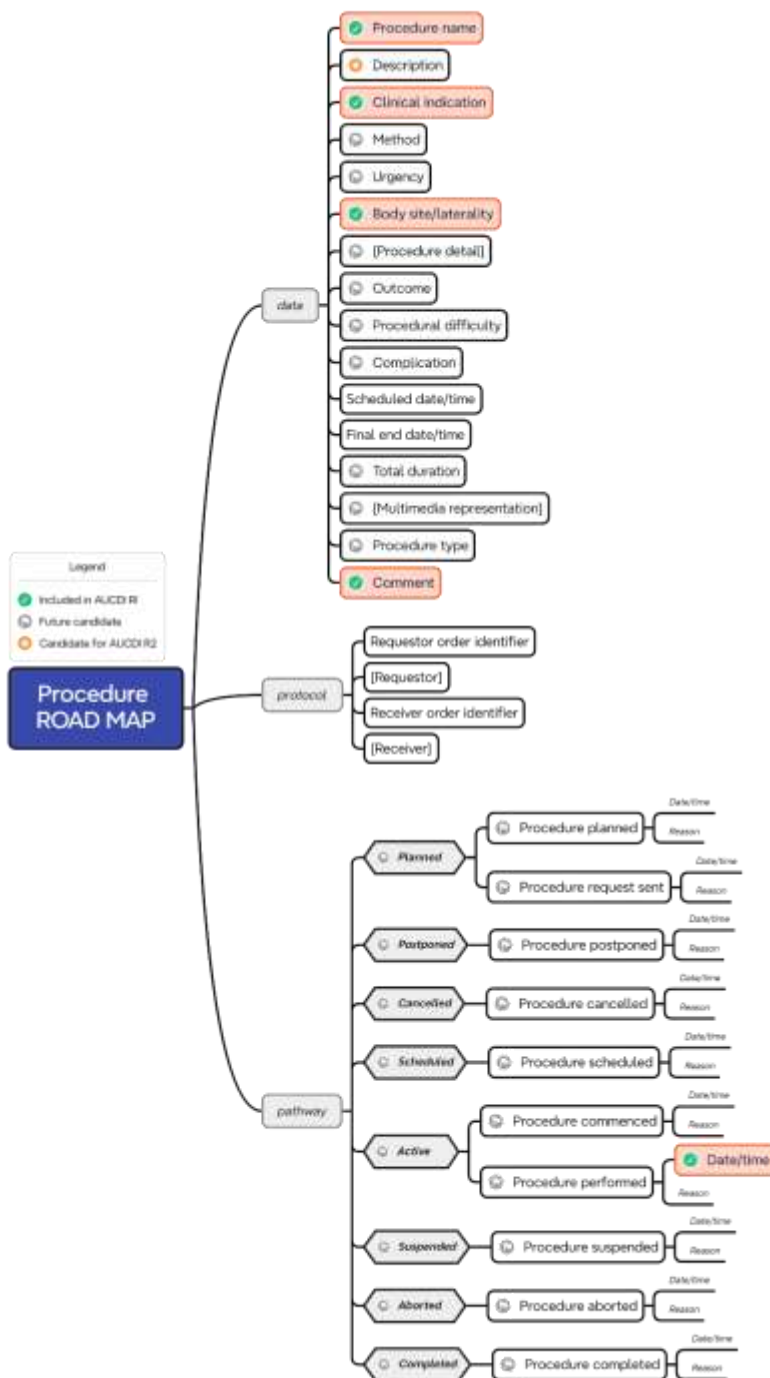

Figure 44. Proposed Procedure Road Map including ISM states.