

National Health Information Model, Version 2

Background information

The National Health Information Model (NHIM) provides a means of structuring and organising information within the health sector. The development of Version 2 of the NHIM marks a change from an Entity-Relationship model in Version 1 to a high-level, relationship-free, multi-business framework. This was in recognition of the NHIM's general acceptance as a high-level framework and the need for multi-layering of the modelling process. That is, the change reflects the importance of the consistent identification of entities at the national level, and the greater importance of relationships or business rules at lower levels.

The NHIM is an 'information model', i.e. it is independent of process. In other words, it is not concerned with 'how' something happens, but rather with the information structure underlying the diverse processes and policies of health care delivery in Australia. By understanding the structure of health information resources, we are better able to exploit the information these resources contain. It is a 'conceptual model' aimed at establishing an agreed high-level structure, thus enabling the identification and description of broad entities and providing a framework for the development of more detailed subordinate models.

As a national framework, the NHIM enables related data elements from the Dictionary to be grouped under a single entity rather than organised alphabetically. Entities are the things that we need to know information or hold data about. Entities may be people, places, objects, events or concepts. The Knowledgebase uses this aspect of the NHIM as the conceptual gateway to locate, identify and download data elements.

The 12 major super-entities of the NHIM can be loosely organised into four categories; Parties and states, State-changing events, Environmental factors and Classifying systems. The coverage and importance of particular entities can be assessed by the population of an entity with data elements. For example, if there are few or no data elements for some model entities, this may be helpful in identifying areas for further development or in reassessment of the structure of the NHIM. Version 2 of the NHIM contains more entities than Version 1 largely because of the development of several sector-specific contextual models such as the National Community Services Information Model, the Disability and Aged Care Model, the Primary and Community Health Services National Information Model, the National Institutional-Based Ambulatory Care Model and the Community Health Information Model.

There is increasing interest in use of the NHIM as the main tool for standardising health and welfare information in Australia. This includes potential use of the NHIM for developing electronic data, designing information systems and as a framework for the consistent collection, storage and transmission of data. The next 3 to 5 years are expected to prove a watershed for the NHIM, with significant national health information development projects, including electronic health records, being actively pursued. There are a number of current developments that could see the application of the NHIM as an overall model for context-specific models, such as the HL7 Reference Information Model, the Good Electronic Health Record (GEHR), as well as forming the basis of other health information developments such as Health Online and HealthConnect, and the work of the National Electronic Health Records Task Force. The NHIM will have to continue to prove its worth and utility in these projects, and will need to continue to learn from and develop with them in order to remain at the forefront of this work.

The development of Version 2 represents a significant period of consolidation and maturity for the NHIM, allowing it to progress from an initial concept and design to a better-proven and more robust architecture. The likelihood is that this pressure for enhancement and development will need to continue at a more rapid pace in the near future. Greater alignment between the projects under the Health and Community Services Information Management Groups will highlight the need for common information structures. The NHIM could act as a tool for building consensus, assisting business planning, providing logical frameworks and influencing application development across human service sectors.

Although models can improve information resource use and management in many ways, they are not substitutes for sound data development practice and management. Equally, there is no single best model for health or for any business activity. The best conceptual models continue to be challenged and supported by contextual level models while accommodating the technical and semantic diversity that generates them.

The Model diagram

The following page is a diagrammatic portrayal of the National Health Information Model, Version 2.

National Health Information Model

Version 2.0

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Party Characteristic

- Person Characteristic
 - Demographic characteristic
 - Physical characteristic
 - Labour characteristic
 - Lifestyle characteristic
 - Social characteristic
 - Education characteristic
 - Parenting characteristic
 - Accommodation characteristic
 - Cultural characteristic
 - Insurance / benefit characteristic
 - Legal characteristic
 - Other person characteristic

State of health and wellbeing

- Aggregate health and wellbeing
 - Component health and wellbeing
 - Health status
 - Physical wellbeing
 - Mental wellbeing
 - Functional wellbeing
 - Social wellbeing
 - Economic wellbeing
 - Cultural wellbeing
 - Spiritual wellbeing

Person view

- Attitude
- Belief
- Expectation
- Value

Party group characteristic

Organisation characteristic

Location

Location group

- Location element
 - Address element
 - Geographic standard

Setting

- Organisational setting
- Service delivery setting
- Other setting

Expenditure

- Capital expenditure
- Recurrent expenditure

Outcome

- Stated outcome
- Expected outcome

Need / issue

Care plan

Party

- Person
- Party group
- Organisation
 - Legally constituted organisation
 - Organisation sub-unit

Party role

- Party relationship role
- Person role
 - Citizen role
 - Family member role
 - Carer role
 - Advocate role
 - Resource role
 - Other person role
- Party group role
- Organisation role
 - Service funder role
 - Service purchaser role
 - Other organisation role
- Recipient role
- Service provider role
- Research role
- Other role

Event

Person event

- Birth event
- Life event
 - Self harm event
 - Crisis event
 - Illness event
 - Acute event
 - Non-acute event
 - Injury event
 - Other crisis event
 - Other life event
- Death event

Health and welfare service event

- Advocacy event
- Assessment event
- Education event
- Exit / leave from service event
- Other health and welfare service event
- Payment / contribution event
- Planning event
- Request for / entry into service event
- Screening event
- Service provision
- Surveillance / monitoring event

Other event

- Legal status event
- Community event
- Environmental event
- Research event

Business Factors

Business statement

- Health and welfare policy / plan
 - Vision / mission
 - Goal / objective
 - Priority
 - Performance indicator
- Other policy / plan element

Business program

- Health and welfare program
- Health and welfare program element
 - Program strategy
 - Program activity
 - Program evaluation

Business agreement

- Funding agreement
- Employment agreement
- Other agreement

Performance goal

- Benchmark
- Standard

Enabling factors

Resource

- Aggregate resource
- Specific resource
 - Material resource
 - Financial resource
 - Human resource
 - Information resource

Other enabling factor

- Knowledge factor
- Accessibility factor
- Availability factor

Environmental Factors

Physical environment

- Natural environment
- Built environment

Social environment

- Judicial system
- Educational system
- Community organisation
- Other social environment