

# Terminology for Well Child Services: Mapping Plunket terms to SNOMED CT

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## Abstract

*The key vision for the new client information system for Plunket (PlunketPlus) is to improve the health outcomes of New Zealand families. One way this will be achieved is through PlunketPlus being interoperable with systems of other providers of services to the families. To enable interoperability and data sharing between systems, and to allow comparability, and consistent interpretation of information it is important that PlunketPlus uses a terminology standard that can be understood directly by other systems or mapped to terminologies of other systems. This paper describes the process that Plunket has followed regarding the selection of the terminology to be used in PlunketPlus.*

## 1. Introduction

PlunketPlus is the new information system for Plunket. Improving health outcomes is one of the key focuses for PlunketPlus and successful interoperability with both internal and external systems was identified as a key function that would help in this aim. The terminology that PlunketPlus is based on will be one of the factors that determine the success of the interoperability. The terminology will also enable the comparability and consistent interpretation of Plunket's data.

Plunket developed a data dictionary in 1996 for their national database (POND). In 2004 this was expanded to include definitions for all the clinical information, including that collected on paper through the Plunket Health Record. The definitions are based on wellness and child development from the nursing point of view.

During the early 2000's the Ministry of Health based their Well Child definitions for the Well Child Framework [1] on the Plunket Data Dictionary.

SNOMED CT is now the preferred terminology chosen by the Ministry of Health.

We asked these questions of ourselves

- How many of our definitions would map to a recognised standard?
- More importantly, could this data dictionary be used as a basis for PlunketPlus now that we understood the need to map to a nursing terminology?

## 2. Process

During 2009/2010 Plunket began looking at different nursing terminologies to see how their Well Child definitions would fit. In particular we looked closely at The Omaha System. 'The Omaha System is a research-based, comprehensive classification designed to generate meaningful data following documentation of client care. The Omaha System is intended to have characteristics of a sound terminology' [2]. Omaha has an advantage of being able to measure the difference the service could provide to a population; however the system was based on clinical problems rather than wellness indicators, and did not cover all our groupings of information.

Where next? We needed a systematic approach but how? It was decided that we did not have enough knowledge within Plunket and we needed expert assistance to identify all the options to enable us to choose a solution to terminology dilemma.

Plunket had discussions with Anne Casey an international expert in nursing terminology who has an understanding of Plunket's work. On Anne's recommendation Plunket approached Nicholas Hardiker, from the University of Salford School of Nursing & Midwifery to develop a paper which would identify the process that Plunket should follow to identify the best possible terminology base for PlunketPlus. Nicholas was forwarded information on PlunketPlus and the current data dictionary.

Nicholas's paper was of great assistance in identifying a way forward. Nicholas provided Plunket with 3 options:

1. Use of free text
2. Adopt an existing terminology
3. Develop a terminology in-house and map to an external source

To assist us with making the decision he recommended a 5 step process

1. Refine the existing data dictionary. To assist with this we needed to identify what information would be used in reporting and data sharing; and what information would only be used locally. This would clarify the purpose and scope of the information collected.
2. Undertake an analysis against recognised nursing terminologies and SNOMED CT.
3. If one matches undertaken a more in depth evaluation.
4. If no match then develop a bespoke terminology with mapping to an existing terminology.
5. Make a decision on the most useful and usable terminology

### **3. Action Taken**

Plunket then asked Kay Poulson from Help4U, to undertake the refining of our data dictionary and undertake an analysis against recognised terminologies. This work was undertaken with assistance from a Plunket Clinical Advisor and in conjunction with the Business Analyst from Intrahealth, the provider for PlunketPlus.

The Well Child data dictionary needed cleaning up in several ways including:

1. Updating to fit the new Well Child Framework and Contract
2. The identification of information to be used locally, or nationally for reporting and data sharing
3. Defining how this information would be collected by drop down lists or by using check boxes or other electronic alternatives
4. The data dictionary needed to be able to help create ways of measuring if PlunketPlus does make a difference to the health of New Zealand families.
5. The data needed to be collected in such a way that it could be reported on

### **4. Findings of analysis**

There are over 930 components to the Well Child Data Dictionary which needed to be mapped to SNOMED

It emerged that the majority of the Well Child Dictionary definitions did map to SNOMED CT and met most of our terminology needs. It was decided that Plunket would use their Well Child Definitions mapped to SNOMED CT, with consideration to also using Omaha as a classification system. An example of mapping Well Child Entities to SNOMED CT is given in Appendix 1.

Before the decision of the classification system is made we need to map the definitions used by Plunket services other than Well Child. These includes parenting education and support service, postnatal adjustment programme, antenatal education, breastfeeding support and immunisation outreach. Work is commencing on mapping the definitions. Once these definitions are mapped a decision will be made regarding the use of the classification system. Potentially this would mean that we could then use the same classification for all Plunket services.

### **5. Conclusion**

It is important that we get the terminology right to assist not only with interoperability but also so we can compare data with other service providers locally and internationally, and to make our reports usable by others.

Plunket is working hard on terminology to ensure that PlunketPlus will be interoperable with the systems of other providers of service to families and so improve the services to and outcomes for those families. This involves reviewing Plunket terminology and using agreed national terminology standards. This work will be ongoing as documenting the health and well being of families grows in complexity as technology and interoperability processes evolve.

## **6. References**

- [1] Ministry of Health. *Well Child / Tamariki Ora Framework*. Wellington, New Zealand. 2002
- [2] Martin KS. *The Omaha System: A Key to Practice, Documentation, and Information Management*. 2<sup>nd</sup> Ed. Elsevier Inc, 2005

## Appendix 1 – Example of mapping of Plunket Well Child Dictionary to SNOMED

Plunket Well Child Entity	Data Items	Potential Data Elements That Make up Data Items (as reference in Plunket Description)		Purpose / Classification of Data Element	Purpose / Definition of Data Element	Type	Format	Snomed Mapping (examples only not exhaustive)
Client Contact	Health education	Reference Table 3 – Education recipient	Name	Identification	Distinguish recipient of intervention received	Reference Table	Drop Down	*
Client Contact	Caregiver attending with child	Relationship = Reference Table	Relationship to child	Identification	To identify the relationship of the adult responsible for child at contact	Reference Table	Display	Position of child in relation to adult (finding) [301057000]
Client Contact	Caregivers view	Relationship = Reference Table	Relationship to child	Identification	To identify the relationship of the adult responsible for child	Reference Table	Display	Position of child in relation to adult (finding) [301057000]
Family Data	Health information consent	Role of person giving consent	Relationship to child	Identification	To distinguish adult responsible for child at contact	Reference Table		Position of child in relation to adult (finding) [301057000]
Caregiver Client	NHI	Searchable – NHI search	NHI	Identification	To identify individual	Reference Table		Patient-related Identification code (observable entity) [422549004]
Child Client	Mother	Tick box – if primary parent / caregiver (can be joint with father)	Relationship to child	Identification	To indicate primary adult role	Boolean	Tick box	Position of child in relation to adult (finding) [301057000]
Child Client	Legal Guardian	Tick box – if under CYF care	Relationship to child	Identification	To indicate primary adult role	Boolean	Tick box	Child protection register (qualifier value) [229054004]
Child Client	Legal Guardian	Tick box – if under legal guardian	Relationship to child	Identification	To indicate primary adult role	Boolean	Tick box	Legal guardian (person) [58626002]
Child Client	Parent/caregivers	Tick box – primary caregiver	Relationship to child	Identification	To indicate primary adult role	Boolean	Tick box	Position of child in relation to adult (finding) [301057000]
Caregiver Client	Alternative contact name		Name	Identification	Document name of adult	Free text		*
Client Contact	Immunisation Provided	Flag – abnormal reaction	Risk factor	Indicator	To highlight potential adverse effect	Boolean	Display	Abnormal patient reaction (finding) [102476007]
Client Contact	Adult only	Flag – adult only	Encounter Type	Indicator	To highlight non-standard Well Child visit	Boolean	Display	Adult care (regime/therapy) [408993005]
Client Contact	Health seeking behaviour	Flag – behaviour poses risk to child	Risk factor	Indicator	To highlight potential risk to child	Boolean	Display	Health seeking behavior (observable entity) [405080002]
Child Client	Legal Guardian	Flag – default if primary caregiver	Relationship to child	Indicator	To highlight primary adult responsible for wellbeing of child	Boolean	Display	Position of child in relation to adult (finding) [301057000]

Plunket Well Child Entity		Potential Data Elements That Make up Data Items (as reference in Plunket Description)		Purpose / Classification of Data Element	Purpose / Definition of Data Element	Type	Format	Snomed Mapping (examples only not exhaustive)
Family Data	Family support	Flag – if no family supports selected	Risk factor	Indicator	to highlight special needs of family	Boolean	Display	Risk factor (observable entity) [80943009]
Client Contact	Safety assessment	Flag – if safety concern present	Risk factor	Indicator	To highlight potential risk to child	Boolean	Display	Risk factor (observable entity) [80943009]
Caregiver Client	first time parent	Flag – if ticked	Risk factor	Indicator	to highlight special needs of family	Boolean	Display	Risk factor (observable entity) [80943009]
Child Client	GP	Flag – is primary health care provider	Relationship to child	Indicator	To highlight primary adult responsible for wellbeing of child	Boolean	Display	Position of child in relation to adult (finding) [301057000]
Child Client	Father	Flag – primary caregiver (if only one tick box)	Relationship to child	Indicator	To highlight primary adult responsible for wellbeing of child	Boolean	Display	Position of child in relation to adult (finding) [301057000]
Client Contact	Smoking in house	Flag – smoking in house (defaults from smoking exposure location)	Risk factor	Indicator	To highlight potential risk to child	Boolean	Display	Polluted environment (environment) [285127004]
Client Contact	Nutrition	Flag – special dietary requirements (default from dietary need)	Risk factor	Indicator	To highlight special needs identified	Boolean	Display	Risk factor (observable entity) [80943009]
Client Contact	Sleep / SUDI	Flag – SUDI risk factors present (default from preset combinations of above)	Risk factor	Indicator	To highlight potential risk to child	Boolean	Display	At risk for sudden infant death syndrome (finding) [392562007]
Family Data	Transport	Flag if car seat not appropriate	Risk factor	Indicator	To highlight potential risk to child	Boolean	Display	Risk factor (observable entity) [80943009]
Family Data	Residence / dwelling / accommodation	Flag if residence not appropriate	Risk factor	Indicator	To highlight potential risk to child	Boolean	Display	Risk factor (observable entity) [80943009]