



# Malaysian Health Reference Data Model (MyHRDM)



# MyHRDM 1.1

## Malaysian Health Reference Data Model (MyHRDM)

Editors

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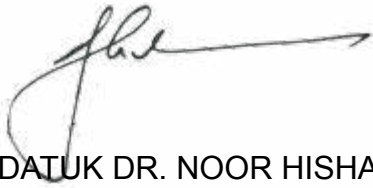
## **Foreword by** **Director-General of Health Malaysia**

Malaysia Health Reference Data Model (MyHRDM) was developed among others to enable interoperability between various health information system in Malaysia. When different health information systems refer and adopt similar high-level national data model, health data can be linked across the continuum of care, be it in public or private sectors. The exchange of information across these health information systems will allow the Ministry of Health Malaysia to gain a holistic overview of the quality of healthcare services given to and received by our patients.

This MyHRDM document demonstrates how key concepts in healthcare are consistently and precisely defined, as well as how each of these concepts are related to one another. For example, documenting on the definition of “Organisation” and illustrating its relation to the different types of “Provider” and “Discipline” in medicine. A consensus approach will facilitate exchange of data and generation of information efficiently and with minimum degree of misunderstanding, which is especially required for both individual patient care and population health. A comprehensive view is needed to deliver quality care through proper health system planning, which can be achieved via periodic reporting, monitoring, and benchmarking at national and international levels.

The development of MyHRDM was initiated in 2013 based on the effective approach taken by the development of Reference Data Model from international experience. MyHRDM was further refined in 2015 where all concepts were utilized in the development of the Malaysian Health Data Warehouse (MyHDW) 1.0, *Sistem Maklumat Rawatan Perubatan* (SMRP) 2.0 and Patient Registry Information System (PRIS) 1.0. MyHRDM will continue to refine, evolve and grow as required.

Ministry of Health Malaysia would like to acknowledge all members who have contributed in the tremendous preparation of MyHRDM. This is a commendable achievement in the effort for an integrated health system. I hope that all future health related applications would refer to MyHRDM for their system development. It is hoped that in future, interoperability can be achieved between various health information systems to improve patient care and enhance healthcare system in our country.



DATUK DR. NOOR HISHAM B. ABDULLAH  
**DIRECTOR-GENERAL OF HEALTH MALAYSIA**

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## Acronyms

Acronym	Description
CIHI	Canadian Institute for Health Information
DW/BI	Data Warehouse/Business Intelligence
EDW	Enterprise Data Warehouse
ETL	Extract, Transform and Load
GIS	Geographic Information System
KKM	Kementerian Kesihatan Malaysia
MAMPU	Malaysian Administrative Modernization and Management Planning Unit Management
MyHDD	Malaysian Health Data Dictionary
MyHDW	Malaysian Health Data Warehouse
MyHRDM	Malaysian Health Reference Data Model
MyHIF	Malaysian Health Information Framework
MRO	Medical Record Officer
NOR	National Obstetrics Registry
PAS	Privacy Assurance Service
RDBMS	Relational Database Management System
RN	Running Number
SCD	Slowly Changing Dimension
SMRP	Sistem Maklumat Rawatan Pelanggan
SME	Subject Matter Experts
SRB	System Requirement Book
SQL	Structured Query Language
T&CM	Traditional and Complementary Medicine
VPI	Virtual Person Identifier

# 1. INTRODUCTION

## 1.1. Purpose

To support the development work of Malaysian Health Data Warehouse (MyHDW) 1.0, *Sistem Maklumat Rawatan Pelanggan* (SMRP) 2.0 and Patient Registry Information System (PRIS) 1.0 and the associated Conceptual Data Warehouse Architecture, it was necessary to establish an initial approved version of Malaysian Health Reference Data Model (MyHRDM) and make this available to the development team.

The initial development of MyHRDM concerns building consensus on key Concepts. A Concept, sometimes called an Entity, is related to a precise definition that is universally agreed on by the stakeholders involved, for example, Encounter and Visit; these concepts if agreed upon in various systems like SMRP, PRIS and TPC/OHCIS, will allow for the creation of a model that is repeatable and consistent in all the mentioned systems. By defining these two Concepts in a clear and agreed-upon manner we were able to build reporting and information products efficiently and with the minimum degree of misunderstanding. In addition, query questions that involve multiple Service Type such as the movement of patients from Inpatient to Rehabilitation services for example, will be easier to perform in contrast to not having the model.

It should be noted that an often-overlooked assumption associated with these types of data models is that in addition to providing standardised business definitions these are ultimately intended for deployment in Relational Database Management Systems (RDBMS) such as Oracle or SQL Server. This fact combined with the mathematical precision of the models explains the importance of these types of structures when building data centric systems. Until recently, for the last 30 to 40 years, nearly all serious system development involving large amounts or complex data have utilised RDBMS's and thus the need for modelling to ensure these are defined in an efficient, internally consistent and high performing manner. With the advent of newer technology such as Hadoop, Graph Databases, Document Databases etc. over the last while, real alternatives to RDBMS's are now viable, that said, at

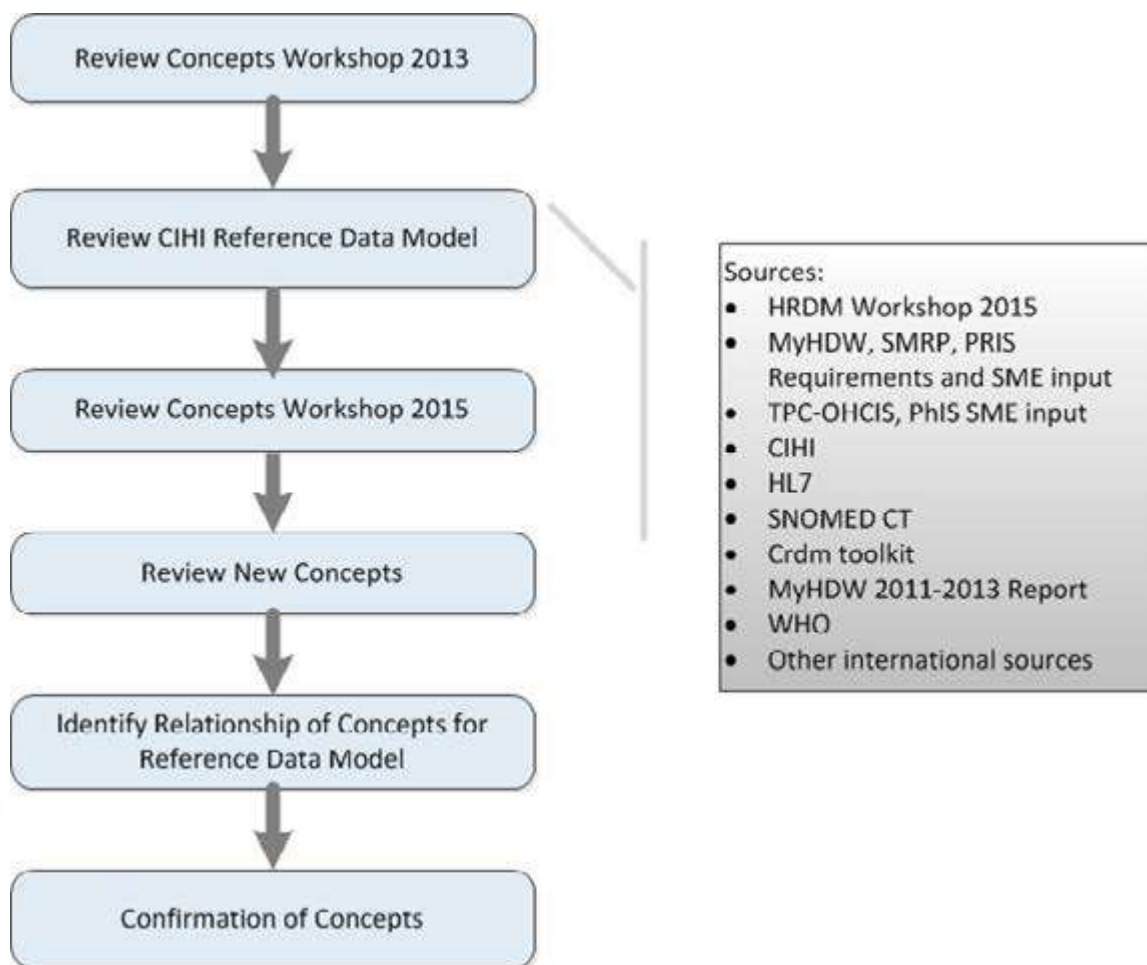
the time of writing they are still used for the majority of deployments and hence the need for Entity/Relation (E/R) data models. While there is also a movement within the industry towards increasing use of semantic relationships (semantic web, ontology models, Resource Description Framework (RDF) etc.) it is likely that traditional structured data as expressed through data models and databases will sustain and work as part of a broader environment including these semantically integrated data sources. As such ongoing maintenance and development of a minimum set of core structure data concepts will still be required and the ongoing maintenance and development of MyHRDM is planned. In 2013 an initial exercise was undertaken to build the HRDM and define several concepts to support this as part of a MyHDW workshop. This work was successful within the confines of an exploratory workshop but required further work to complete to a level consummate with use in the development of deployable solutions such as those which are the topic of this report.

## **1.2. Method**

MyHSDRM adhered to the published MyHDW 2011-2013 Blueprint (See *Appendix 3: MyHDW Framework and Appendix 4: MyHDW Phases*) based on utilizing existing standards such as Malaysian Health Data Dictionary (MyHDD). In the establishment of the artifact, we engaged Subject Matter Experts (SME) from Health Informatics Centre (HIC) of Planning Division, Information Management Division, Oral Health Division, Teleprimary Care of Family Health Division, Pharmacy Division, MAMPU and MIMOS to obtain the precise definition of the concepts related to Malaysian Healthcare System. In addition, the artifact also uses Canadian Institute for Health Information (CIHI) reference data model toolkit<sup>1</sup> (CRDM) as template to supplement the development of MyHRDM. The approach taken to formulate the reference data model is shown in Figure 1.1.

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<sup>1</sup> Canadian Institute for Health Information (CIHI). CIHI Reference Data Model (CRDM) toolkit. 2016. [https://www.cihi.ca/sites/default/files/crdm\\_toolkit\\_2016\\_en.pdf](https://www.cihi.ca/sites/default/files/crdm_toolkit_2016_en.pdf)



**Figure 1.1: Approach of MyHRDM formulation**

Firstly, a three-day workshop session with SME is conducted to establish a precise definition and relationship of the models in AnCasa Hotel, KL from 4-6 November 2015. See *Appendix 2 for details of workshop participants*. The participants were given some initial data modeling training. In order to ensure active participation from participants, the workshop has a single group of participants to actively decide on the precise context of the definition. In the workshop, data model diagrams of possible relationship of the concepts were developed to facilitate the workshop in an effective manner. The data model diagrams helped participants visualised the relationship of the concepts and assist the SME in giving the precise input for the concepts relationship which helps defined the MyHRDM. During the workshop, the following concepts were discussed and refined as in Table 1.1.

Subsequently, we conducted a second workshop session with SME from TPC-OHCIS to establish a precise definition and relationship of TPC-OHCIS and PhIS new concepts into MyHRDM models in MIMOS, KL from 2<sup>nd</sup>, 3<sup>rd</sup> and 7<sup>th</sup> December 2015. *See Appendix 4 for details of workshop participants.* The participants were first presented with the concepts definition given in the first MyHRDM Workshop. The participants were actively encouraged to participate in reviewing the concepts and to ensure the concepts also have the same understanding as in TPC-OHCIS as well as integration to PhIS. Subsequently, upon completing and confirmation of the first MyHRDM workshop concepts definition and relationship, the participants were guided by Dr. Khadzir (PIK) and Mark Fuller (consultant) on the approach in identifying new concepts for the integration of TPC-OHCIS and PhIS to MyHRDM data model. A total of 20 new concepts were identified and defined during the second MyHRDM workshop. During the second workshop, the relationships of the new concepts were not defined yet. A subsequent workshop is planned for establishing the relationships of the new concepts. However, in order to help establish the visualisation of the relationships of the new concepts, the committee pre-established the new concepts relationships (highlighted in red) into the MyHDRAM data model. The details of the concepts and diagram were given in Section 2 and Section 3 respectively. The listing of the agreed concepts and new concepts for the integration of TPC-OHCIS and PhIS are as in Table 1.2.

In addition, a set of use cases or questions with new concepts on Episode of Care and Episode of Health Condition has been formulated with SME to help clarify these concepts.

**Table 1.1: List of Concepts from MyHRDM Workshop 1/2015.**

<b>Concepts Defined and Agreed</b>	<b>Concepts Removed</b>
<b>Standard Assessment</b>	Admission
<b>Client</b>	Discharge
<b>Clinical Observation</b>	Incident
<b>Discipline</b>	Dead Person
<b>Donor</b>	
<b>Encounter</b>	
<b>Health service Event</b>	
<b>Intervention</b>	
<b>Newborn</b>	
<b>Next of Kin</b>	
<b>Organisation</b>	
<b>Person</b>	
<b>Place</b>	
<b>Programme</b>	
<b>Provider</b>	
<b>Service</b>	
<b>Speciality</b>	
<b>Visit</b>	

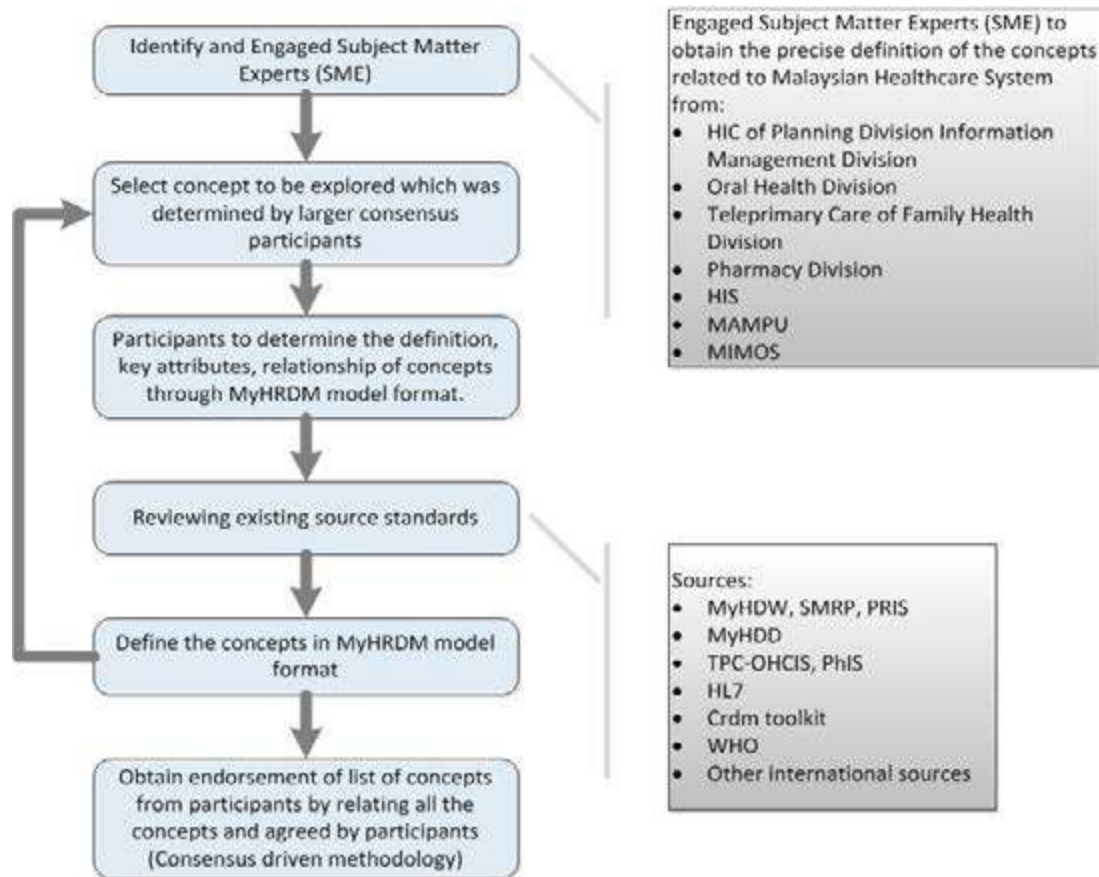
**Table 1.2: List of agreed concepts and new concepts from MyHRDM Workshop 2/2015**

<b>Concepts Defined and Agreed</b>	<b>New Concepts Defined</b>
<b>Standard Assessment</b>	<b>Emergency Contact</b>
<b>Client</b>	<b>Referral</b>
<b>Clinical Observation</b>	<b>Diagnostic And Imaging</b>
<b>Discipline</b>	<b>Immunisation</b>
<b>Donor</b>	<b>Lab Test</b>
<b>Encounter</b>	<b>Medication Prescribed</b>
<b>Health service Event</b>	<b>Medication Dispensed</b>
<b>Intervention</b>	<b>Maternal Health</b>
<b>Newborn</b>	<b>Provider Screening</b>
<b>Next of Kin</b>	<b>Nutritional Status</b>
<b>Organisation</b>	<b>Health Status</b>
<b>Person</b>	<b>Child Health Status</b>
<b>Place</b>	<b>Pre-school Health Status</b>
<b>Programme</b>	<b>School-going Health Status</b>
<b>Provider</b>	<b>Adolescent Health Status</b>
<b>Service</b>	<b>Adult Health Status</b>
<b>Speciality</b>	<b>Elderly Health Status</b>
<b>Visit</b>	<b>Episode</b>
	<b>Episode of Health Condition</b>
	<b>Episode of Care</b>
	<b>Rehabilitation (KIV)</b>



### 1.3. Development Approach of Concepts

The approach to concept development is illustrated and described below.



**Figure 1.2: Development Approach of concepts**

Concept selection is based on the following criteria:

- How many business areas use the concept?
- Is the concept significant? Is it associated with a priority area?

Subject matter experts (SMEs) from across MOH business areas provide their business requirements for the concept. External research was also conducted on how the concept was developed in MyHDD, WHO, CIHI, and others.

These were used to model the concept and draft the concept name, definition, relationships and associated metadata.

The SMEs were then consulted to confirm if the concept meets the needs of the business areas. The concept is refined based on input from the SMEs.

Once the SMEs have confirmed that the concept and associated metadata meet their needs then the concept is promoted for approval by the SMEs.

#### 1.4. Overview of MyHRDM document

Malaysian Health Reference Data Model (MyHRDM) consists of:

- Concepts - synonymous with Entity from E/R Modelling
- Relationships between the concepts

In addition, there is also metadata associated with MyHRDM that includes:

- **Concepts** - synonymous with Entity from E/R Modelling
- **Definition of Concepts**
- **Definition in MyHDD and additional source standards** – validate against other standards such as MyHDD, CIHI, WHO, etc whether there exists similar concept
- **Remark** – to help user further understand the concept by having use cases or examples
- **Synonyms** – similar concept definition but different concept name, eg: Concept client is synonymous with Patient.
- **Key attributes** – key information about each concept such as Identification for Person concept.
- **Relationships** – states the relationship between the concepts
- **Table Type** – There are two categories of table type:
  - Master Data concepts (labelled as “Masters”) were colored blue in the MyHRDM. Master data is synonymous with reference data
  - Transactional concepts (labelled as “Transactional”) were colored pink in the MyHRDM. Transactional Data is data about business events (often system transactions) that have historic significance or were needed for analysis by other systems

MyHRDM metadata is detailed in the MyHRDM Data Dictionary section of this document.



## 2.1. Client View

This view illustrates the core concepts and relationships associated with Client.

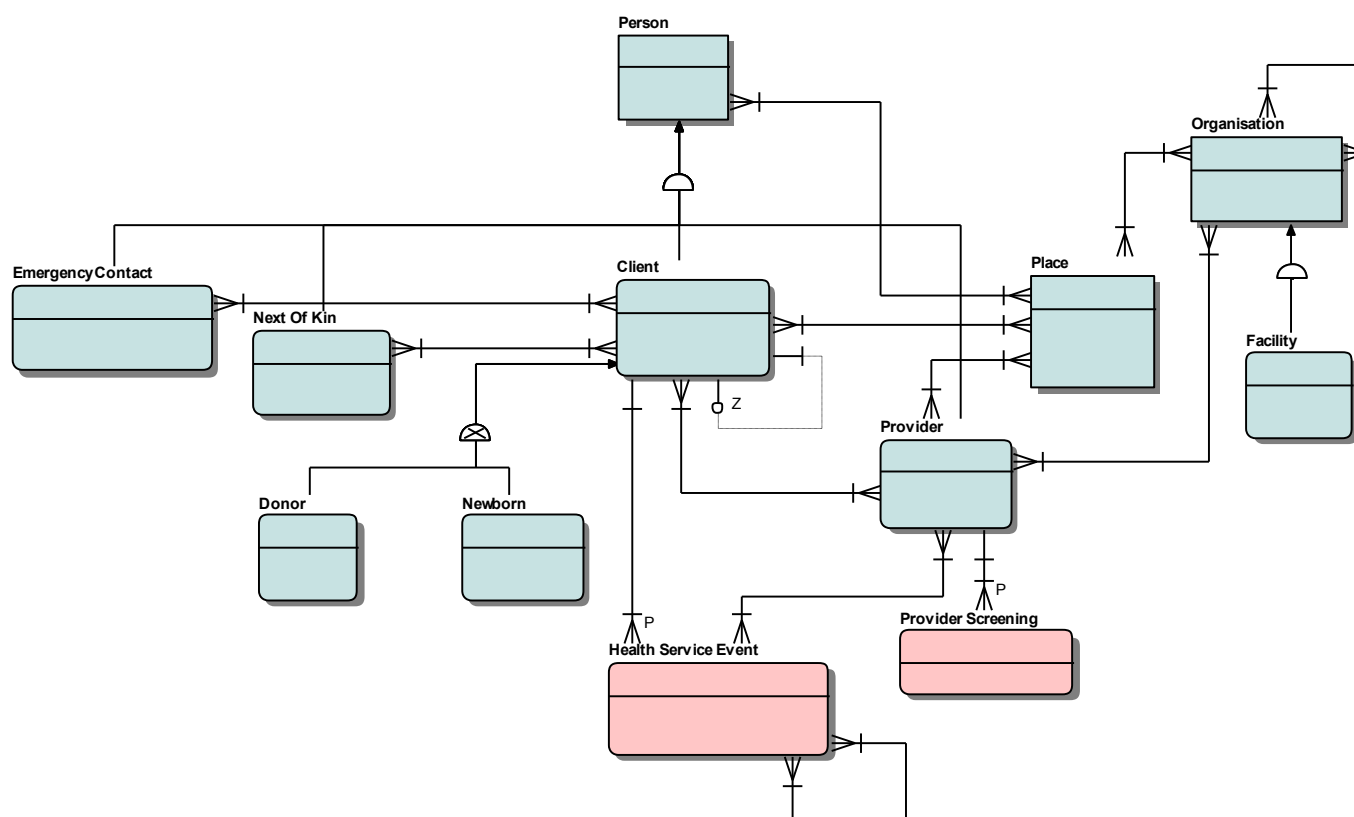


Figure 2.2: Client View

## 2.2. Provider and Organisation View

This view illustrates the core concepts and relationships associated with Provider and Organisation.

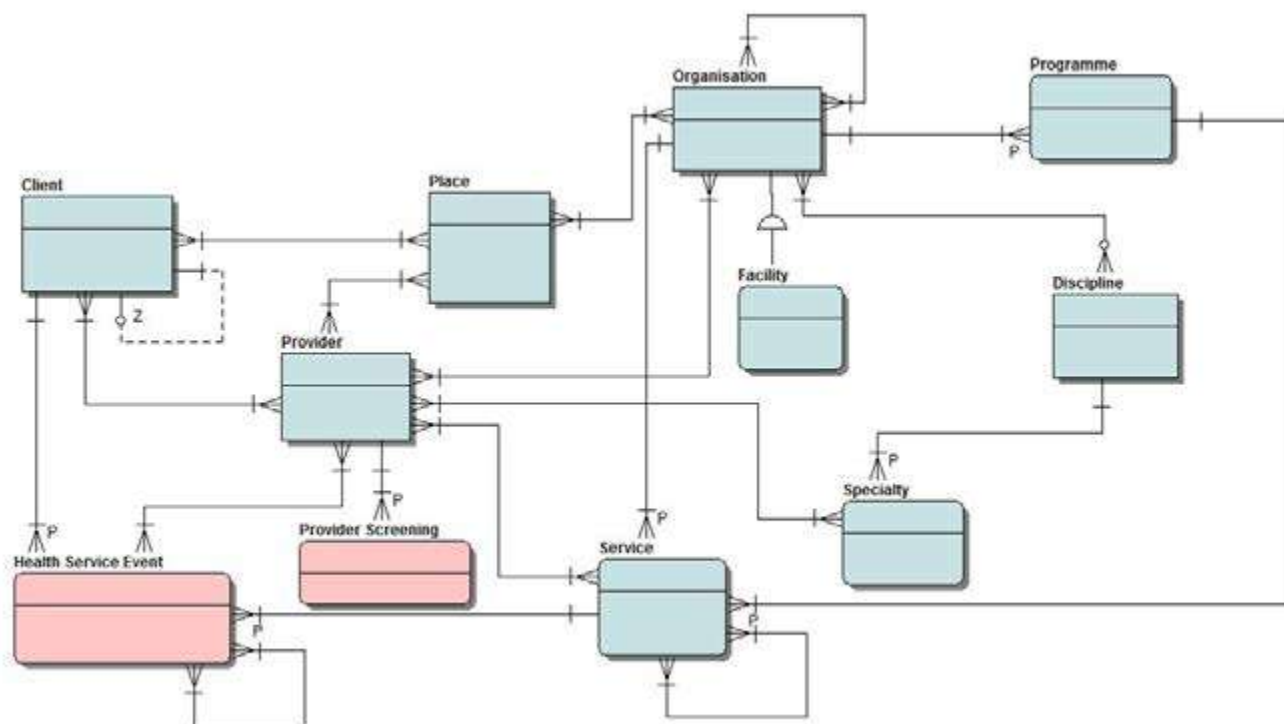
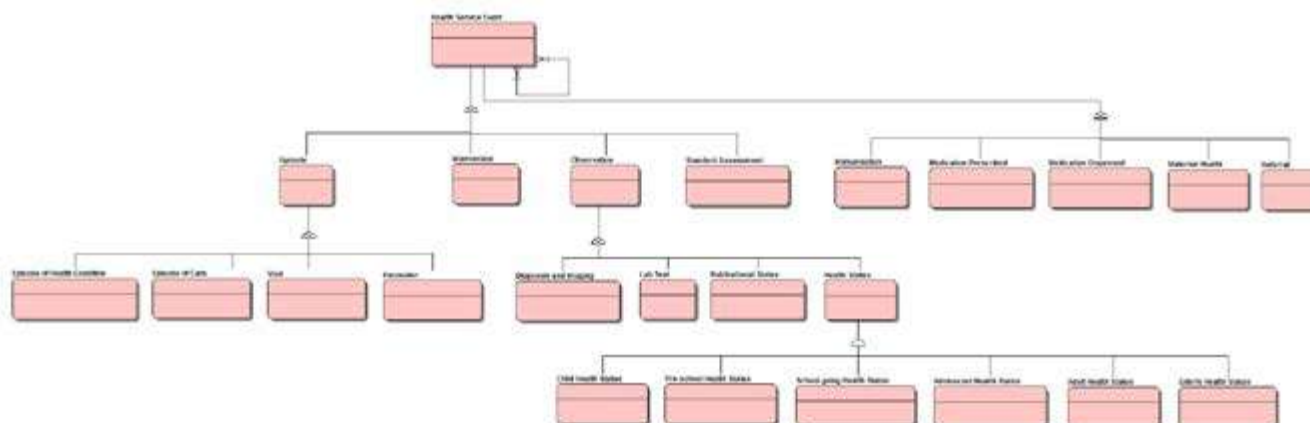


Figure 2.3: Provider and Organisation View

### 2.3. Health Service Event View

This view illustrates the core concepts around Health Service Event. Visit, Encounter, Intervention, Observation and Standard Assessment were subtypes of Health Service Event.



**Figure 2.4: Health Service Event View**

### 3. MyHRDM Data Dictionary

This section includes all the associated metadata for the MyHRDM. The following explains the metadata for each concept:

- **Concepts** - synonymous with Entity from E/R Modelling
- **Definition of Concepts**
- **Definition in MyHDD and additional source standards** – validate against other standards such as MyHDD, CIHI, WHO, etc whether there exists similar concept
- **Remark** – to help user further understand the concept by having use cases or examples
- **Synonyms** – similar concept definition but different concept name, eg: Concept client is synonymous with Patient.
- **Key attributes** – key information about each concept such as Identification for Person concept.
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- **Table Type** – There are two categories of table type:
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### 3.1 Client

**Table 3.1: Client Concept**

<b>Concept</b>	Client
<b>Definition of Concept</b>	A PERSON who receives health service
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"A person that has received, is receiving, or is eligible for health care related services or goods."</i>
<b>Remark</b>	PERSON is a supertype of CLIENT, PROVIDER, NEXT OF KIN, etc
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Identification Documents(ID)</li> </ul>
<b>Relationship</b>	Each CLIENT <ul style="list-style-type: none"> <li>• is a PERSON</li> <li>• may be a DONOR or NEWBORN</li> <li>• may have one or many NEXT OF KIN</li> <li>• may be associated with one or more PLACE</li> <li>• may be the recipient of services and/or goods from one or more PROVIDER</li> <li>• may be a participant in one or more HEALTH SERVICE EVENT</li> <li>• may be associated with more than one client</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master



## 3.2 Diagnostic And Imaging

**Table 3.2: Diagnostic and Imaging Concept**

<b>Concept</b>	Diagnostic And Imaging
<b>Definition of Concept</b>	A series of diagnostic and imaging activities by the PROVIDER for the CLIENT which cover the capturing and interpretation of images.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"The type of diagnostic imaging test ordered by the Provider for the Client."</i>
<b>Remark</b>	None
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>DIAGNOSTIC AND IMAGING</b> <ul style="list-style-type: none"> <li>• is a subtype of <b>OBSERVATION</b></li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.3 Discipline

**Table 3.3: Discipline Concept**

<b>Concept</b>	Discipline
<b>Definition of Concept</b>	A SPECIALTY delivered through an ORGANISATION.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	Examples of Discipline such as Medical, Surgical, Neurosurgical, Oral Health. Sub-specialty is not universal implemented.
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Type of discipline (such as paediatric)</li> <li>• Type of specialty (such as neonatal, paediatric-nephrology)</li> <li>• Programme (such as medical)</li> </ul>
<b>Relationship</b>	Each DISCIPLINE <ul style="list-style-type: none"> <li>• may be associated with one or more ORGANISATION</li> <li>• may be associated with one or more SPECIALTY</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.4 Donor

**Table 3.4: Donor Concept**

<b>Concept</b>	Donor
<b>Definition of Concept</b>	A CLIENT who has consented to donate or has donated cells, tissues or organs for the purpose of transplantation.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	WHO <i>"A human being, living or deceased, who is a source of cells, tissues or organs for the purpose of transplantation.  - type: pledged, deceased or living donor."</i>
<b>Remark</b>	IC as Donor ID
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Donor type</li> <li>• Specimen type</li> <li>• Status Donated or Pledge</li> <li>• Donor ID</li> </ul>
<b>Relationship</b>	Each DONOR <ul style="list-style-type: none"> <li>• is a CLIENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.5 Emergency Contact

**Table 3.5: Emergency Contact**

<b>Concept</b>	Emergency Contact
<b>Definition of Concept</b>	A PERSON who is related to a CLIENT who can be contacted in situation of emergency
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	None
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>Type of Relationship</li> </ul>
<b>Relationship</b>	Each EMERGENCY CONTACT <ul style="list-style-type: none"> <li>is a PERSON</li> <li>may be associated with one or more CLIENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.6 Encounter

**Table 3.6: Encounter Concept**

<b>Concept</b>	Encounter
<b>Definition of Concept</b>	An interaction between a CLIENT and one or more PROVIDERS.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"An interaction between a Client and one or more Providers.</i> <i>Note 1: The start and end of an Encounter currently varies with level of care."</i>
<b>Remark</b>	In contrast to a VISIT, an ENCOUNTER is associated with a PROVIDER.
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• When: Admission/Discharge date &amp; Time</li> <li>• Where: Location</li> <li>• What: Type of Activities (e.g. Consultation, Examination, Investigation, Procedures, Counselling, Wellness)</li> <li>• Who: Client/Provider</li> </ul>
<b>Relationship</b>	An ENCOUNTER <ul style="list-style-type: none"> <li>• is a HEALTH SERVICE EVENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.7 Episode

**Table 3.7: Episode Concept**

<b>Concept</b>	Episode
<b>Definition of Concept</b>	A collection of HEALTH SERVICE EVENTs related to health conditions, type of care, VISITs, ENCOUNTERs and other factors.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>An EPISODE</b> <ul style="list-style-type: none"> <li>Is a subtype of HEALTH SERVICE EVENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.8 Episode of Care

**Table 3.8: Episode of Care Concept**

<b>Concept</b>	Episode of Care
<b>Definition of Concept</b>	Collection of VISITs and ENCOUNTERs related to one particular instance of a SERVICE or collection of SERVICES. Often this is related to a particular ORGANISATION.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	To relook into definition using Health Service Event
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	An EPISODE OF CARE <ul style="list-style-type: none"> <li>Is a subtype of EPISODE</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.9 Episode of Health Condition

**Table 3.9: Episode of Health Condition Concept**

<b>Concept</b>	Episode of Health Condition
<b>Definition of Concept</b>	Collection of VISITs and/or ENCOUNTERs related to one particular instance of a health condition or collection of health conditions
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	Health condition includes illness, risk factors (e.g. obesity, smoking) and preventive programmes (e.g. wellness)
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>An EPISODE OF HEALTH CONDITION</b> <ul style="list-style-type: none"> <li>Is a subtype of EPISODE</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction



### 3.10 Health Service Event

**Table 3.10: Health Service Event Concept**

<b>Concept</b>	Health Service Event
<b>Definition of Concept</b>	A past, current, planned or requested healthcare act.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"A past, current, planned or requested act."</i>
<b>Remark</b>	Setting type to be decided.
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Setting Type</li> <li>• Service Event date &amp; Time</li> </ul>
<b>Relationship</b>	Each HEALTH SERVICE EVENT <ul style="list-style-type: none"> <li>• must involve one or many CLIENT</li> <li>• may be a VISIT or an ENCOUNTER</li> <li>• may involve an INTERVENTION, OBSERVATION or STANDARD ASSESSMENT</li> <li>• must have one or more PROVIDER</li> <li>• must have one SERVICE</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.11 Health Status

**Table 3.11: Health Status Concept**

<b>Concept</b>	Health Status
<b>Definition of Concept</b>	The summary of CLIENT's health condition as a result of OBSERVATION and STANDARD ASSESSMENT performed by PROVIDER
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI (Health Concern)</b> <i>"The Client's relevant conditions, diagnosis and associated past medical history"</i>
<b>Remark</b>	Health Status with subtypes, e.g. Child, Pre-school, School-going, Adolescent, Adult, Elderly
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A HEALTH STATUS</b> <ul style="list-style-type: none"> <li>is a subtype of OBSERVATION</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.11.1 Adolescent Health Status

**Table 3.11a: Adolescent Health Status Concept**

<b>Concept</b>	Adolescent Health Status
<b>Definition of Concept</b>	The HEALTH STATUS of a CLIENT who is defined as being of adolescent age.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI (Health Concern)</b> <i>"The Client's relevant conditions, diagnosis and associated past medical history"</i>
<b>Remark</b>	Currently adolescent age is defined as 10-19 years old.
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>An ADOLESCENT HEALTH STATUS</b> <ul style="list-style-type: none"> <li>• is a subtype of HEALTH STATUS</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.11.2 Adult Health Status

**Table 3.11b: Adult Health Status Concept**

<b>Concept</b>	Adult Health Status
<b>Definition of Concept</b>	The HEALTH STATUS of a CLIENT who is defined as an adult.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI (Health Concern)</b> <i>"The Client's relevant conditions, diagnosis and associated past medical history"</i>
<b>Remark</b>	Currently age group for adult is defined as 19 to 59 years old.
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>An ADULT HEALTH STATUS</b> <ul style="list-style-type: none"> <li>• is a subtype of HEALTH STATUS</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.11.3 Child Health Status

**Table 3.11c: Child Health Status Concept**

<b>Concept</b>	Child Health Status
<b>Definition of Concept</b>	The HEALTH STATUS of a CLIENT who is defined as a child.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI (Health Concern)</b> <i>"The Client's relevant conditions, diagnosis and associated past medical history"</i>
<b>Remark</b>	Currently age group for child is defined as 0-7 years old. Non-exclusive sub-type of HEALTH STATUS May overlap with PRE-SCHOOL HEALTH STATUS
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A CHILD HEALTH STATUS</b> <ul style="list-style-type: none"> <li>• is a subtype of HEALTH STATUS</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.11.4 Elderly Health Status

**Table 3.11d: Elderly Health Status Concept**

<b>Concept</b>	Elderly Health Status
<b>Definition of Concept</b>	The HEALTH STATUS of a CLIENT who is defined as an elderly person.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI (Health Concern)</b> <i>"The Client's relevant conditions, diagnosis and associated past medical history"</i>
<b>Remark</b>	Currently age group for elderly is defined as 60 years old and above.
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>An ELDERLY HEALTH STATUS</b> <ul style="list-style-type: none"> <li>• is a subtype of HEALTH STATUS</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.11.5 Pre-school Health Status

**Table 3.11e: Pre-school Health Status Concept**

<b>Concept</b>	Pre-school Health Status
<b>Definition of Concept</b>	The HEALTH STATUS of a CLIENT who is defined as being of pre-school age.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI (Health Concern)</b> <i>"The Client's relevant conditions, diagnosis and associated past medical history"</i>
<b>Remark</b>	Currently pre-school age is defined as 5-6 years old.
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A PRE-SCHOOL HEALTH STATUS</b> <ul style="list-style-type: none"> <li>• is a subtype of HEALTH STATUS</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.11.6 School-going Health Status

**Table 3.11f: School-going Health Status Concept**

<b>Concept</b>	School-going Health Status
<b>Definition of Concept</b>	The HEALTH STATUS of a CLIENT who is defined as being of school-going age.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI (Health Concern)</b> <i>"The Client's relevant conditions, diagnosis and associated past medical history"</i>
<b>Remark</b>	Currently school-going age is defined as 7-18 years old.
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A SCHOOL-GOING HEALTH STATUS</b> <ul style="list-style-type: none"> <li>is a subtype of HEALTH STATUS</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction



### 3.12 Immunisation

**Table 3.12: Immunisation Concept**

<b>Concept</b>	Immunisation
<b>Definition of Concept</b>	Administration of a vaccine by the PROVIDER to CLIENT for the purpose of preventing the spread of infectious disease.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<p><b>CIHI</b>  <i>"The vaccine administered to the Client within and beyond the PHC setting, including current and past vaccination history"</i></p> <p><b>WHO</b>  <i>"Is the process whereby a person is made immune or resistant to an infection disease by the administration of a vaccine."</i></p>
<b>Remark</b>	Note: The vaccine administered to CLIENT by the PROVIDER which includes current and past vaccination history
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<p>An IMMUNISATION</p> <ul style="list-style-type: none"> <li>• is a HEALTH SERVICE EVENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.13 Intervention

**Table 3.13: Intervention Concept**

<b>Concept</b>	Intervention
<b>Definition of Concept</b>	An activity(s) that is intended to observe, monitor, assess and/or change the state of the health of a CLIENT.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"An activity that is intended to observe, monitor, assess and/or change the state of the health of a Client.</i> <i>Note 1: Definition includes planned, current and historic Interventions for a Client."</i>
<b>Remark</b>	Example: Counselling is a form of Intervention
<b>Synonyms</b>	Procedure, Treatment, Consultation, Prescribing
<b>Key Attributes</b>	TBD
<b>Relationship</b>	An INTERVENTION <ul style="list-style-type: none"> <li>• is a HEALTH SERVICE EVENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.14 Lab Test

**Table 3.14: Lab Test Concept**

<b>Concept</b>	Lab Test
<b>Definition of Concept</b>	A series of lab testing activities by the PROVIDER for the CLIENT which cover the capturing and interpretation of biological samples.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	None
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A LAB TEST</b> <ul style="list-style-type: none"> <li>is a subtype of OBSERVATION</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.15 Maternal Health

**Table 3.15: Maternal Health Concept**

<b>Concept</b>	Maternal Health
<b>Definition of Concept</b>	A care provided to a female CLIENT from conception till 6 weeks post-delivery associated with antenatal, intranatal and postnatal.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	Information regarding delivery and maternal death are subsumed under MATERNAL HEALTH
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<p>A MATERNAL HEALTH</p> <ul style="list-style-type: none"> <li>• is a HEALTH SERVICE EVENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.16 Medication Dispensed

**Table 3.16: Medication Dispensed Concept**

<b>Concept</b>	Medication Dispensed
<b>Definition of Concept</b>	The medications dispensed by PROVIDER to a CLIENT
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"The medications dispensed by PROVIDER to a CLIENT"</i>
<b>Remark</b>	None
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A MEDICATION DISPENSED</b> <ul style="list-style-type: none"> <li>• <b>is a HEALTH SERVICE EVENT</b></li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.17 Medication Prescribed

**Table 3.17: Medication Prescribed Concept**

<b>Concept</b>	Medication Prescribed
<b>Definition of Concept</b>	The medications ordered by PROVIDER for a CLIENT
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"The medications prescribed for the Client"</i>
<b>Remark</b>	None
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A MEDICATION PRESCRIBED</b> <ul style="list-style-type: none"> <li>• <b>is a HEALTH SERVICE EVENT</b></li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.18 Newborn

**Table 3.18: Newborn Concept**

<b>Concept</b>	Newborn
<b>Definition of Concept</b>	A CLIENT aged less than or equal to 28 days of life.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	None
<b>Synonyms</b>	None
<b>Key Attributes</b>	TBD
<b>Relationship</b>	Each NEWBORN <ul style="list-style-type: none"> <li>• is a CLIENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.19 Next Of Kin

**Table 3.19: Next Of Kin Concept**

<b>Concept</b>	Next Of Kin
<b>Definition of Concept</b>	A PERSON who is a relative of a CLIENT
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	For operation system we need to revisit the definition of the concepts to include a more precise legal definition.
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>Type of Relationship</li> </ul>
<b>Relationship</b>	Each NEXT OF KIN <ul style="list-style-type: none"> <li>is a PERSON</li> <li>may be associated with one or more CLIENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master



### 3.20 Nutritional Status

**Table 3.20: Nutritional Status Concept**

<b>Concept</b>	Nutritional Status
<b>Definition of Concept</b>	The summary of CLIENT's health condition related to nutrition
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	Note: Subtype of HEALTH STATUS BMI
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A NUTRITIONAL STATUS</b> <ul style="list-style-type: none"> <li>is a subtype of OBSERVATION</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.21 Observation

**Table 3.21: Observation Concept**

<b>Concept</b>	Observation
<b>Definition of Concept</b>	Information derived from performance of a health related activity to a CLIENT.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<p><b>CIHI</b></p> <p><i>“Information derived from performance of a health related activity.</i></p> <p><i>Note 1: An Observation consists of a type and a result. The type and result of an Observation must be considered in combination to determine the meaning of the Observation, e.g. Initial Diagnosis (Type) = I01.1 (Result).”</i></p>
<b>Remark</b>	Example of Subtype: Diagnosis
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Observation Type Code (eg ICD 10, LOINC, ICD-O, SNOMED-CT)</li> <li>• Observation Coded Value System Code</li> <li>• Observation Value</li> </ul>
<b>Relationship</b>	<p>An OBSERVATION</p> <ul style="list-style-type: none"> <li>• is a HEALTH SERVICE EVENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.22 Organisation

**Table 3.22: Organisation Concept**

<b>Concept</b>	Organisation
<b>Definition of Concept</b>	A social unit of PERSONs that is structured and managed to meet a need or pursue a collective goal.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<p><b>CIHI</b></p> <p><i>“A group of persons with a common purpose or function.</i></p> <p><i>Note 1: May include public, private or voluntary sector Organizations whose activities may encompass the funding, provision or regulation of health care and support services. Examples: Ministries of Health, Regional Health Authorities, Emergency Department, Units”</i></p>
<b>Remark</b>	<p>Example of SMRP subtypes: Hospital, Clinic</p> <p>Example of other subtypes: Research Institute, Blood Bank, Lab</p> <p>Type of Organisation in SMRP: Hospital, Clinic</p> <p>Category Hospital: MOH, University, Military, Private</p> <p>Category Clinic: Klinik Kesihatan, Klinik Desa, Klinik Pergigian, Klinik Bergerak</p> <p>PLACE information may be implemented specifically in the sub types of the relationship entities, e.g. HOSPITAL</p> <p>DECISION: FACILITY is a subtype of ORGANISATION, combining hospital and clinic.</p>
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Organisation name</li> <li>• Type of organisation</li> <li>• Organisation ID</li> <li>• Organisation Start Date</li> <li>• Organisation End Date</li> </ul>

<b>Relationship</b>	<p>Each ORGANISATION</p> <ul style="list-style-type: none"> <li>• may be a FACILITY</li> <li>• must be located at one PLACE at one point in time</li> <li>• may be associated with one or more SERVICE</li> <li>• may be associated with one or more other ORGANISATION</li> <li>• may have one or more PROGRAMME</li> <li>• may have one or more PROVIDER</li> <li>• may have zero, one or many DISCIPLINE</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.23 Person

**Table 3.23: Person Concept**

<b>Concept</b>	Person
<b>Definition of Concept</b>	An individual
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	PERSON is a supertype of CLIENT, PROVIDER, NEXT OF KIN, etc
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Identification Documents(ID)</li> </ul>
<b>Relationship</b>	Each PERSON <ul style="list-style-type: none"> <li>• may be a CLIENT</li> <li>• may be a PROVIDER</li> <li>• may be a NEXT OF KIN</li> <li>• may be associated with one or more PLACE</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.24 Place

**Table 3.24: Place Concept**

<b>Concept</b>	Place
<b>Definition of Concept</b>	A physical point or area in space.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"A physical point or area in space.</i> <i>Note 1: A Place may be of varying levels of</i> <i>Note 2: A Place can exist independent of a Service, Provider or Organization</i> <i>Note 3: A place represents a physical place and does not represent a virtual place (e.g.phone, numbers, email, IP address) or anatomical place"</i>
<b>Remark</b>	PLACE information may be implemented specifically in the sub types of the relationship entities, e.g. hospital
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Address</li> <li>• Geo Location</li> </ul>
<b>Relationship</b>	Each PLACE <ul style="list-style-type: none"> <li>• must be the location of one or more ORGANISATION</li> <li>• may be the location of one or more PERSON</li> <li>• may be the location of one or more CLIENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.25 Programme

**Table 3.25: Programme Concept**

<b>Concept</b>	Programme
<b>Definition of Concept</b>	A collection of activities delivered through a SERVICE in an ORGANISATION designed to meet a healthcare need.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	Examples of programme: Antenatal Programme, Oral Cancer Programme, Toddler Programme, Tobacco Cessation Programme, Vaccination Programme, Water Fluoridation Programme, P&ST, Medical Care Programme.
<b>Synonyms</b>	None
<b>Key Attributes</b>	TBD
<b>Relationship</b>	Each PROGRAMME <ul style="list-style-type: none"> <li>• must be associated with an ORGANISATION</li> <li>• must be associated with one or more SERVICE</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.26 Provider

**Table 3.26: Provider Concept**

<b>Concept</b>	Provider
<b>Definition of Concept</b>	A PERSON who has delivered, is delivering, or has the potential to deliver health care related services or goods.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<p>CIHI</p> <p><i>“An individual who has delivered, is delivering, or has the potential to deliver health care related services or goods.</i></p> <p><i>Note 1: CIHI only considers persons as Providers.</i></p> <p><i>Organizations were not considered Providers in the CIHI definition of Provider. CIHI has chosen to consider an Organization as a separate entity. This deviates from other definitions of Provider.</i></p> <p><i>Note 2: Family members who deliver health care related services to a Client are not considered Providers by CIHI.</i></p> <p><i>Note 3: An individual who is registered with a health care licensing Organization but is unemployed may be a Provider with the potential to deliver health care related services or goods (e.g. a physician who is registered with the College but is not currently practicing medicine). Note 4: A Provider may have zero Clients and may participate in zero Health Service Events at zero Places.”</i></p>
<b>Remark</b>	A provider may practice independent of an organisation. Hence, the place can be independent from an organization
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Registration Number such as MMC Number(Doctors), MDC, RPh, RN, LPP Number</li> <li>• type of provider (Medical Practitioner, Pharmacist, Dental Practitioner, Allied Health Professional.)</li> <li>• Gazette number</li> </ul>



<b>Relationship</b>	<p>Each PROVIDER</p> <ul style="list-style-type: none"> <li>• is a PERSON</li> <li>• may practise in one or more ORGANISATION</li> <li>• may be gazetted in one or more SPECIALTY</li> <li>• may provide services to one or more CLIENT</li> <li>• may participate in one or more HEALTH SERVICE EVENT</li> <li>• may be associated with one or more PLACE</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.27 Provider Screening

**Table 3.27: Provider Screening Concept**

<b>Concept</b>	Provider Screening
<b>Definition of Concept</b>	A screening PROGRAMME for PROVIDERS associated with CLIENT and PROVIDER safety.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	Need more use cases to test the aspect of having the provider screening
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<p>Each PROVIDER SCREENING</p> <ul style="list-style-type: none"> <li>may be associated with one or more PROVIDER</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.28 Referral

**Table 3.28: Referral Concept**

<b>Concept</b>	Referral
<b>Definition of Concept</b>	A request from one PROVIDER to another PROVIDER or ORGANISATION to deliver one or more health services to a CLIENT
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>"The type of service or specialty required for the Client requested by the PHC Provider (for example, cardiology)"</i>
<b>Remark</b>	None
<b>Synonyms</b>	None
<b>Key Attributes</b>	None
<b>Relationship</b>	<b>A REFERRAL</b> • <b>is a HEALTH SERVICE EVENT</b>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.29 Service

**Table 3.29: Service Concept**

<b>Concept</b>	Service
<b>Definition of Concept</b>	A grouping or collection of healthcare activities delivered directly or indirectly through an ORGANISATION to a CLIENT
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<p><b>CIHI</b></p> <p><i>“A branch of healthcare, specialty or administrative category representing a potential activity that may consume resources and is intended to directly or indirectly affect the health state of a Client.</i></p> <p><i>Note 1: Service is essentially an administrative concept whereas Health Service Event represents the activities that may result from the delivery of a Service.</i></p> <p><i>Note 2: A Service may include a collection of Health Service Events.</i></p> <p><i>Note 3: Services that are delivered are based on the needs as determined by the condition and/or goal of care.</i></p> <p><i>Note 4: Services can contain Services.”</i></p>
<b>Remark</b>	<p>Daycare, Inpatient, Outpatient, Community Service, Home Care, Nursing Care, Palliative, Clinical Support Service, T&amp;CM.</p> <p>Use: total number of cases, relate to the billings for the ward – tie to resources.</p> <p>There may be services delivered to Organisations, which we may develop separate concept for this.</p> <p>A provider can deliver one or many services. Services may be associated with one or many provider</p>
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>health service type</li> </ul>

<b>Relationship</b>	<p>Each SERVICE</p> <ul style="list-style-type: none"> <li>• must be provided by one and only one ORGANISATION</li> <li>• may be associated with one or more other SERVICE</li> <li>• must be associated with one or more PROGRAMME</li> <li>• may be associated with one or more HEALTH SERVICE EVENT</li> <li>• may be associated with one or many PROVIDER</li> </ul>
<b>Table Type</b> (Master or Transaction)	MASTER

### 3.30 Specialty

**Table 3.30: Speciality Concept**

<b>Concept</b>	Specialty
<b>Definition of Concept</b>	A specialised medical area which a PROVIDER is gazetted to practise.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	Medical areas include dental. Example of specialty includes Internal Medicine, paediatric, obstetric and gynaecology, orthodontic, family medicine.
<b>Synonyms</b>	None
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• type of specialty</li> </ul>
<b>Relationship</b>	Each SPECIALTY <ul style="list-style-type: none"> <li>• may be associated with one or more PROVIDER</li> <li>• is associated with a DISCIPLINE</li> </ul>
<b>Table Type</b> (Master or Transaction)	Master

### 3.31 Standard Assessment

**Table 3.31: Standard Assessment Concept**

<b>Concept</b>	Standard Assessment
<b>Definition of Concept</b>	An authorized tool used to collect a set of constituent OBSERVATIONS and INTERVENTIONS.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	<b>CIHI</b> <i>“An authorized tool used to collect a set of constituent observations and interventions.”</i>
<b>Remark</b>	None
<b>Synonyms</b>	None
<b>Key Attributes</b>	TBD
<b>Relationship</b>	A STANDARD ASSESSMENT <ul style="list-style-type: none"> <li>• is a HEALTH SERVICE EVENT</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction

### 3.32 Visit

**Table 3.32: Visit Concept**

<b>Concept</b>	Visit
<b>Definition of Concept</b>	An interaction between a CLIENT and one or more SERVICES.
<b>Definition in MyHDD</b>	None
<b>Additional source standards for definition</b>	None
<b>Remark</b>	A client inpatient services, outpatient services. A visit to outpatient services, and encounter to nurse, doctors, and others.
<b>Synonyms</b>	Attendance
<b>Key Attributes</b>	TBD
<b>Relationship</b>	A VISIT <ul style="list-style-type: none"> <li>• is a HEALTH SERVICE EVENT</li> <li>• may have one or more ENCOUNTERs</li> </ul>
<b>Table Type</b> (Master or Transaction)	Transaction



## 4. Appendices

### 4.1. Appendix 1 (MyHRDM Workshop 1/2015 List of Participants)

**Bengkel Malaysian Health Reference Data Model (MyHRDM) Bil 1/2015  
Malaysian Health Data Warehouse (MyHDW), Sistem Maklumat Rawatan  
Perubatan (SMRP) and Patient Registry Information System (PRIS)**

Date : 4<sup>th</sup> -6<sup>th</sup> November 2015

Venue : Bilik Kayangan 3, Level 1, AnCasa Hotel, KL

#### ATTENDEES:

No.	Name	Position/Grade	Organisation
1	Dr. Md Khadzir bin Sheikh Ahmad <sup>1</sup>	Timbalan Pengarah	PIK
2	En. Wan Zawawi Md Zin <sup>1</sup>	Project Director	MIMOS
3	Pn. Noriati binti Baharum	Perunding ICT, Khas C	MAMPU
4	Pn. Siti Nurliza binti Mokhtar	Pakar ICT, F52	MAMPU
5	Cik Noor Hasliza binti Mohd Hassan	Ketua Penolong Pengarah, F48	MAMPU
6	Pn. Rapi'ah binti Ibrahim	Pakar ICT, F44	MAMPU
7	En. Mohd Amru Saifullah bin Alias	Penolong Pengarah, F41	MAMPU
8	Pn. Sabrina binti Sabri	Perangkawan, E52	PIK
9	Dr. Syirahaniza binti Mohd Salleh	Ketua Penolong Pengarah, U48	PIK
10	Dr. Nur Shaema binti Darus	Ketua Penolong Pengarah, UD48	PIK
11	Pn. Noor Aieda binti Abu Bakar	Pegawai Teknologi Maklumat (Kanan), F44	PIK
12	Dr. Nur Athirah binti Imran	Penolong Pengarah Kanan, UD44	PIK
13	Dr. Noor Sarah binti Zainol	Penolong Pengarah Kanan, UD44	PIK
14	En. Mohd Rosli bin Mahmood	Penolong Pengarah Kanan, E44	PIK
15	Cik Norsuhada binti Sulaiman	Pegawai Tadbir Kanan (Rekod Perubatan), N44	PIK
16	Pn. Ayu Fissabieummisukasih binti Parman	Penolong Pegawai Tadbir (Rekod Perubatan), N29	PIK

No.	Name	Position/Grade	Organisation
17	En. Adam Malik bin Sahar	Ketua Penolong Setiausaha, F48	BPM
18	Pn. Norzaidah Binti Mohammad Nor	Penolong Setiausaha Kanan, F44	BPM
19	Pn. Noor Shabirah Mohd Shamsuri	Penolong Setiausaha Kanan, F44	BPM
20	Pn. Hamidah binti Mat	Penolong Setiausaha, F41	BPM
21	En. Mohd Firdaus Bin Mohamed Khairi	Penolong Setiausaha, F41	BPM
22	Pn. Noorizam binti Kassim <sup>3</sup>	Ketua Penolong Pengarah Kanan, F54	BPM
23	Puan Rosnani binti Shuib <sup>3</sup>	Penolong Setiausaha Kanan, F44	BPM
24	Dr. Fazilah Shaik Allaudin	Timbalan Pengarah, UD54	Bahagian Telekesihatan
25	Dr. Nor Azhariah Noordin	Ketua Penolong Pengarah Kanan, UD54	Bahagian Telekesihatan
26	Dr. Lily Laura binti Azmi	Ketua Penolong Pengarah Kanan, U52	Bahagian Kesihatan Pergigian
27	Dr. Tuan Yuswana Binti Tuan Soh	Ketua Penolong Pengarah Kanan, U52	Bahagian Kesihatan Pergigian
28	En. Mohd Hadafi bin Mohd Yasim	Penolong Pengarah Kanan, U44	Bahagian Perkhidmatan Farmasi
29	Mr. Mark Fuller	Consultant	MIMOS
30	En. Jauhari Abdul Ghafar	Project Manager	MIMOS
31	En. David Lew Chia Chyi	Project Lead	MIMOS
32	En. Kenneth Chiam Thow Way	Solution Architect	MIMOS
33	Dr. Teo Wil Ly <sup>2</sup>	Project Lead	MIMOS
34	Dr. Seah Boon Keong <sup>4</sup>	Data Modeller	MIMOS
35	En. Vinay Kumar Ramidi	Data Modeller	MIMOS
36	En. Luqman Razak	ETL Developer	MIMOS
37	Pn. Rahayu Abdullah Sani	BI Developer	MIMOS
38	Pn. Fauziah Hanim Jahidin	BI Developer	MIMOS

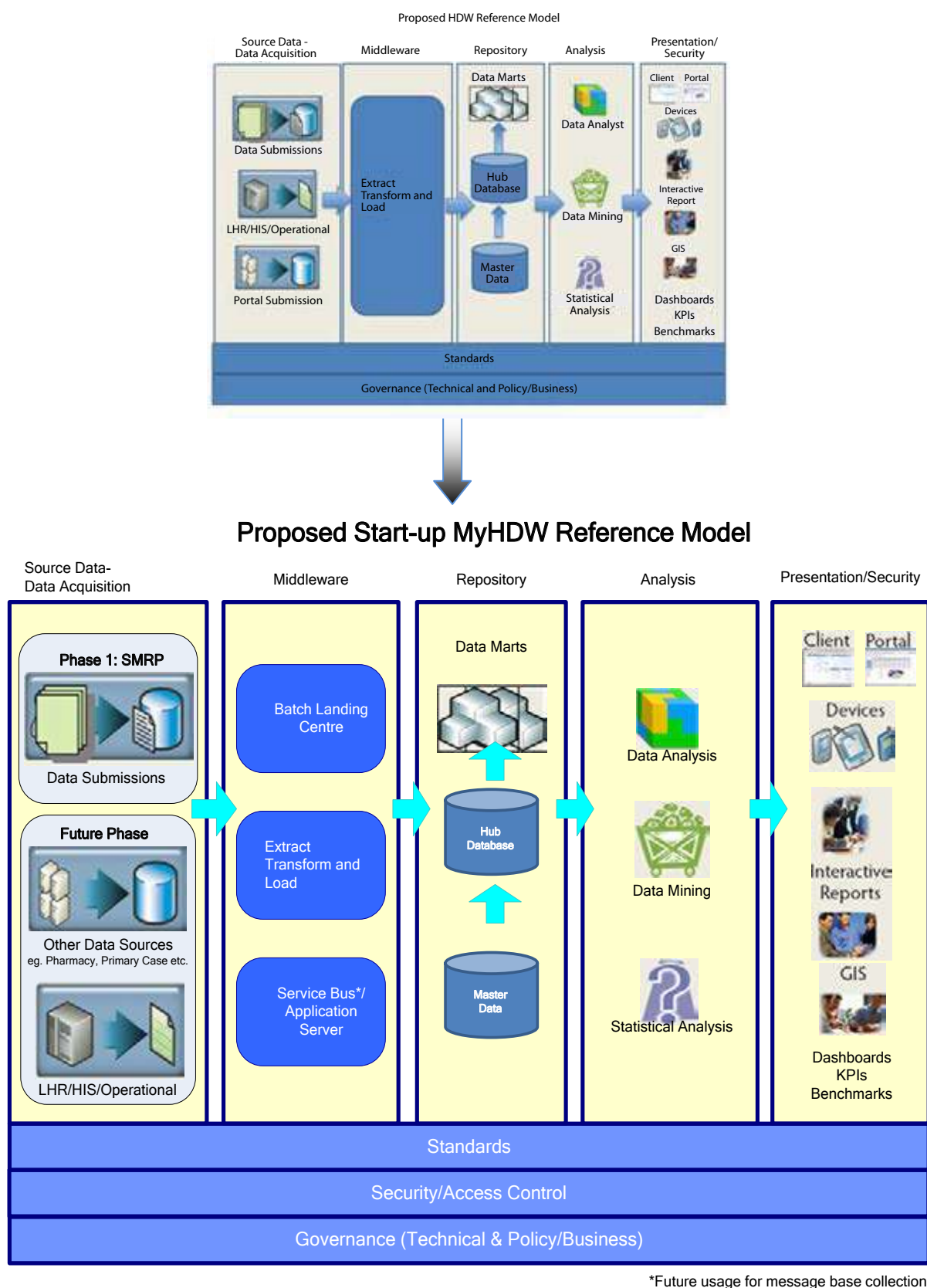
<sup>1</sup> Meeting Co-Chairman

<sup>2</sup> Meeting Minutes Writer

<sup>3</sup> TPC/OHCIS project

<sup>4</sup> Workshop Presenter and Data Modeler for MyHRDM

## 4.2 Appendix 2 (MyHDW Framework)



**Figure 4.1: MyHDW Framework**

4.3 Appendix 3 (MyHDW Phases)

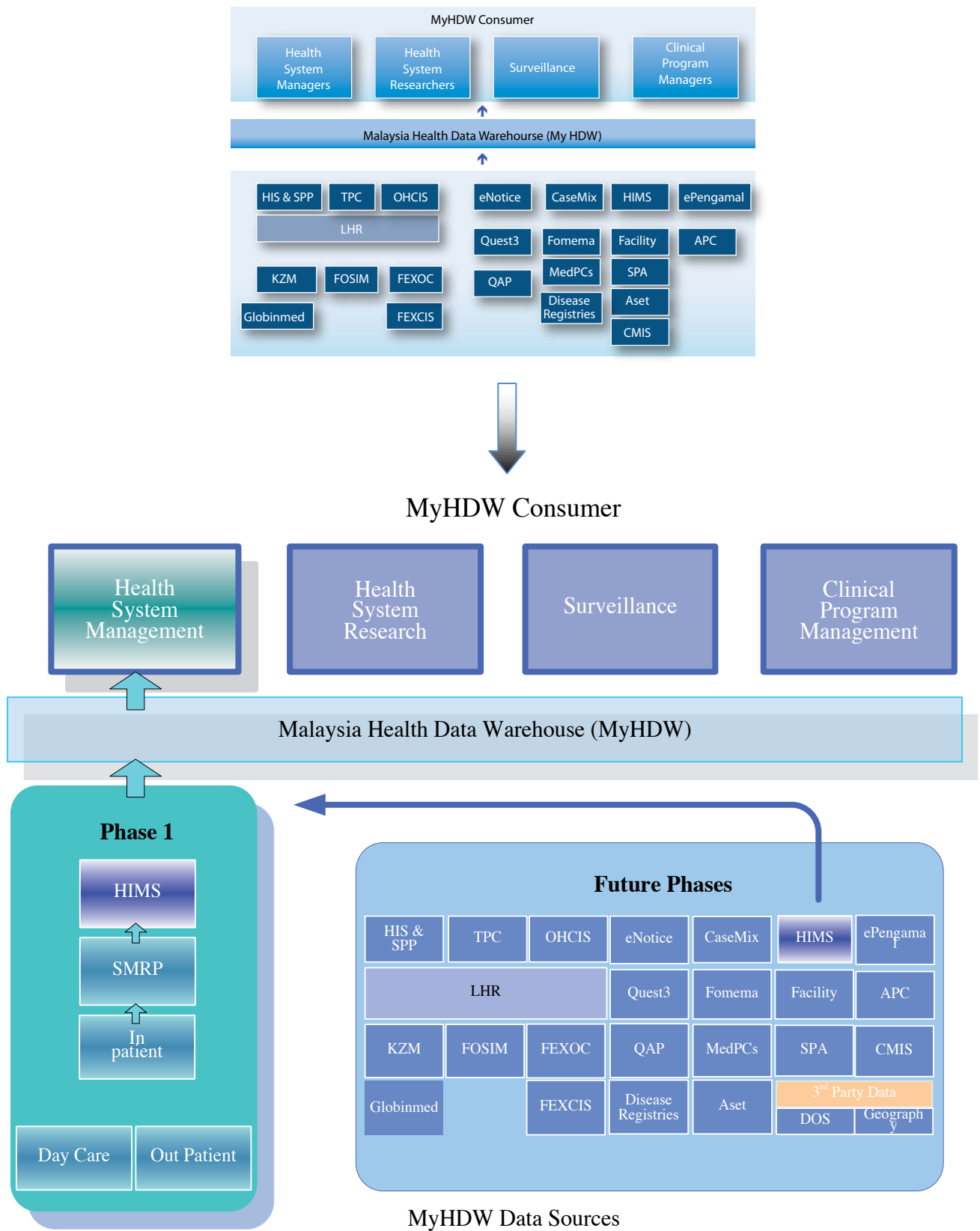


Figure 4.2: MyHDW Phases

#### 4.4 Appendix 4 (MyHRDM Workshop 2/2015 List of Participants)

**Bengkel Malaysian Health Reference Data Model (MyHRDM) Bil 2/2015  
Malaysian Health Data Warehouse (MyHDW), Sistem Maklumat Rawatan  
Perubatan (SMRP), Patient Registry Information System (PRIS),  
TPC-OHCIS, PhIS**

Date : 2th, 3rd and 7th December 2015

Venue : SEMINAR ROOM 1, MIMOS, TPM, KL

##### **ATTENDEES:**

1. Dr. Md Khadzir bin Sheikh Ahmad Chairman

##### **Pusat Informatik Kesihatan (PIK), Bahagian Perancangan, KKM**

1. Dr. Nur Athirah binti Imran
2. Dr. Noor Sarah binti Zainol

##### **Bahagian Pengurusan Maklumat (BPM), KKM**

3. Pn. Noorizam binti Kassim
4. Pn. Rosnani binti Shuib

##### **Bahagian Pembangunan Kesihatan Keluarga (BPKK), KKM**

5. Dr. Asnida binti Anjang Ab. Rahman
6. Dr. Fauziah binti Zainal Ehsan
7. Pn. Syafirafizah binti Shafie
8. Pn. Radziah binti Idris

##### **Bahagian Kesihatan Pergigian (BKP), KKM**

9. Dr. 'Ainun Mardhiah binti Meor Amir Hamzah
10. Dr. Faizah binti Kamaruddin
11. Pn. Hayati binti Mohd Yasin
12. Pn. Julaiha binti Mohd Sarif

##### **MAMPU**

13. Pn. Noriati binti Baharum

# MIMOS

14. En. Wan Zawawi bin Md Zin
15. Pn. Azuraini binti Abu Bakar
16. Pn. Che Umi Kalsom binti Che Mustaffa
17. En. David Lew Chia Chyi
18. Pn. Fauziah binti Hanim Jahidin
19. En. Lee Chee Kiam
20. En. Luqman bin Razak
21. En. Mallesham Balagoni
22. En. Mohd Nazrul bin Ishak
23. En. Muhammad Adib bin Ahirrudin
24. En. Muhammad Aiman bin Mazlan
25. Pn. Nurdinah binti Abdul Latib
26. Pn. Rahayu binti Abdullah Sani
27. En. Rayhanul bin Islam
28. Pn. Raja Mariam Ruzila binti Raja Ahmad Sufian
29. En. Roszaini bin Mustafa
30. Dr. Seah Boon Keong (Presenter and Data Modeler)
31. En. Sudesh Padmanathan
32. Dr. Teo Wil Ly
33. En. Vinay Kumar Ramidi
34. Cik Shoba Subramanian (Minutes Taker)

## By invitation

En. Mark Fuller                      Consultant

## Acknowledgement

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# Malaysian Health Reference Data Model (MyHRDM)

Pusat Informatik Kesihatan  
Bahagian Perancangan  
Kementerian Kesihatan Malaysia