Enterprise Architecture Policy

Interoperability Protocol

1. Purpose

This Protocol describes the mandatory steps for achieving integration-based system interoperability in the delivery of healthcare for Queensland Health. This protocol will inform decision makers and provide direction that balances cost-effectiveness, sustainability and healthcare outcome benefits with the broad goal of achieving system interoperability across the whole of Queensland Health’s environment, and across organisational boundaries.

2. Scope

This protocol applies to all employees, contractors and consultants within the Department of Health divisions, agencies and commercialised business units.

3. Supporting documents

Authorising Policy and Standard/s:
- Enterprise Architecture Policy
- Enterprise Architecture Framework Implementation Standard
- Enterprise Architecture Foundations Implementation Standard
- Enterprise Business Architecture Implementation Standard
- Enterprise Information Architecture Implementation Standard
- Enterprise Applications Architecture Implementation Standard
- Enterprise Technology Architecture Implementation Standard

Procedures, Guidelines and Protocols:
- ICT Cabling Protocol (under development)
- Identity Management and Demographics Protocol (under development)
- Information System Sustainability Protocol
- Service Oriented Architecture Protocol
- Systems Integration Protocol
- Using Directories & Directory Technology Protocol (under development)
- Enterprise Architecture Development Method Procedure
- Integration Patterns Procedure

4. Related documents

- Queensland Government Enterprise Architecture Framework 2.0
- Department of Health Information Security Policy
5. Approach

Queensland Health requires an information system that supports every step of the ‘continuum of care’ to ensure the right information is available to the right person at the right time. Since the Queensland Health environment is heterogeneous and comprised of numerous disparate systems, there is no single ICT solution that can achieve this objective. Even with large suites of integrated applications such as SAP and Cerner, there is still a need to integrate with state-wide repositories such as Client Directory, and with specialty best-of-breed systems, and there is still a need for integration-based interoperability to exchange information across organisational boundaries, due to the differences between healthcare organisations.

Interoperability standards enable applications to operate with each other and with enterprise services as an integrated system. This results in a unified view with multiple disparate systems coming together and sharing information in a standard, open manner. To achieve interoperability a total systems approach is needed which focuses on integration practices, messaging and interfaces and terminology.

Interoperability is related to integration but the two are not the same:

- Integration refers broadly to the set of technologies and services that enable a point in time exchange of information between systems and applications. Integration can be done using a variety of standards-based or proprietary interface contracts, and does not necessarily require a common information model and language amongst all the various interfaces.

- Interoperability, on the other hand, requires a loosely coupled ICT ecosystem (or ‘system of systems’) that all interact using a common information model and language to exchange meaningful information in a flexible collaborative way.

Queensland Health requires this loosely coupled ICT ecosystem to allow information to be shared quickly and accurately across the continuum of care, in a secure fashion that satisfies privacy, confidentiality and consent concerns.

The goal is a system of interoperable components that work together as a single logical system. There are various levels of interoperability required to achieve this goal e.g. shared meaning (semantic interoperability) depends on common formats (syntactic interoperability) which in turn depends on common middleware and technical standards (technical interoperability).

6. Information Interoperability

6.1 Use Australian and International standards

Queensland Government standards, Australian standards and international standards should be adopted where applicable. Adopt Queensland Government and Australian standards first, then international standards, and then industry standards where the adoption of a standard is mandated or deemed beneficial.

Implications

- Australian and international data standards need to be harmonised into Department of Health data standards and applied to the Department of Health information model and terminology.

- The Department of Health information model encompasses data standards. Before creating a Department of Health-specific alternative, designers shall determine if there is any existing Australian or international standard which has not yet been formally adopted by the Department of Health. Where an appropriate Australian or international standard does not exist, a Department of Health system specific standard shall be defined based on the Department of Health information model.
6.2 **Ensure terminology is compliant with the Department of Health terminology standards**

Terminology usage for interoperability purposes shall be compliant with the Department of Health terminology standards.

**Implications**
- If solutions store or cache their own terminology, the terminology should be compliant with the Department of Health terminology standards.
- Solutions should use the Department of Health standard terminology set natively within the solution. Where the Department of Health terminology cannot be used natively, the solution should map internal terminologies to the Department of Health terminology.

6.3 **Restrict data entry values to permissible value sets**

Solutions shall restrict terminology options during data entry to permissible values for specific data fields within the solution modules.

**Implications**
- Validation routines should check that coded data exists within the standard terminology.
- Such rules are variable and enumerated within the data model. In some cases they are allowed to be free text if a coded value is not available, but this is the exception rather than the rule.
- User interface technologies shall be used to support data capture and validation of clinical terminologies, addresses, and other user input.

6.4 **Use extensions where standard interfaces need to be modified**

All modifications of industry standard interfaces shall appear as extensions and shall not impact the application's ability to support the accepted industry standard interface.

**Implications**
- Extensions should be defined in a way that does not impede ability to interact with other parties using the interface in the way it was intended, and does not impede ability to migrate to future versions of the interface standard.

6.5 **Apply business rules consistently across systems**

Business rules shall be applied consistently across different information systems that implement the rules.

**Implications**
- Rules should be stored in only one place. (e.g. an enterprise service is one way of delivering functionality with business rules encapsulated within a shared service).
- An external rules engine may be used to store business rules.
- Where business rules are duplicated in more than one system, then these rules need to be implemented consistently. Manually synchronising rules is not desirable, but there may be no other choice, especially with vendor COTS products.
7. Technical interoperability

7.1 Use the enterprise integration platform to support interoperability

The Department of Health enterprise integration platform will provide the technical platform to support interoperability.

Implication

- The integration platform will support the ability to use multiple interchange standards (e.g. HL7, CDA etc.) and to support different versions of interchange standards (e.g. HL7 versions).

Note: This section should be considered in conjunction with the Department of Health Systems Integration Protocol for position statements relating to the integration platform.

7.2 Do not expose proprietary internal data models and terminologies

Information systems shall not expose their proprietary internal data models and terminologies to other systems.

Implications

- Where a vendor proprietary interface is being used, the solution should wrap the proprietary interfaces with open standards-based alternatives to minimise long-term risks of vendor lock-in to product architectures. This will require an interface adapter to be implemented.
- Products with proprietary interfaces should be avoided, but this is not always practical.
- Information systems with their own internal data models and terminologies should transform exchanged data into the canonical form e.g. HL7 Norm.

7.3 Use web services to support loosely-coupled interoperable systems

Web services are the preferred integration approach to support implementation of loosely-coupled interoperable systems.

Implications

- Where applications are capable of communicating via web services, interoperability will be supported by using industry standards such as eXtensible Markup Language (XML), Simple Object Access Protocol (SOAP) and Web Service Description Language (WSDL). Web services support the integration of loosely coupled systems.
- Web Services is the preferred approach for providing services to external partners to access Department of Health information.
- Web services are not appropriate for many types of integration. Refer to the Department of Health Systems Integration Protocol for more information.

Note

- SOAP should be used for Service-Oriented Architecture (SOA)-style enterprise services and any other web services where well-defined interface contracts and secure, reliable interactions are required.
- REST (Representational State Transfer) may be used for less critical services and where data is not sensitive or confidential.
7.4 Use the national e-health Web Services Profiles for interactions with external healthcare organisations.

The national e-health Web Services Profiles [Standards Australia ATS 5550-2013] shall be used for all web service interactions with external healthcare organisations.

Implications
- Applications which are incapable of communicating via web service, or have non-conforming web services should use the enterprise integration platform to mediate the information exchange.
- Conformance to healthcare-specific web services standards take precedence over Queensland Government Enterprise Architecture (QGEA) web services standards.
- National e-health Web Services Profiles may be used for internal healthcare web service interactions if there is a compelling benefit, but generally the QGEA Web Services Interoperability standard is the default for internal web services.

7.5 Use the QGEA Web Services standard where no other standard is mandated

The QGEA Web Services Interoperability standard shall be the preferred standard for web services where there is no requirement to use the national e-Health Web Services Profiles.

Implications
- The QGEA Web Services Interoperability standard shall be used for all interaction with Queensland Government agencies.
- For external interfaces outside Queensland Government control, the QGEA standard should be used where possible, unless the national e-health Web Services Profiles is more appropriate, or some other standard outside Department of Health control is mandated.
- QGEA Web Services Interoperability standard is the default web service standard for the enterprise and should be used for internally developed web services, including any wrappers for vendor services.
- This does not apply to web services that are used internally within Commercial Off The Shelf (COTS) packages.

8. Interoperability standards

8.1 Adopt national e-Health standards and specifications

The Department of Health shall adopt national e-Health standards and specifications endorsed by Standards Australia.

Implications
- National e-Health Transition Authority (NEHTA) guidance should be leveraged to the maximum extent possible.
- The Department of Health may approve the use of a draft NEHTA specification or national standard.
8.2 **Use HL7 Version 2.x for sharing electronic health record information via HL7**

Health Level Seven (HL7) V2.x is the HL7 standard for sharing electronic health record information within Queensland Health and with other healthcare organisations in the Australian healthcare environment.

**Implication**
- Refer to Appendix 1 for a list of current Department of Health HL7 standards.

**Note**
- HL7 V3 standard is used to exchange structured documents only.

8.3 **Use HL7 Clinical Document Architecture (CDA) to exchange structured documents**

HL7 CDA shall be the preferred standard for exchange of structured documents.

**Implications**
- CDA is an HL7 V3 standard that can be implemented as an object ‘wrapped’ within the HL7 V2.x message structure or web services.
- Use content specifications based on the HL7 CDA for exchange of documents for areas such as referral, discharge, prescribing, dispensing, pathology and medical imaging.
- Where documents are currently being transferred using standard HL7 V2 (non-CDA format), an assessment should be made to determine to change the existing interface to take advantage of CDA (e.g. RIS reports sent to CDR via standard HL7 lose significant formatting).
- The ability to send reports as unstructured (non-CDA) documents will continue to be supported for systems that are not capable of accepting CDA, but this is not preferred.

8.4 **Use DICOM for transmitting and storing medical images**

Digital Imaging and Communications in Medicine (DICOM) shall be the standard for transmitting and storing medical images and associated information.

**Implication**
- All medical images should be stored as DICOM images, even where they were not acquired as DICOM images.

8.5 **Enable clinical applications to use clinical context sharing**

Enable existing applications to use context sharing using context management technology where appropriate.

**Implications**
- Clinical applications that will be used in a setting where clinicians frequently switch amongst multiple applications should be able to share context.
- Clinical applications should use available context management technology to enable users to preserve patient context when users switch applications.
- Procurement process for acquiring new clinical applications should include questions about context sharing capability.
9. Review

This Protocol is due for review on: 16 June 2016

Date of Last Review: N/A

Supersedes: New

10. Business Area Contact

Director, Strategy and Architecture Office, Planning, Engagement and Performance Directorate, Health Services Information Agency (HSIA)

11. Definitions of terms used in this protocol

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition / Explanation / Details</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canonical form</td>
<td>The data standards, structures, definitions and terminologies that are used within the integration environment.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Clinical Context Object Workgroup (CCOW)</td>
<td>The HL7 CCOW (Clinical Context Object Workgroup) Standard is a standard for providing a unified view on the information held in separate and disparate healthcare applications referring to the same patient, encounter or user using a technique known as context management.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Clinical Document Architecture (CDA)</td>
<td>Clinical Document Architecture is an HL7 standard which provides an exchange model for clinical documents (such as discharge summaries and progress notes). It uses XML, the HL7 Reference Information Model (RIM) and coded vocabularies, to make documents both machine-readable and human-readable.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Digital Imaging and Communications in Medicine (DICOM)</td>
<td>DICOM is a standard for handling, storing, printing, and transmitting information in medical imaging. It includes a file format definition and a network communications protocol.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Enterprise Service Bus (ESB)</td>
<td>Enterprise Service Bus is an application infrastructure component that enables integration using common business services that are made available across the enterprise to consuming applications or business processes.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Enterprise Services</td>
<td>Enterprise Services provide core business functionality that is common to multiple applications (e.g. Clinical Data Service, Provider Directory Service etc)</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Health Level Seven (HL7)</td>
<td>Health Level Seven (HL7) is an American National Standards Institute (ANSI) accredited, not-for-profit standards-development organisation whose mission is to provide standards for the exchange, integration, sharing, and retrieval of electronic health information; support clinical practice; and support the management, delivery and evaluation of health services.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Healthcare Services Specification Project (HSSP)</td>
<td>The Healthcare Services Specification Project is a collaboration effort involving standards groups (Health Level Seven and Object Management Group are the charter organisations) collaborating to address interoperability challenges within the healthcare sector.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Information Model</td>
<td>The Department of Health Information Model refers to the collection of models, data set specifications (DSS) and standards that have been iteratively developed across the organisation. Key sources of data standards include the Queensland Health Data</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Term</td>
<td>Definition / Explanation / Details</td>
<td>Source</td>
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<tr>
<td>Information Interoperability</td>
<td>For the purposes of this paper Information Interoperability covers the non-technical aspects of interoperability. (The technical aspects are covered under the Technical Interoperability section).</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Interoperability</td>
<td>The ability for a system to securely communicate and exchange data in an accurate, reliable, and meaningful way with another information system so that the clinical or operational purpose and meaning of the data are preserved and unaltered.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>National E-Health Transition Authority (NEHTA)</td>
<td>National E-Health Transition Authority Limited was established by the Australian, State and Territory governments to develop better ways of electronically collecting and securely exchanging health information.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>openEHR</td>
<td>An open standard specification that describes the management and storage, retrieval and exchange of health data in electronic health records (EHRs).</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Queensland Health</td>
<td>The Department of Health and the Hospital and Health Services (HHSs), making up the public healthcare system, is known as Queensland Health  <a href="http://qheps.health.qld.gov.au/ohsa/html/roledoh.htm">http://qheps.health.qld.gov.au/ohsa/html/roledoh.htm</a></td>
<td>Office of Health Statutory Agencies</td>
</tr>
<tr>
<td>REST (Representational State Transfer)</td>
<td>REST is an architectural style that uses the existing technology and protocols of the internet, including HTTP (Hypertext Transfer Protocol) and XML.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Semantic interoperability</td>
<td>The ability for two or more systems to communicate information with a shared and consistent understanding of the meaning of the data. This requires a shared understanding of information models and terminologies and the means to translate between these. Syntactical interoperability is also a requirement for semantic interoperability.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Secure Transfer Service (STS)</td>
<td>The Secure Transfer Service is a Department of Health application that is used for secure transfer of messages and documents with external parties.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Syntactic interoperability</td>
<td>Both sender and receiver understand the syntax of the information exchanged allowing it to be parsed consistently. This can be done using simple message-based integration (or even file-based integration) with standard message exchange formats (e.g. HL7 version 2).</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Technical Interoperability</td>
<td>Technical Interoperability is concerned with providing common middleware, open interfaces, and tools for integrating systems and services.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
<tr>
<td>Web Services Description Language (WSDL)</td>
<td>Web Services Description Language (also known as Web Services Definition Language) specifies the operational characteristics of a Web service using an XML document. It describes the services, its location and how it can be invoked.</td>
<td>Department of Health Strategy and Architecture Office</td>
</tr>
</tbody>
</table>
12. Approval and Implementation

Policy Custodian:
Senior Director, Strategy Governance and Architecture, Planning, Engagement and Performance Directorate, Health Services Information Agency (HSIA)

Responsible Executive Team Member:
Chief Information Officer, HSIA

Approving Officer:
Ray Brown, Chief Information Officer, HSIA

Approval date: 16 June 2014
Effective from: 16 June 2014

Version Control

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Prepared by</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>30/05/2014</td>
<td>ICT Policy</td>
<td>Finalised for CIO approval</td>
</tr>
</tbody>
</table>
Appendix 1: Department of Health HL7 Standards

Notes:

1) New applications or solutions will adopt the preferred 2012-2014 standards wherever possible.

2) Existing Department of Health applications or solutions undergoing major upgrades will adopt the preferred 2012-2014 standards wherever possible.

3) Existing Department of Health applications and solutions not undergoing major upgrades may continue to receive the current existing HL7 message formats. If information is received from solutions that have implemented new HL7 standards, the integration platform (currently JCAPS/e*Gate) will continue to mitigate the different versions of HL7 to ensure no disruption to existing applications or solutions.

4) As the CDA information exchange standards are developed and implemented (Version 2.X and 3.0) by Standards Australia and NEHTA, Department of Health will migrate to these standards to support Department of Health and the Commonwealth implementation of the PCEHR.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Current version</th>
<th>Preferred</th>
</tr>
</thead>
</table>
| Pathology                     | 2.3.1           | • HL7 Version 2.4 Part 2: Pathology and medical imaging (diagnostics) – AS4700.2-2007  
• HL7 Version 2.5 will be used where Blood Banking capability required.  
• HL7 V3 clinical document architecture (CDA) will be used in forms and document based communications. |
| Medical imaging               | QRIS: mix of 2.3, 2.3.1 and 2.4. | • HL7 Version 2.4 Part 2: Pathology and medical imaging (diagnostics) – AS4700.2-2007  
• HL7 V3 clinical document architecture (CDA) will be used in forms and document based communications such as radiology reports.  
• To support future Medical Imaging DICOM images information exchange, HL7 Version 3.0 information exchange standards will be implemented when required. |
| Referral discharge and health record | 2.3             | • HL7 Version 2.4, Part 6: Referral discharge and health record - AS4700.6-2006  
• When the final version of HL7 Version 2.5, Part 6: Referral, discharge and health record messaging is published by Standards Australia, version 2.4 will be superseded by 2.5.  
• HL7 V3 clinical document architecture (CDA) will be used in forms and document based communications such as discharge summary. |
| Immunisations                 | Not in use within Department of Health | • HL7 Version 2.4, Part 5: Immunisation messages – (AS4700.5-2005)  
• When the final version of HL7 Version 2.5, Part 5: Immunisation messages is published, version 2.4 will be superseded by version 2.5. |
### Domain | Current version | Preferred |
|--------|----------------|-----------|
| Medications | 2.4 | - HL7 Version 2.4, Part 3: Electronic messages for exchange of information on drug prescription – AS4700.3-2005  
- When the final version of *HL7 Version 2.5 Part 3: Electronic messages for exchange of information on drug prescription* is published by Standards Australia, version 2.4 will be superseded by 2.5. |
| Scheduling | 2.3 | - Scheduling: HL7 Version 2.4, Part 10: Scheduling  
- There are significant improvements in Version 2.5 and 2.6 in the management of scheduling. HL7 Version 2.6 Standard includes the Access Restrictions segment (ARV) that includes a number of additional fields to communicate and manage privacy. Department of Health will begin implementation of Version 2.5 and 2.6 when they have been published by Standards Australia. |
| Additional Standards Australia clinical or administrative domains identified | N/A | - As endorsed by Standards Australia. |
### Appendix 2: Interoperability Standards – website links for additional guidance

The following links are related to the position statements in this paper, and should be considered when determining interoperability requirements. This is not intended to be a comprehensive list of interoperability standards for the Department of Health.

<table>
<thead>
<tr>
<th>Link</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DICOM</td>
<td>Digital Imaging and Communications in Medicine.</td>
</tr>
<tr>
<td>HL7 CCOW</td>
<td>The HL7 CCOW (Clinical Context Object Workgroup) Standard is a standard for enabling clinical applications to share information at the point of care.</td>
</tr>
<tr>
<td>HL7 International</td>
<td>Health Level Seven International (HL7) is the global authority on standards for interoperability of health information technology</td>
</tr>
<tr>
<td>HSSP Standards</td>
<td>HSSP products that are either adopted standards for formally issued artefacts from the HSSP community. See Note 1.</td>
</tr>
<tr>
<td>IHE Profiles</td>
<td>IHE Profiles organize and leverage the integration capabilities that can be achieved by coordinated implementation of communication standards, such as DICOM, HL7 W3C and security standards. See note 2.</td>
</tr>
<tr>
<td>NeHTA eHealth Interoperability</td>
<td>This page contains links to various NeHTA Interoperability papers including the NEHTA e-health interoperability maturity model and NEHTA Interoperability Framework.</td>
</tr>
<tr>
<td>openEHR</td>
<td>openEHR is about creating re-usable clinical models of content and process - known as archetypes</td>
</tr>
<tr>
<td>QGGEA Web Services Interoperability Standard</td>
<td>This standard specifies technical requirements to ensure that web services created within QueenslandGovernment are interoperable across the government.</td>
</tr>
<tr>
<td>Standards Australia e-Health</td>
<td>e-Health standards including Australian HL7 standards and E-health Web Services profile</td>
</tr>
</tbody>
</table>

**Note1: Consider HSSP standards for enterprise services interfaces**

Healthcare Services Specification Project (HSSP) standards should be considered as prime candidates for enterprise services interfaces.

- Where no HSSP standard exists, then a Department of Health specific interface should be developed using SOA principles, and in alignment with the *Department of Health Service Oriented Architecture Protocol*.
- When a Terminology service is implemented, it is expected to implement an interface consistent with the HSSP standard for a Clinical Terminology Service (CTS2).
- All future data services including Admission Discharge Transfer (ADT), Clinical information, Demographics and Consent services are expected to implement an interface consistent with the RLUS specification.
- When a Decision Support System is developed, it should implement an interface consistent with the HSSP Decision Support Service (DSS) specification. This is expected to be beyond the 2014 time frame.
Department of Health: Interoperability Protocol

- Future identity management services (e.g. Person service) are expected to implement interfaces consistent with the HSSP Entity Identification Service (EIS) specification.
- Future security services should be guided by the HSSP Privacy, Access and Security Services (PASS) specification.

Note: Refer to [http://hssp.wikispaces.com/standards](http://hssp.wikispaces.com/standards) for more information on the HSSP standards and specifications mentioned above.

Note 2: Consider IHE profiles where there is a clearly defined benefit

IHE (integrating the Healthcare Enterprise) promotes the coordinated use of established standards such as DICOM and HL7 to address specific clinical needs in support of optimal patient care. IHE profiles should be considered as patterns for use in the Department of Health system where there is a clearly defined benefit.

- The Department of Health should maintain an awareness of IHE profiles and their adoption in government and vendor initiatives. Some IHE profiles are already used in Radiology.
- Although this protocol does not mandate use of any specific IHE profiles, the intent is to specify in future that certain exchanges follow certain profiles

Appendix 3: Terminology standards

<table>
<thead>
<tr>
<th>Usage</th>
<th>Terminology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Terminology</td>
<td>Systematised Nomenclature of Medicine Clinical Terms – Australian Release (SNOMED CT – AU)</td>
</tr>
<tr>
<td>Medicines Terminology</td>
<td>Australian Medicines Terminology (AMT)</td>
</tr>
<tr>
<td>Pathology Observations</td>
<td>Logical Observation Identifiers Names and Codes (LOINC)</td>
</tr>
<tr>
<td>Dietetics</td>
<td>International Dietetics and Nutrition Terminology (IDNT)</td>
</tr>
<tr>
<td>Corporate Reference Data</td>
<td>The Corporate Reference Data System (CRDS)</td>
</tr>
<tr>
<td></td>
<td>Queensland Health Data Dictionary (QHDD)</td>
</tr>
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</table>