

# **New Zealand Pathology Observation Code Sets (Order and Results) Information Business Process**

## **HISO 10004**

To be used in conjunction with  
NZPOCS\_Orders\_and\_Results\_Code\_Sets\_Jan10\_v6.xls  
and  
NZPOCS\_Microb\_GynCtyo\_Code\_Sets\_Sept08.xls

## Copyright Information

This document has been approved as a Standard for the New Zealand health and disability sector by the Health Information Standards Organisation (HISO), a sub-committee of the Health Information Strategy Action Committee (HISAC), which is a ministerial committee appointed by the Minister of Health.

HISAC is the copyright owner of this document. HISO work on this document may be reproduced in any number of copies and in any format or medium provided:

- the content is not changed;
- the material is not sold;
- the material is not used to promote or endorse any product or service;
- the material is not used in an inappropriate or a misleading context having regard to the nature of the material;
- any disclaimers included on the published information are reproduced on the material;
- a copyright acknowledgment to the Health Information Strategy Action Committee is included.

Permission to reproduce HISAC work does not extend to include any work identified in this document as the copyright material of a party other than HISAC. Authorisation to reproduce such material must be obtained from the copyright holders concerned.

Published in March 2005  
Updated January 2010 by Ministry of Health  
PO Box 5013, Wellington, New Zealand

ISBN 978-0-478-33990-1 (online)  
This document is available on the HISAC website:  
<http://www.hisac.govt.nz>

## Updates

### 10004 NZ Pathology Observation Code Sets Information Business Process v3

Date	Version	Page number	Chapter number	Changes
March 2005	1.0			Published
September 2008	2			Microbiology, Cytology and Histology details added
September 2008	2		2.2.1.8	A for Amended added to Order Code Status
September 2008	2		2.2.2.14	A for Amended added to Result Code Status
September 2008	2	26	Appendix A	Updated LOINC Copyright Notice and Licence LOINC v2.4 issued 10 July 2008
September 2008	2	38	Appendix C	Code set abbreviations updated
December 2009	3	3		Updated the changes made in the 10004 NZ Pathology Observation Orders and Results Code Sets (Spreadsheet - Dec09 v5)
January 2010	4	3		Updated changes made added to 10004 NZ Pathology Observation Orders and Results Code Sets (Spreadsheet – Jan10 v6)

### 10004 NZ Pathology Observation Orders and Results Code Sets (Spreadsheet)

Date	Version	Changes
January 2010	6	XNZ0436 HbA1c reporting in mmol/mmol unit added File name: NZPOCS_Orders_and_Results_Code_Sets_Jan10_v6.xls
December 2009	5	NZPOCS codes removed (highlighted in grey with strikethrough) and replaced with new LOINC codes (highlighted in lilac) with effect 10 Dec 09 File name: NZPOCS_Orders_and_Results_Code_Sets_Dec09_v5.xls
September 2008		Microbiology and Gynaecological Cytology codes added File name: NZPOCS_Microb_GynCtyo_Code_Sets_Sept08.xls

# Contents

<b>1</b>	<b>Introduction</b>	<b>6</b>
1.1	Requirement for New Zealand Pathology Observation Code Sets	6
1.2	Benefits of New Zealand Pathology Observation Code Sets	7
1.3	Logical Observation Identifiers Names and Codes (LOINC)	8
1.4	New Zealand Pathology Observation Code Sets (NZPOCS) Committee	9
<b>2</b>	<b>New Zealand Pathology Observation Code Sets</b>	<b>11</b>
2.1	Development of the New Zealand Pathology Observation Code Sets	11
2.2	Structure of the Code Sets	12
2.3	Syntax and rules for names	19
2.4	Limitation of the Code Sets	22
<b>3</b>	<b>Specimen Details</b>	<b>23</b>
<b>4</b>	<b>Overview for Using the New Zealand Pathology Observation Code Sets</b>	<b>25</b>
4.1	Conventions for using names and codes	25
4.2	HL7 messaging conventions	25
4.3	Grouping reported data	28
4.4	Allocating the correct codes	28
4.5	Submissions for new codes	29
4.6	Changes or amendments to existing codes or name	29
	<b>Appendix A: LOINC Copyright Notice and Licence</b>	<b>30</b>
	<b>Appendix B: Tables</b>	<b>34</b>
	<b>Appendix C: Code Set Abbreviations</b>	<b>43</b>
	<b>Appendix D: Submission Form for Requesting Changes to the New Zealand Pathology Observation Code Sets</b>	<b>47</b>
	<b>Appendix E: Submission Form for Requesting Additions to the New Zealand Pathology Observation Code Sets</b>	<b>49</b>

## Committee Representation

The New Zealand Health Information Standards Organisation Committee 10004 – New Zealand Pathology Observation Code Sets Committee prepared this draft standard. The Committee consisted of the following representatives:

Nominating Organisation	Representative
New Zealand Association of Pathology Practices (Previously Association of Community Labs)	Dr Samuel Chan
Canterbury Health Laboratories	Alison Doorey
Counties Manukau District Health Board	David Bunkall
HealthPAC	Shane Kerr
New Zealand Health IT Cluster Inc	David Fallas
Waikato District Health Board	Alison Idema
Auckland District Health Board	Ross Hewitt

## Websites

Organisation	Website
Australian Pathology Code List	<a href="http://www.austpath.uow.edu.au">www.austpath.uow.edu.au</a>
CUMUL	<a href="http://www.cumul.ch">www.cumul.ch</a>
Logical Observation Identifiers Names and Codes (LOINC®)	<a href="http://www.loinc.org">www.loinc.org</a>
Regenstrief Institute	<a href="http://www.regenstrief.org">www.regenstrief.org</a>
SNOMED (Systematized Nomenclature of Medicine)	<a href="http://www.snomed.org">www.snomed.org</a>
HISAC	<a href="http://www.hisac.govt.nz">www.hisac.govt.nz</a>

# 1 INTRODUCTION

## 1.1 Requirement for New Zealand Pathology Observation Code Sets

### 1.1.1 Identifying pathology observations in electronic HL7 messages

Most New Zealand laboratories use electronic HL7 messages to report laboratory observations to hospital result repositories, referring laboratories, and practitioner systems. HL7 messaging is also used to report statistical data to various Ministry of Health directorates. The information contained in an HL7 message is used by these receiving applications to identify and file the details reported. HL7 messages can also be used to place electronic orders in a laboratory information system.

An HL7 message contains several segments, two of which are important when discussing the identification of laboratory observations. The OBR segment is used to transmit information about the order and the OBX segment is used to transmit one or more observations as generated by the order. Within each OBR and OBX segment is a field designed to contain the unique identifier for each observation: OBR-4 and OBX-3. These fields contain the identifier (code) text (associated name) and name of coding system used, and can accept details from more than one coding system.

Other fields in the OBR and OBX segments are used to report the units of measurement, reference interval, normal/abnormal flag and other specimen information.

### 1.1.2 Laboratory-dependent variation in observation identifiers

Each New Zealand laboratory (or laboratory alliance) has its own local code for every observation reported and its own conventions for allocating the associated name. In the absence of a New Zealand coding system these local codes and names are sent in the OBR-4 and OBX-3 field of HL7 messages. The existing variation in local coding and names is illustrated with the following examples:

(a) Laboratory 1:

```
OBX|1|ST|0250^Sodium^L||139 |mmol/l|135-147|||F  
Local code = 0250. Test name = Sodium.
```

(b) Laboratory 2:

```
OBX|1|ST|SOD^Sodium, serum^L||139 |mmol/l|135-147|||F  
Local code = SOD. Test name = Sodium, serum.
```

(c) Laboratory 3:

```
OBX|1|ST|SNA^Serum Sodium^L||139 |mmol/l|135-147|||F  
Local code = SNA. Test name = Serum Sodium.
```

### 1.1.3 Receiving observation identifiers from multiple laboratories

The wide variation in local coding and the fact these local codes are not necessarily unique to one sending laboratory can create problems when systems receive results or data from multiple sources. The receivers must invest considerable labour to map the thousands of codes from each sending laboratory to their own local coding system or risk errors by relying on a less robust way of identifying observations, e.g. associated name.

If electronic ordering were introduced, laboratories receiving requests from multiple sources with various codes for observations would also be required to map the various codes of each requesting laboratory to their local coding systems.

This necessity for complex mapping of codes clearly creates the potential for mismatched observations, which could lead to incorrect result interpretation and subsequent harm to patients, and billing anomalies for the funding agency.

The use of various coding systems across the country has also made it difficult for Ministry of Health departments and researchers to collate statistics on laboratory observations for use at a national level.

## **1.2 Benefits of New Zealand Pathology Observation Code Sets**

The implementation of New Zealand Pathology Observation Code Sets and standard names for pathology observations would facilitate three New Zealand population health objectives:

- (a) improve health outcomes;
- (b) improve cost-effectiveness of health service delivery, in this case maximising benefits – patient centred, user friendly, real time, accurate and integrated laboratory test reporting – while minimising harm;
- (c) reduce health service costs.

A wide range of benefits may accrue to many groups in the health sector from New Zealand Pathology Observation Code Sets being used. These benefits include, but are not limited to, the following:

### **1.2.1 *Health information technology vendors***

The benefits to health information technology vendors of New Zealand Pathology Observation Code Sets include the:

- (a) establishment of a common base for systems;
- (b) reduction in the complexity of mapping requirements.

### **1.2.2 *Benefits to service providers***

The benefits to service providers (e.g. laboratories) of New Zealand Pathology Observation Code Sets include:

- (a) rationalisation of code sets to a single entity;
- (b) consistency of observation names;
- (c) increased workforce mobility and fewer retraining requirements;
- (d) increased confidence in the ability of receiving systems to correctly identify the observation;
- (e) facilitation of electronic orders;
- (f) facilitation of information sharing.

### **1.2.3 *Benefits to health practitioners***

The benefits to health practitioners of New Zealand Pathology Observation Code sets include the:

- (a) provision of information in a consistent way from all service providers;
- (b) facilitation of electronic orders;
- (c) facilitation of regional result repositories;
- (d) facilitation of information sharing.

### **1.2.4 *Benefits to funding agencies***

The benefits to funding agencies of New Zealand Pathology Observation Code Sets include:

- (a) the ability to compare and use information from multiple providers in a region;
- (b) the use of data to support payment;
- (c) the development of best practice guidelines;
- (d) financial/utilisation modelling.

### **1.2.5 Benefits to the health consumer**

The benefits to funding agencies of a New Zealand Pathology Observation Code Sets include the:

- (a) reduction of the risk associated with inconclusive or inappropriate identification of test information;
- (b) portability of data from previous tests or between practitioners.

### **1.2.6 Benefits to the Ministry of Health**

The benefits to the Ministry of Health of New Zealand Pathology Observation Code Sets include the:

- (a) facilitation of information collation for:
  - i. epidemiological studies;
  - ii. statistical analysis;
  - iii. research;
- (b) consistency of reporting to national registries;
- (c) potential for the funding body to use it for claiming.

## **1.3 Logical Observation Identifiers Names and Codes (LOINC)**

### **1.3.1 LOINC database**

In 1994, the Regenstrief Institute, an internationally respected non-profit medical research organisation associated with Indiana University, initiated the Logical Observation Identifiers Names and Codes (LOINC) project to provide a universal coding system for reporting laboratory and other clinical observations. It was created to overcome the issues arising from laboratories receiving different local test identifiers in electronic HL7 messages from multiple sources. Using LOINC, the example given in clause 1.1.2 (above) would be reported as:

```
OBX|1|ST|2951-2^SODIUM^LN||139 |mmol/l|135-147|||F
```

The LOINC database contained about 52,000 observation terms, the majority of which relate to laboratory testing. The laboratory portion of the LOINC database contains the usual categories of chemistry, haematology, serology, microbiology and toxicology, and includes entries for laboratory observations, e.g. Sodium. The clinical portion of the LOINC database includes entries for clinical observations, e.g. patient height. Updates to the LOINC database are published at least twice a year. The latest update was July 2008.

For more information about LOINC, refer to the websites on page 4 and Appendix A: LOINC Copyright Notice and Licence.

### **1.3.2 International implementation of LOINC**

LOINC has been endorsed in the United States of America (USA) by the HL7 organisation, professional bodies, government institutions and commercial organisations, and has also been adopted by Germany, Switzerland and two Canadian provinces.

The HL7 organisation provides significant support for the use of LOINC codes with HL7 message specifications containing numerous references to LOINC.

SNOMED International ([www.snomed.org](http://www.snomed.org)) is working in collaboration with the LOINC Committee to ensure the SNOMED terminologies are mapped to LOINC and that overlap is prevented.

### **1.3.3 LOINC in New Zealand**

The difficulties associated with implementing LOINC were identified as follows:

- (a) some tests performed in New Zealand did not exist in the LOINC database;
- (b) some LOINC codes were too specific for New Zealand tests;
- (c) LOINC names were long and unfamiliar to New Zealand users;
- (d) systems and technologies associated with connectivity and data sharing were immature.

Despite these issues it was recognised that LOINC should be the basis for New Zealand Pathology Observation Code Sets as:

- (a) adopting LOINC is in line with what has occurred outside New Zealand;
- (b) longevity of the LOINC database is maintained, since many countries are using LOINC as the foundation for their systems;
- (c) LOINC carries no licence fee.

After the launch of the New Zealand HL7 User Group (NZHUG) in 2002 and the establishment of the Health Information Standards Organisation (HISO) in 2003, a proposal by NZHUG to HISO to localise a LOINC subset for New Zealand was accepted and the New Zealand Pathology Observation Code Sets Committee was set up.

## **1.4 New Zealand Pathology Observation Code Sets (NZPOCS) Committee**

The New Zealand HISO Committee 10004 – New Zealand Pathology Observation Code Sets Committee was appointed in 2004 to create a New Zealand subset of LOINC and use this as a basis for developing the following projects, in two phases.

### **1.4.1 Phase One – Scope**

- (a) a code set for ordering and reporting observations for the following pathology tests on the National Laboratory Contract – Schedule Test Purchase List:
  - (i) biochemistry;
  - (ii) haematology;
  - (iii) immunology.
- (b) a guide for using the New Zealand Pathology Observation Code Sets.

This was published in 2005 and is available free from [www.hisac.govt.nz](http://www.hisac.govt.nz).

### **1.4.2 Phase Two – Scope**

The scope of the second phase was to include the following sections of the National Laboratory Contract – Schedule Test Purchase List:

- (a) Microbiology;
- (b) Histology;
- (c) Cytology.

However, the scope was since limited to microbiology. Refer to chapter 1.4.3 for details.

### **1.4.3 Histology and Cytology**

Gynaecological Cytology coding has been included in the National Implementation Guide, which was published in October 2007 as part of the National Cervical Screening Programme, refer to [www.nsu.govt.nz](http://www.nsu.govt.nz). The cytology codes are included in the Code Set. Codes for histology synopsis and HPV are out of scope for the coding project. Most observation names used in the NSU document are the original LOINC names as there are no NZPOCS names allocated to them. Where there is the requirement for a new code, a LOINC code should be used.

At the LOINC 2 Workshop in June 2007, concerns were expressed by anatomical pathologists about the possible effect of the HL7 v2.4 messaging structure on the integrity of histopathological reports. Therefore, the current common practice of using one OBX with formatted text for histology and non-gynaecological cytology results will remain unchanged.

### **1.4.4 Limitations of the Scope**

The following issues were out of scope for the committee, but were discussed and have been raised as outstanding issues for HISO consideration:

- (a) Maintenance, promotion and promulgation of the New Zealand Pathology Observation Code Sets;
- (b) A national strategy and plan for electronic laboratory ordering and results reporting;

### **1.4.5 Relationship with National Laboratory Contract – Schedule Test Purchase List**

New Zealand laboratories use HealthPAC codes for billing procedures. Although they do not provide enough detail to be used for ordering or reporting laboratory observations, they present a familiar starting point from which to develop New Zealand Pathology Observation Code Sets. The mapping of order and result codes by the New Zealand Pathology Observation Code Sets Committee to the National Laboratory Contract – Schedule Test Purchase List must not be regarded as an attempt to interpret the HealthPAC schedule. It is envisaged that HealthPAC will eventually completely adopt the New Zealand Pathology Observation Code Sets for the purpose of laboratory claiming. The tasks involved in implementing this change in HealthPAC systems are significant. Therefore, it is expected this implementation will be conducted in stages across all sector systems.

## 2 NEW ZEALAND PATHOLOGY OBSERVATION CODE SETS

### 2.1 Development of the New Zealand Pathology Observation Code Sets

#### 2.1.1 *New Zealand approach to LOINC*

The New Zealand Pathology Observation Code Sets Committee was asked to localise a subset of LOINC for use in New Zealand because of the potential for variation and error if laboratories were asked to allocate codes from over 35,000 available in the LOINC master set.

It was identified that two code sets were required: an order code set and a result code set.

As the LOINC database does not yet cater for the less detailed requirements of ordering, the Committee decided to take a similar approach to Australia and develop an order code set exclusive to New Zealand.

To overcome issues identified in clause 1.3.3 regarding localising a New Zealand LOINC subset for reporting results, the Committee decided to develop the result code set as an abstraction layer over the LOINC database (in a similar way to the CUMUL project in Switzerland) to enable the:

- (a) association of result codes with HealthPAC codes;
- (b) assignation of names that are more familiar to New Zealand users;
- (c) provision of key words and remarks to assist in the allocation of the codes within New Zealand;
- (d) addition of observation codes required in New Zealand but not present in the LOINC database;
- (e) future changes and maintenance required for New Zealand practice.

#### 2.1.2 *Development of the Result Code Set*

Each code in the LOINC code set is defined by the values in the six fields (parts) of the fully specified name. HealthPAC tests were mapped to the LOINC code set using these six LOINC attributes:

- (a) Component/analyte (first part) – the name of the analyte or the substance measured, e.g. potassium, haemoglobin, hepatitis C antibody.
- (b) Kind of property (second part) – the property measured, e.g. a mass concentration, substance (molar) concentration, enzyme activity (catalytic rate).
- (c) Time aspect (third part) – timing, e.g. whether the measurement is an observation at a moment in time, or an observation integrated over an extended duration, e.g. 24-hour urine.
- (d) System type (fourth part) – the type of sample, e.g. urine, blood.
- (e) Type of scale (fifth part) – the scale of the measure, e.g. whether the measurement is quantitative (a true measurement), ordinal (a ranked set of options), nominal (e.g. E. coli, Staphylococcus aureus) or narrative (e.g. dictation results from x-rays).
- (f) Type of method (sixth part) – where relevant, the method used to produce the result or other observation.

Each HealthPAC test code was mapped to none, one or multiple suitable LOINC codes. Where a specific LOINC code was identified, that code was used in the New Zealand Result Code Set. Where a LOINC code did not satisfy the mapping for the test, a temporary New Zealand code was created and identified by an 'XNZ' prefix. Under the rules pertaining to the use of LOINC, a temporary New Zealand result code awaiting application to LOINC for inclusion in the master database must be identified by a leading 'X'.

### 2.1.3 Development of the Order Code Set

Less specific order codes were then developed from the result codes as defined above. Order codes are unique New Zealand codes identified by an 'RNZ' prefix.

## 2.2 Structure of the Code Sets

### 2.2.1 Order Code Set

The New Zealand Pathology Order Code Set is exclusive to New Zealand and has been developed to reflect local practice. It is presented in the form of a table containing a series of fields or columns. Each field is named in the following list with a brief explanation of its intended use.

#### 2.2.1.1 Order\_Name

Field name	Order_Name		
Definition	The common name that is to be used when ordering (paper and electronic) observations to be performed in a New Zealand Laboratory.		
Source		Layout	AN(30)
Remarks	It is a unique name assigned by the New Zealand Pathology Observation Code Sets Committee following the New Zealand Test Names Structure.		

#### 2.2.1.2 Code

Field name	Code		
Definition	The standard code (sourced from the table specified in the Source_Type field) that is to be used in New Zealand. When taken together with the Source_Type field, the result is a unique identifier.		
Source		Layout	AAANNNN
Remarks	RNZ is the default prefix for AAA. NNNN is a unique four-digit number.		

#### 2.2.1.3 Source\_Type

Field name	Source_Type		
Definition	The source table to which the code belongs.		
Source		Layout	A(10)
Remarks	The default value is NZ – New Zealand.		

#### 2.2.1.4 Remarks

Field name	Remarks		
Definition	A free-text field that will contain further information to assist coding personnel to correctly assign codes or where other ancillary information pertaining to this code is required.		
Source		Layout	AN(255)
Remarks			

#### 2.2.1.5 HPAC\_Code

Field name	HPAC_Code		
Definition	A unique code that identifies tests on the National Laboratory Contract – Schedule Test Purchase List.		
Source	HealthPAC	Layout	AAA or AAN or ANN
Remarks	Valid value in source table only, e.g. BEA, BA5, D12.		

#### 2.2.1.6 HPAC\_Name

Field name	HPAC_Name		
Definition	A description of the test on the National Laboratory Contract – Schedule Test Purchase List.		
Source	HealthPAC	Layout	AN(90)
Remarks	Valid value in source table only, e.g. Urine free cortisol, Serum free T3.		

#### 2.2.1.7 Keywords

Field name	Keywords		
Definition	A series of key words that may be used to assist coding personnel to correctly assign codes. Methods, acronyms, synonyms and other commonly used names could be included.		
Source		Layout	AN(255)
Remarks	The words are single words separated by a space and may contain a hyphen or numbers but no special characters. The words are in lower case except where upper case is required for scientific names.		

#### 2.2.1.8 Code\_Status

Field name	Code_Status		
Definition	Current status of the code.		
Source		Layout	A (1)
Remarks	A valid value is one of the following codes: A – amended C – current D – deleted M – merged P – proposed  Either C or P indicates the code's currently active status. Codes with a value of M or D are not actively in use.		

### 2.2.1.9 *Start\_Date*

Field name	Start_Date		
Definition	The date from which this code became (or will become) valid. Together with the field End_Date, this will be used to control code versioning.		
Source		Layout	DDMMYYYY
Remarks	The value must be a valid date and less than or equal to the value in the End_Date field.		

### 2.2.1.10 *End\_Date*

Field name	End_Date		
Definition	The date on which this code became (or will become) invalid for further use. This will take effect when a merge or deletion has taken place.		
Source		Layout	DDMMYYYY
Remarks	The value must be a valid date and greater than or equal to the value in the Start_Date field.		

### 2.2.1.11 *Merge\_To\_Code*

Field name	Merge_To_Code		
Definition	The target code when a code merge has taken place with another when duplication exists. Taken together with the field Merged_To_Source_Type this will uniquely identify a target code when a merge has taken place.		
Source		Layout	AAANNNN
Remarks	A valid value in the Code field.		

### 2.2.1.12 *Merged\_To\_Source\_Type*

Field name	Merged_To_Source_Type		
Definition	The target code's source type when a merge has taken place with another when duplication exists. Taken together with the field Merged_To_Code this will uniquely identify a target code when a merge has taken place.		
Source		Layout	A(10)
Remarks	A valid value in the Source_Type field.		

## 2.2.2 *Result Code Set*

The New Zealand Pathology Result Code Set is presented as an abstraction layer with a mapping to LOINC codes. Where an appropriate LOINC code is not available, a temporary New Zealand Result Code has been created.

The Result Code Set is presented in the form of a table containing a series of fields or columns. Each field is named in the following list with a brief explanation of its intended use.

### 2.2.2.1 Result\_Name

Field name	Result_Name		
Definition	The common name that is to be used when reporting (paper and electronic) results from a New Zealand Laboratory.		
Source		Layout	AN(30)
Remarks	It is a unique name assigned by the New Zealand Laboratory Observation Code Sets Committee following the New Zealand Test Names Structure.		

### 2.2.2.2 Code

Field name	Code		
Definition	The standard code (sourced from the table specified in the Source_Type field) that is to be used in New Zealand. When taken together with the Source_Type field, the result is a unique identifier.		
Source	LOINC codes from the Regenstrief Institute, USA.  XNZ codes from the NZPOCS Committee, New Zealand.	Layout	NNNNN-N or AAANNNN
Remarks	<p>It is a unique code assigned by the New Zealand Pathology Observation Code Sets Committee.</p> <p>NNNNN-N = LOINC code. It is a unique numeric code with a modulus 10 check digit at the end and without leading zeroes.</p> <p>AAANNNN = XNZ code where no suitable LOINC code exists. XNZ is the default prefix for AAA. NNNN is a unique four-digit number. HISO may apply to LOINC to include a new code if it feels a case can be warranted when, if the application was accepted, the 'merge to mechanism' (see fields below) would be utilised.</p>		

### 2.2.2.3 Source\_Type

Field name	Source_Type		
Definition	The source table to which the code belongs.		
Source		Layout	A(10)
Remarks	This may be LOINC or NZ.		

### 2.2.2.4 Component

Field name	Component		
Definition	It is the name of the substance or entity that is measured, evaluated or observed.		
Source	LOINC database	Layout	AN(150)
Remarks	The first part of the fully specified LOINC name, e.g. potassium, haemoglobin or hepatitis C antibody.		

### 2.2.2.5 Property

Field name	Property
Definition	It is the kind of property or characteristic of the substance or entity that is measured, evaluated or observed.
Source	LOINC database      Layout      AN(30)
Remarks	The second part of the fully specified LOINC name, e.g. mass concentration, substance (molar) concentration, enzyme activity (catalytic rate).

### 2.2.2.6 Time\_Aspect

Field name	Time_Aspect
Definition	It is the interval of time over which the observation or measurement was made.
Source	LOINC database      Layout      AN(30)
Remarks	The third part of the fully specified LOINC name, e.g. whether the measurement was an observation at a moment in time, or an observation integrated over an extended duration, e.g. 24-hour urine.

### 2.2.2.7 System

Field name	System
Definition	It is the system or specimen type within which the observation or measurement was made.
Source	LOINC database      Layout      AN(100)
Remarks	The fourth part of the fully specified LOINC name, e.g. patient, urine, blood.

### 2.2.2.8 Scale\_Type

Field name	Scale_Type
Definition	The scale of the measure.
Source	LOINC database      Layout      AN(30)
Remarks	The fifth part of the fully specified LOINC name, e.g. whether the measurement is quantitative (a true measurement), ordinal (a ranked set of options), nominal (e.g. Staphylococcus aureus) or narrative (e.g. dictation results from x-rays).

### 2.2.2.9 Method\_Type

Field name	Method_Type
Definition	The method used to produce the measurement or other result of observation.
Source	LOINC database      Layout      AN(50)
Remarks	The sixth part of the fully specified LOINC name, where relevant, e.g. EIA or electrophoresis. It is the only part that is optional.

**2.2.2.10** *Remarks*

Field name	Remarks		
Definition	A free-text field that will contain further information to assist coding personnel to correctly assign codes or where other ancillary information pertaining to this code is required.		
Source		Layout	AN(255)
Remarks			

**2.2.2.11** *HPAC\_Code*

Field name	HPAC_Code		
Definition	A unique code that identifies tests on the National Laboratory Contract – Schedule Test Purchase List.		
Source	HealthPAC	Layout	AAA or AAN or ANN
Remarks	Valid value in source table only, e.g. BEA, BA5, D12.		

**2.2.2.12** *HPAC\_Name*

Field name	HPAC_Name		
Definition	A description of the test on the National Laboratory Contract – Schedule Test Purchase List.		
Source	HealthPAC	Layout	AN(90)
Remarks	Valid value in source table only; e.g. Urine free cortisol, Serum free T3.		

**2.2.2.13** *Keywords*

Field name	Keywords		
Definition	A series of key words that may be used to assist coding personnel to correctly assign codes. Methods, acronyms, synonyms and other commonly used names could be included.		
Source		Layout	AN(255)
Remarks	The words are single words separated by a space and may contain A hyphen or numbers but no special characters. The words are in lower case except when upper case is required for scientific names.		

**2.2.2.14 Code\_Status**

Field name	Code_Status		
Definition	Current status of the code.		
Source		Layout	A(1)
Remarks	<p>A valid value is one of the following codes:</p> <p>A – amended</p> <p>C – current</p> <p>D – deleted</p> <p>M – merged</p> <p>P – proposed</p> <p>A value of A, C or P indicates a code is currently active. Codes with a value of M or D are not actively in use.</p>		

**2.2.2.15 Start\_Date**

Field name	Start_Date		
Definition	The date from which this code became (or will become) valid. Together with the field End_Date this will be used to control code versioning.		
Source		Layout	DDMMYYYY
Remarks	The value must be a valid date and less than or equal to the value in the End_Date field.		

**2.2.2.16 End\_Date**

Field name	End_Date		
Definition	The date on which this code became (or will become) invalid for further use. This will take effect when a merge or deletion has taken place.		
Source		Layout	DDMMYYYY
Remarks	The value must be a valid date and greater than or equal to the value in the Start_Date field.		

**2.2.2.17 Merge\_To\_Code**

Field name	Merge_To_Code		
Definition	The target code when a code merge has taken place with another when duplication exists. Taken together with the field Merged_To_Source_Type this will uniquely identify a target code when a merge has taken place.		
Source		Layout	NNNNN-N or AAANNNN
Remarks	A valid value in the Code field.		

### 2.2.2.18 Merged\_To\_Source\_Type

Field name	Merged_To_Source_Type		
Definition	The target code's source type when a merge has taken place with another when duplication exists. Taken together with the field Merged_To_Code this will uniquely identify a target code when a merge has taken place.		
Source		Layout	A(10)
Remarks	A valid value in the Source_Type field.		

## 2.3 Syntax and rules for names

The LOINC database provides for fully specified names created systematically using a six-axis model that is complex and not compatible with colloquial practice in New Zealand. The LOINC database also provides a short name, again not entirely suitable in a New Zealand context.

Although the fully specified LOINC name is used to decide on the correct assignment of LOINC codes, a New Zealand Test Name Structure was implemented to provide a locally acceptable name for each code. The following are the rules that were applied to generate names for both the order and result code sets:

### 2.3.1 Syntax

<component/analyte> (<analyte qualifier>) <system/sample> <time aspect> (<scale> <property> <method>)

**Note:** Analyte qualifier is specified here as a separate attribute. It is included in the LOINC names as part of the component/analyte.

### 2.3.2 General rules

- (a) names are simpler than the LOINC fully specified name. They are as short as possible, while including sufficient detail as to be unambiguous. Qualifiers, the time aspect etc are added only if necessary to differentiate similar tests.
- (b) names are limited to 30 characters in length.
- (c) names are readable for laboratory and clinical staff, and take into account prior common practice.
- (d) mixed upper and lower cases are used to improve readability and to comply with scientific names, e.g. SI units.
- (e) abbreviations are chosen because they are standard, e.g. SI units, or they are more commonly used than the full name, e.g. CBC, TSH, HbA1c.
- (f) method is not included in the name, unless necessary to differentiate similar tests.
- (g) reference ranges are not included in names.

### 2.3.3 Rules for specific syntax

#### 2.3.3.1 Component/analyte

- (a) the substance being measured or detected, e.g. Hepatitis C Ab, not Anti hepatitis C.
- (b) where (a) is not applicable the name of the observation, abnormality or specimen being investigated, e.g. renal biopsy (histology), blood (cytogenetics).
- (c) a drug's generic name, not its brand name, should be used.
- (d) an organism's full taxonomic name should be used where possible, e.g. Chlamydia trachomatis. If necessary, shorten the full name to its first letter and second word, e.g. C. trachomatis.
- (e) if antibodies are against a group of species, e.g. Rickettsia, spotted fever group, Rickettsia, typhus group, the group definition can be included as a qualifier, e.g. Rickettsia (spotted fever group), Rickettsia (typhus group).
- (f) name vitamins by the chemical name, unless the local convention is "Vitamin ...", e.g. thiamine not Vitamin B1, but Vitamin B12.
- (g) if necessary, specify whether serology tests measure antibody or antigen, e.g. Hepatitis B surface Ag, Hepatitis B surface Ab, but Hepatitis A IgG is always an antibody, so does not need to have Ab added to the name.
- (h) use the noun of the target antibody, e.g. Mitochondria Ab, not Mitochondrial Ab.
- (i) use the anionic name for chemicals, e.g. urate not uric acid.
- (j) use single word names for alcohols, e.g. methanol, not methyl alcohol.
- (k) always spell out OH as Hydroxy, with no space between Hydroxy and the next word, e.g. Hydroxyprogesterone.
- (l) always spell out Greek letters, e.g. hCG-beta, not  $\beta$ -hCG.
- (m) avoid the use of Total in a name, e.g. Alkaline phosphatase, not Alkaline phosphatase, Total; except when denoting the denominator of a fraction.
- (n) avoid the use of special characters, unless necessary. The following are acceptable: brackets, commas, hyphens, full stops and spaces, e.g. hCG-beta, B-J protein, B. abortus, Cortisol (AM).
- (o) for drug metabolites, use the "nor" form rather than "desmethyl", e.g. norepinephrine, not desmethylepinephrine.
- (p) where possible use Arabic numerals, except when local convention uses Roman numerals, as in factor assays, e.g. Factor V, not Factor 5.
- (q) exclude the route of administration in challenge tests, e.g. PO, IV, IM.

#### 2.3.3.2 Analyte qualifier

- (a) the qualifier includes anything necessary to qualify the analyte, excluding the other attributes available to be used, e.g. Alkaline phosphatase (bone).

**Note:** Specimen or time aspect is not classed as an analyte qualifier.

- (b) the qualifier is always included in round brackets.
- (c) multiple qualifiers may be used, separated by a comma within the round brackets, e.g. APTT (+N plasma, control).

### **2.3.3.3** *System/sample*

- (a) specimen types such as serum, plasma and blood are omitted for the common sample type used, e.g. Sodium serum would simply be referred to as Sodium, but Sodium urine remains as written.
- (b) specimen types are included if necessary, in commonly used test names, Reducing substances urine, Reducing substances faeces, but more extensive use of specimen types is dealt with in the OBR in the HL7 message.
- (c) specimen types are added in lower case, with only a space between the words and no punctuation marks, e.g. Reducing substances faeces; not Reducing substances, faeces.

### **2.3.3.4** *Time aspect*

- (a) the time aspect is deemed to be random and is omitted from the name unless it is other than random, e.g. Sodium urine is deemed to be random. A test expressing a value over duration will have the time aspect added to the name, e.g. Sodium urine 24h.

### **2.3.3.5** *Scale/property/method*

- (a) property and scale of measurement are generally omitted, but may be included where necessary to create a unique name, e.g. Rubella IgM (qual) or Smooth muscle Ab (titre).
- (b) scale/property/method is enclosed in round brackets when used in the name. If using a combination of these, separate them in the round brackets with a comma, e.g. (quan, EIA).
- (c) qualitative is preferred to screen if the analyte is specific, e.g. CMV IgG (qual) not CMV IgG (screen). For non-specific names, e.g. infectious mono screen, screen is preferable.
- (d) qual/quan refer to the scale of measurement. Screen is used in the context of "preliminary".
- (e) method should be included only if clinically relevant to differentiate tests according to method, e.g. Chlamydia trachomatis (EIA), Chlamydia trachomatis (PCR), Chlamydia trachomatis (IF).

Recommended abbreviations are listed in Appendix C: Code Set Abbreviations

## 2.4 Limitation of the Code Sets

Coding systems depend on the individuals selecting the correct code to describe a specific parameter.

### 2.4.1 Limitations of Ordering Code Set

The Ordering Code Set has been designed to allow the broad meaning required for ordering tests.

Limitations include:

- (a) Profiles: only profiles matching HealthPAC codes are included in the Ordering Code Set.
- (b) Profile constituents: the Ordering Code Set does not attempt to standardise the constituent tests for a profile, only to provide a mechanism for requesting a profile from which the testing laboratory will define the constituents.

### 2.4.2 Limitations of Result Code Set

The Result Code Set is designed to identify a test to the level required for reporting results. To maintain conformity to the LOINC rules and framework some details are not able to be included. Limitations include:

- (a) (a) Methods: assigning a code from the Result Code Set will define the method used to obtain a test only when it is considered to be clinically significant. In other cases the code assigned will be “methodless”, although the method may be reported in association with the result in other parts of the HL7 message.
- (b) (b) Units: assigning a code from the Result Code Set will define the property of the result (e.g. substance concentration), but will not define the exact unit that will be reported with the result (e.g. umol/L versus mmol/L). The appropriate unit must be associated with each result as it is reported, and taken into account by clinicians when they are interpreting results. For example, Creatinine, LOINC code 14682-9. Two units are in common usage in New Zealand: mmol/L and umol/L. The same LOINC code will be used for reporting results with either unit, although results could vary by a factor of 1000.
- (c) (c) Reference intervals: assigning a code from the Result Code Set will not define the reference interval. The reference interval is not an attribute of the test, but of the object to which a test applies, i.e. the patient (for longitudinal comparisons) or the population (for transversal comparisons). Reference intervals for a population also change with sex, age, ethnic group and geographical area. Hence the appropriate range must be associated with each result as it is reported, and the appropriate context taken into account by clinicians when they are interpreting results. For example, Troponin. Two tests exist for Troponin quantitative analysis: Troponin I, LOINC code 10839-9 and Troponin T LOINC code 6598-7, both with units ug/L. While only one method exists for Troponin T and the reference interval is standard across New Zealand, at least four different methods are employed for Troponin I with vastly different reference intervals in some cases (differences as high as a factor of 10).
- (d) (d) Clinical comparability: as discussed above assigning a code from the Result Code Set does not define an observation’s method, units or reference range. Hence it cannot be assumed that results reported with the same code are clinically comparable. All results should be interpreted in the full context of information reported by the laboratory.

## 3 SPECIMEN DETAILS

The importance of specimen details for microbiological examinations is explained in 3.2 Microbiology. However, this Standard is not restricted to microbiology specimens. Similar requirements apply to other specimens for diagnostic examination.

### 3.1.1 Histology and Cytology

Cytology specimen details are detailed as part of the National Cervical Screening Programme – Register Implementation Guide

Histology specimen details will continue to be reported as part of formatted text.

### 3.1.2 Microbiology

Specimen details such as the type, e.g. pus, source, e.g. lymph node and site, e.g. neck are essential for microbiology laboratories to process the specimen properly. The LOINC database is extensive, with many codes that can carry these details. They also cover ancillary procedures, e.g. Gram stain. However, the inclusion of all these codes would increase the size of the code set for New Zealand use. The provision of specimen details outside the code will always be required in the case of ‘miscellaneous’ specimens.

LOINC suggests that “Specimen Type (Serum, Blood, Urine, etc) will be indicated in the HL7 OBR segment with the Specimen Source field (OBR-15)”. It is a field with multiple components, which may result in a long text string. Also, laboratory information systems in New Zealand may not be familiar with the processing of details embedded in OBR-15.

It was then decided to put specimen details in two OBXs, using 31208-2 and a NZ code to be created.

#### 3.1.2.1 Specimen type/site

31208-2 = SPECIMEN SOURCE PRID PT XXX NOM

This should be in the first OBX, consisting of values from **Table B 1**, **Table B 2** and **Table B 3**. The syntax should be <Table B1>^<Table B2>^<Table B3>:

<Specimen source name or code>^ CE – Refer to Table B1 for valid entries. This field is required.

<Body Site>^ CE – Body Site from which specimen was obtained. Refer to Table B2. This field is optional.

<Body Site Modifier>^ CE – Location on Body Site where the specimen was obtained. Refer to Table B3. This field is conditional on whether Table B2 Body Site is used and is required for further identification.

#### 1.1.1.1 Specimen collection description

NZ code = SPECIMEN COLLECTION DESCRIPTION FIND PT SPECIMEN NOM

This should be in the second OBX and should be used mainly for example swab, random, 24-hour, mid-stream, suprapubic tap, scraping, clipping, biopsy. It is not to be used for conveying clinical particulars.

The above approach allows the use of a few generic codes to cover the culture of bacteria, fungi and mycobacteria. The same also applies to ancillary procedures such as staining. The net effect is a compact codeset for microbiology. Specific codes are still required for organisms, e.g. Leptospira, Actinomyces. Similarly, some tests also require specific codes, e.g. urine dipstick protein. They are like biochemical tests and need to carry specimen attributes, e.g. 20454-5 PROTEIN ACNC PT UR ORD TEST STRIP UA.

It means all microbiology requests must be provided with “Specimen type/site” and preferably also with “Specimen collection description”, if indicated. All subsequent procedures, e.g. Gram stain would be

meaningless without reference back to these specimen details. The HL7 messaging protocols ensure the OBXs and NTEs are chained together in the right sequence. The philosophy is similar to that stated in NZPOCS Stage 1:

“Therefore, it is essential for clinical safety that results are always interpreted in the full context of the HL7 message reported by the laboratory, i.e. units, reference intervals, normal/abnormal flags, method and other technical factors (specimen details in the case of microbiology) are taken into account. The implementation of the New Zealand Pathology Observation Code Sets will not alter this requirement to read the report in full.”

The correct association of OBXs and NTEs are especially important for microbiology results with multiple isolates and multiple antibiotic susceptibility tests. This is catered for by the parent-child mechanism in HL7 messaging.

### 3.1.2.2 Order and result names

A microbiology test name, e.g. throat swab, usually carries with it multiple meanings including specimen, body site, body site modifier and the test required. The same naming syntax:

<analyte/component> (<analyte qualifier>)<system/sample> <time aspect> (<scale> <property> <method>)

for LOINC Stage 1 can be used to draw up the microbiology order and result names.

This could be applied in two different ways:

**Situation 1:** Request for investigation looking for known organism/abnormality (analyte):

e.g. MRSA swab;  
where MRSA is the analyte and swab is the sample type.

**Situation 2:** Request for investigation looking for unspecified organism/abnormality (no analyte):

e.g. Ear swab (microbiology);  
where Ear swab is the system/sample and microbiology is the method.

e.g. CSF (microbiology);  
where CSF is the sample and microbiology is the method.

As a few generic codes are used for results, the order and result names are not mapped one-on-one to the HealthPAC codes. This should have little consequence, because the HealthPAC schedule was used as a reference to define the scope of the coding project, instead of a requirement to map with the codes.

Although the result codes are generic, they are still specific. For example, for a mid-stream urine with an E coli and a Candida species isolated, the culture results should be reported in two codes:

6463-4 BACTERIA IDENTIFIED PRID PT XXX NOM CULTURE MICRO = E coli

580-1 FUNGUS IDENTIFIED PRID PT XXX NOM CULTURE = Candida species

With the increasing use of molecular techniques in pathology, as well as PCR, NAAT (nucleic acid amplification test) is considered to be the most appropriate for order and result names of such tests, as in the examples above.

## 4 OVERVIEW FOR USING THE NEW ZEALAND PATHOLOGY OBSERVATION CODE SETS

### 4.1 Conventions for using names and codes

#### 4.1.1 Conventions for using names

- (a) order\_Name field is to be adopted for all paper and/or electronic order forms.
- (b) result\_Name field is to be adopted by all laboratories when composing paper and/or electronic reports.

#### 4.1.2 Conventions for using codes

- (a) the Order Code Set is to be used for all electronic ordering of laboratory observations.
- (b) the Result Code Set is to be used in the electronic reporting of laboratory observations.
- (c) order codes are to be mapped to result codes in individual laboratory systems.

### 4.2 HL7 messaging conventions

#### 4.2.1 HL7 specifications

LOINC is HL7's preferred coding system for OBX-3. In New Zealand it has become common practice to also place observation codes in OBR-4. The HL7 specification contains guidance for using local and universal codes for orders and results:

*OBR-4, Universal Identifier*

**Definition:** This field is the identifier code for the requested observation/test/battery. This can be based on local and/or "universal" codes. We recommend the "universal" procedure identifier.

*OBX-3, Observation Identifier*

**Definition:** This field contains a unique identifier for the observation.

The HL7 datatype for both fields is Coded Element (CE):

**Components:** <identifier (ST)> ^ <text (ST)> ^ <name of coding system (ST)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (ST)>

The HL7 specification also states:

"When local codes are used as the first identifier in this field we strongly encourage sending a universal identifier as well to permit receivers to equivalence results from different providers of the same service (e.g. a hospital laboratory and commercial laboratory that provides serum potassium to a nursing home)."

#### 4.2.2 Conventions for New Zealand observation codes in HL7

- (a) order codes and names are to be sent in OBR-4, Universal Service Identifier.
- (b) result codes and names are to be sent in OBX-3, Observation Identifier.
- (c) local coding systems, when used, are to be included as the first identifier in the CE datatype and the name of the coding system in component 3 is to be L for Local.
- (d) the second identifier in the CE datatype is to be taken from the New Zealand Observation Code, and the name of the coding system in component 6 is to be LN for LOINC and NZPOCS for New Zealand Pathology Observation Code Sets.

In the following example OBR-4, Universal Service Identifier contains a local code first (5400, CBC, L) and the New Zealand Code Sets equivalent second (RNZ0202, NZ). The first OBX-3 Observation Identifier contains a local code first (5412, Haemoglobin, L) and the New Zealand Code Sets LOINC equivalent second (718-7, LN).

```
OBR|3||0439222813544700^FILLER|5400^CBC^L^RNZ0202^^NZ|R||200410181300|""|""
||||200410181526||012345^MIDWIFE^A^^^^^L||||200410201311
OBX|0001|NM|5412^Haemoglobin^L^718-7^^LN
||108|g/l|100-150||||F||||HPI001|907^TECH C^LAB^^^^^L
OBX|0002|NM|5414^Packed cell volume^L^20570-8^^LN
||0.33|l||0.31-0.47||||F||||HPI001|907^TECH C^LAB^^^^^L
```

### 4.2.3 Message Structure

#### 4.2.3.1 Microbiology

Structure of a **general bacterial culture** report in OBXs:

- Specimen source / type / site = 31208-2
- Specimen collection / description = NZ code
- Gross observation (e.g. stool, sputum, fluid) = NZ code
- Microscopic observation – stain = 664-3 Gram
- Microscopic observation – other = 680-9 Wet prep
- Comments = NTE
- Culture = 6463-4 Bacteria Identified
- Antibiotic susceptibility = 18964-7 Penicillin S
- Comments = NTE

Structure of a **body fluid culture** report in OBXs:

- Specimen source / type / site = 31208-2
- Specimen collection / description = NZ code
- Appearance body fluid
- Volume body fluid
- Microscopic observation – stain = 664-3 Gram
- RBC body fluid
- WBC body fluid
- WBC differential . . .
- Other cells body fluid
- Crystals body fluid
- Comments = NTE
- Culture = 6463-4 Bacteria Identified
- Antibiotic susceptibility = 18964-7 Penicillin S
- Comments = NTE

Structure of a **cerebrospinal fluid culture** report in OBXs:

- Specimen source / type / site = 31208-2
- Specimen collection / description = NZ code
- Appearance CSF
- Volume CSF
- Supernatant CSF
- Microscopic observation – stain = 664-3 Gram
- RBC CSF
- WBC CSF
- WBC differential . . .
- Comments = NTE
- Culture = 6463-4 Bacteria Identified
- Antibiotic susceptibility = 18964-7 Penicillin S
- Comments = NTE

Structure of a **semen analysis** report in OBXs:

GENERAL: Appearance = Normal  
GENERAL: Liquefaction = Normal  
GENERAL: Viscosity = Normal  
GENERAL: pH = 8.2  
GENERAL: Volume = 4.2 ml  
GENERAL: Agglutination = Nil  
GENERAL: Leucocytes = <1 million/ml  
GENERAL: Vitality = 63%  
GENERAL: Sperm count = 2.2 million/ml  
MOTILITY: Rapid progressive = 13%  
MOTILITY: Slow progressive = 41%  
MOTILITY: Non-progressive = 8%  
MOTILITY: Non-motile = 38%  
MORPHOLOGY: Normal forms = 9% (>14)  
MORPHOLOGY: Abnormal forms = 91% (<86)  
MORPHOLOGY: Defects: Head = 88%  
MORPHOLOGY: Defects: Midpiece = 1%  
MORPHOLOGY: Defects: Tail = 2%  
COMMENTS = NTE

General structure of a **urine culture** report in OBXs:

Specimen source / type / site = 31208-2  
Specimen collection / description = NZ code  
Gross observation = NZ code  
Dipstick = 25428-4 Glucose  
Dipstick = 20454-5 Protein  
Dipstick = 5794-3 Haemoglobin  
Dipstick . . .  
Microscopic observation = 30405-5 WBC urine  
. . .  
Microscopic observation = NZ code Crystals urine  
Comments = NTE  
Culture - count = Colony Count / Bacteria Count  
Culture = 6463-4 Bacteria Identified  
Antibiotic susceptibility = 18864-9 Ampicillin S  
Comments = NTE

#### 4.2.3.2 *Gynaecological cytology*

Structure of a **gynaecological cytology** report in OBXs:

Specimen site = 19763-2  
Preparation technique = 19772-3  
Statement of adequacy = 19764-0  
General category = 19762-4  
Interpretation (1st) = 19765-7  
. . .  
Interpretation (5th) = 19765-7  
Recommendation = 19773-1  
Reporting practitioner = XNZ0521

## **4.3 Grouping reported data**

### **4.3.1 *Grouping data for statistical analysis***

Receiving applications currently group reported data on the basis of the observation identifier sent in the HL7 message. The implementation of the New Zealand Pathology Observation Code Sets will enable many benefits to be obtained from grouping data in this manner for financial analysis, planning, population studies etc.

### **4.3.2 *Grouping results in clinical result repositories***

Caution must be taken when grouping results for display in clinical result repositories.

A stated limitation of the New Zealand Pathology Result Code Set is that it does not define the method, units or reference intervals for a result, so the allocation of the same code cannot guarantee the clinical comparability of results.

Many result repositories group results for cumulative display based on the code reported in the HL7 OBR-4 and OBX-3 fields without taking into account all of the factors that may affect clinical comparability. Although most laboratories try to avoid variation in technical specifications without an associated change in coding, minor differences in context may apply to results reported with the same code. The potential for this variation is increased when results are received from multiple sources.

Therefore, it is essential for clinical safety that results are always interpreted in the full context of the HL7 message reported by the laboratory, i.e. units, reference intervals, normal/abnormal flags, method and other technical factors are taken into account. The implementation of the New Zealand Laboratory Observation Code Sets will not alter this requirement to read the report in full.

The Committee recommends results reported with the same code from different providers are displayed in a manner that indicates the difference prominently. The identification of the testing laboratory, and the units, reference intervals and method as appropriate should be indicated alongside the result.

Where a laboratory, or multiple laboratories working in collaboration, have control over how the results reported in the HL7 message are displayed in a clinical result repository they should also identify tests that should never be displayed cumulatively for clinical safety reasons.

## **4.4 Allocating the correct codes**

### **4.4.1 *Mapping to the Order Code Set***

Search the Order Code Set for the most appropriate code using the details provided in the following fields:

- (a) order\_Name;
- (b) remarks;
- (c) keywords

Select a code only if the details match for all fields. If no active code matches and it should be included in the project's current scope, make a submission for a new code.

#### **4.4.2 Mapping to the Result Code Set**

Search the Result Code Set for the most appropriate code using the details provided in the following fields:

- (a) result\_Name;
- (b) component;
- (c) property;
- (d) time\_Aspect;
- (e) system;
- (f) scale\_Type;
- (g) method\_Type;
- (h) remarks;
- (i) keywords.

Select a code only if the details match for all fields. If no active code matches, and it should be included in the project's current scope, make a submission for a new code.

### **4.5 Submissions for new codes**

Submissions for new codes should be made when a matching code cannot be found in the New Zealand Pathology Observation Code Sets and should have been included in the project scope. Make a submission using the form in Appendix E: Submission Form for Requesting Additions to the New Zealand Pathology Observation Code Sets and include information on the following observation attributes:

- (a) component;
- (b) property;
- (c) timing aspect;
- (d) system;
- (e) scale type;
- (f) method type.

Provide units of measure and example results to enable verification of the property, scale and method.

Use the local coding system until a New Zealand Pathology Observation Code has been allocated.

New codes for Gynaecological cytology should use a LOINC code where possible.

### **4.6 Changes or amendments to existing codes or name**

Submissions for changing or amending an existing code must have a valid reason. Complete the form in Appendix D: Submission Form for Requesting Changes to the New Zealand Pathology Observation Code Sets

## Appendix A: LOINC Copyright Notice and Licence

The LOINC® codes, LOINC® table (regardless of format), LOINC® Release Notes, LOINC® Changes File, and LOINC® Users' Guide are copyright © 1995-2008, Regenstrief Institute, Inc. and the Logical Observation Identifiers Names and Codes (LOINC) Committee. All rights reserved. LOINC® is a registered United States trademarks of Regenstrief Institute, Inc. Permission is hereby granted in perpetuity, without payment of license fees or royalties, to use, copy, or distribute the LOINC® codes, LOINC® Users' Guide, LOINC® table (in all formats in which it is distributed by Regenstrief Institute, Inc. and the LOINC Committee), LOINC® Release Notes, and LOINC® Changes File for any commercial or non-commercial purpose, subject to the following terms and conditions:

- 1) To prevent the dilution of the purpose of the LOINC codes and LOINC table of providing a definitive standard for identifying clinical information in electronic reports, users shall not use the LOINC Users' Guide, LOINC table, LOINC Release Notes, LOINC Changes File, and/or the LOINC codes for the purpose of developing or promulgating a different standard for identifying patient observations, such as laboratory test results; other diagnostic service test results; clinical observations and measurements; reports produced by clinicians and diagnostic services about patients; panels, forms and collections that define aggregations of these observations; and orders for these entities in electronic reports and messages.
- 2) Users shall not change the meaning of any of the LOINC codes. Users shall not change the name of, or any contents of, any fields in the LOINC table. Users may add new fields to the LOINC table to attach additional information to existing LOINC records.
- 3) A user may delete records from the LOINC table to deal with the user's local requirements. A user also may add new records to the LOINC table to deal with the users' local requirements, provided that if new records are added, any new entry in the LOINC\_NUM field (field #1) of such new records must contain a leading alphabetic "X" so that the new codes and records cannot be confused with existing LOINC codes or new LOINC codes as they are defined in later releases of the LOINC table. Records deleted or added by users to deal with local requirements are not reflected in the official LOINC table maintained by the Regenstrief Institute and the LOINC Committee. Users will also make reasonable efforts to submit requests to LOINC for new records to cover observations that are not found in the LOINC table in order to minimize the need for X-codes.
- 4) LOINC codes and other information from the LOINC table may be used in electronic messages for laboratory test results and clinical observations such as HL7 ORU messages, without the need to include this Copyright Notice and License or a reference thereto in the message (and without the need to include all fields required by Section 7 hereof). When the LOINC code (from the LOINC\_NUM field) is included in the message, users are encouraged, but not required, to include the corresponding LOINC short name (from the SHORTNAME field) in the message if the message provides a place for a text name representation of the code.
- 5) Users may make and distribute an unlimited number of copies of the unmodified LOINC table. Each copy thereof must include this Copyright Notice and License, and must include the version number of the LOINC table that is distributed. This Copyright Notice and License must appear on every printed copy of the LOINC table. Where the LOINC table is distributed on a fixed storage medium (such as diskette or CDROM), a printed copy of this Copyright Notice and License must be included on or with the storage medium, and a text file containing this information also must be stored on the storage medium in a file called "license.txt". Where the LOINC table is distributed via the Internet, this Copyright Notice and License must be accessible on the same Internet page from which the LOINC table is available for download.
- 6) Subject to Section 1 and the other restrictions hereof, users may incorporate portions of the LOINC table into another master term dictionary (e.g. laboratory test definition database), or software program for distribution outside of the user's corporation or organization, provided that any such master term dictionary or software program includes the following fields reproduced in their entirety from the LOINC table: LOINC\_NUM (field #1), COMPONENT (field #2), PROPERTY (field #3), TIME\_ASPCT (field #4), SYSTEM (field #5), SCALE\_TYP (field #6), METHOD\_TYP (field #7), ANSWERLIST (field #14), STATUS (field #15), and SHORTNAME (field #39). Users are also required to either: (1) include the EXTERNAL\_COPYRIGHT\_NOTICE (field #43) or (2) delete the rows that include third party copyrighted content (e.g., third party survey instruments and answers). If third party content is included, users are

required to comply with any such third party copyright license terms. Users are encouraged, but not required, to also include the RelatedNames2 (field #38) in any such database. Further description of these fields is provided in Appendix A of the LOINC Users' Guide. Every copy of the LOINC table incorporated into or distributed in conjunction with another database or software program must include the following notice:

"This product includes all or a portion of the LOINC® table, or is derived from the LOINC® table, subject to a license from Regenstrief Institute, Inc. Your use of the LOINC table and LOINC codes also is subject to this license, a copy of which is available at <http://loinc.org/terms-of-use>. The current complete LOINC table and Users' Guide are available for download at <http://loinc.org>. The LOINC table and LOINC codes are copyright © 1995-2008, Regenstrief Institute, Inc. and the Logical Observation Identifiers Names and Codes (LOINC) Committee. All rights reserved. THE LOINC TABLE (IN ALL FORMATS) IS PROVIDED "AS IS." ANY EXPRESS OR IMPLIED WARRANTIES ARE DISCLAIMED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. LOINC® is a registered United States trademark of Regenstrief Institute, Inc. A small portion of the LOINC table may include content (e.g., survey instruments) that is subject to copyrights owned by third parties. Such content has been mapped to LOINC terms under applicable copyright and terms of use. Notice of such third party copyright and license terms would need to be included if such content is included."

If the master term dictionary or software program containing the LOINC table is distributed with a printed license, this statement must appear in the printed license. Where the master term dictionary or software program containing the LOINC table is distributed on a fixed storage medium, a text file containing this information also must be stored on the storage medium in a file called "LOINC\_short\_license.txt". Where the master term dictionary or software program containing the LOINC table is distributed via the Internet, this information must be accessible on the same Internet page from which the product is available for download.

7) Use and distribution of the LOINC codes and/or LOINC table in ways that are not specifically discussed herein shall always be accompanied by the notice provided in Section 7 hereof. The guidelines for providing the notice that are contained in the last paragraph of Section 7 also shall apply. If a user has a question about whether a particular use of the LOINC codes, and/or LOINC table or related files is permissible, the user is invited to contact the Regenstrief Institute by e-mail at [loinc@regenstrief.org](mailto:loinc@regenstrief.org).

8) An unlimited number of copies of the LOINC Users' Guide may be made and distributed. This Copyright Notice and License must appear verbatim on every electronic or printed copy of the LOINC Users' Guide. The LOINC Users' Guide may not be modified, nor may derivative works of the LOINC Users' Guide be created, without the prior written permission of the Regenstrief Institute, Inc. To request written permission, please contact [loinc@regenstrief.org](mailto:loinc@regenstrief.org). The Regenstrief Institute retains the right to approve any modification to, or derivative work of the LOINC Users' Guide.

9) If the user desires to translate the LOINC codes, LOINC table or LOINC Users' Guide into a language other than English, then user shall notify Regenstrief via email at [loinc@regenstrief.org](mailto:loinc@regenstrief.org). Any such translation is a derivative work, and the user agrees and does hereby assign all right, title and interest in and to such derivative work to Regenstrief and the LOINC Committee if the translation is a derivative of the LOINC codes, LOINC Users' Guide, or LOINC table. Further, user shall fully cooperate with Regenstrief in the filing and reviewing of any copyright applications or other legal documents, and signing any documents (such as declarations, assignments, affidavits, and the like) that are reasonably necessary to the preparation of any such copyright application. The assignment granted by this paragraph extends to all proprietary rights both in the United States, and in all foreign countries. No other right to create a derivative work of LOINC codes, LOINC table, LOINC Users' Guide, (except the right to translate into a language other than English) is hereby granted, and Regenstrief and the LOINC Committee respectively reserve all other rights not specifically granted herein. All such translations shall be electronically transmitted to Regenstrief, and such translations shall be made available and are subject to the same license rights and restrictions contained herein. Regenstrief will give credit on its website to the user and/or entity that did the translation.

10) The names "Regenstrief," "Regenstrief Foundation," "Regenstrief Institute," and "LOINC Committee" may not be used in a way which could be interpreted as an endorsement or a promotion of any product or service without prior written permission of the Regenstrief Institute, Inc. Further, no right to use the trademarks of Regenstrief is licensed hereunder. To request written permission, please contact [loinc@regenstrief.org](mailto:loinc@regenstrief.org).

11) **DISCLAIMER:** REGENSTRIEF INSTITUTE, INC. AND THE LOINC COMMITTEE DO NOT ACCEPT LIABILITY FOR ANY OMISSIONS OR ERRORS IN THE LOINC CODES, LOINC USERS' GUIDE, LOINC TABLE, LOINC RELEASE NOTES, LOINC CHANGES FILE, OR ANY OTHER MATERIALS OBTAINED FROM REGENSTRIEF INSTITUTE, INC. AND/OR THE LOINC COMMITTEE. THE LOINC USERS' GUIDE, LOINC CODES, LOINC TABLE, LOINC RELEASE NOTES, LOINC CHANGES FILE, AND ALL OTHER MATERIALS OBTAINED FROM REGENSTRIEF INSTITUTE, INC. AND/OR THE LOINC COMMITTEE ARE PROVIDED "AS IS," WITHOUT WARRANTY OF ANY KIND. ANY EXPRESSED OR IMPLIED WARRANTIES ARE HEREBY DISCLAIMED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND WARRANTIES ARISING FROM A COURSE OF DEALING, TRADE USAGE, OR TRADE PRACTICE. FURTHER, NO WARRANTY OR REPRESENTATION IS MADE CONCERNING THE ACCURACY, COMPLETENESS, SEQUENCE, TIMELINESS OR AVAILABILITY OF THE LOINC USERS' GUIDE, LOINC CODES, LOINC TABLE, LOINC RELEASE NOTES, LOINC CHANGES FILE, OR ANY OTHER MATERIALS OBTAINED FROM REGENSTRIEF INSTITUTE, INC. AND/OR THE LOINC COMMITTEE, OR ANY TRANSLATIONS OR DERIVATIVE WORKS OF ANY OF THE FOREGOING. IN NO EVENT SHALL REGENSTRIEF INSTITUTE, INC. OR THE LOINC COMMITTEE OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, RELIANCE, OR CONSEQUENTIAL DAMAGES OR ATTORNEYS' FEES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; OPPORTUNITY COSTS; LOSS OF USE, DATA, SAVINGS OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF LOINC USERS' GUIDE, LOINC CODES, LOINC TABLE, LOINC RELEASE NOTES, LOINC CHANGES FILE, OR ANY OTHER MATERIALS OBTAINED FROM REGENSTRIEF INSTITUTE, INC. AND/OR THE LOINC COMMITTEE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE OR IF SUCH DAMAGES WERE FORESEEABLE. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OR EXCLUSION OF CERTAIN WARRANTIES OR CONDITIONS, SO SOME OF THE FOREGOING MAY NOT APPLY TO YOU.

12) This license shall be construed and interpreted in accordance with the laws of the State of Indiana, United States of America, excluding its conflicts of law rules.

### **Notice of Third Party Content and Copyright Terms:**

A small fraction of the content of the LOINC table consists of content subject to copyright from third parties. This third party content is either used with permission or under the applicable terms of use. In all such cases, we have included the copyright notice. This third party content is highlighted in the program as follows:

When such copyright content appears in the LOINC table (e.g. the tab delimited file or the LOINC Access database) we include the copyright notice (up to 250 characters).

We have included third party content that allows use and distribution at least for clinical, administrative and research purposes. The third party copyright owners generally ask for attribution of the source, allow the free use of the content for treatment, health care management, and research purposes. They generally forbid alteration of their content (e.g., survey questions and/or answers) and use for commercial purpose, which usually means the direct sale of the survey instruments, but they often do allow use of their content in commercial software, medical record and other clinical database systems, and the messaging of patient information collected through the use of these instruments. The details of the notice of copyright for any third party content can be found in association with the terms when using the LOINC tab delimited file. The copyright of the LOINC codes per se remain owned by Regenstrief Institute, Inc. and the LOINC Committee and subject to the LOINC Copyright Notice and License.

In the future, we expect to include many more survey instruments and questionnaires from third parties with permission (especially those required by the U.S. federal government for payment and reimbursement) and believe that cataloguing all of these data collection forms in one comprehensive system (the LOINC table) along with laboratory and other clinical variables will facilitate the use of this data in direct clinical care, research and practice management.

Last Modified 10 July 2008



## Appendix B: Tables

### Specimen source code:

Value	Description	Value	Description
ABS	Abscess	MBLD	Menstrual blood
AMN	Amniotic fluid	MLK	Milk
ASP	Aspirate	MILK	Breast milk
BPH	Basophils	NAIL	Nail
BIFL	Bile fluid	NOS	Nose (nasal passage)
BLDA	Blood arterial	ORH	Other
BBL	Blood bag	PAFL	Pancreatic fluid
BLDC	Blood capillary	PAT	Patient
BPU	Blood product unit	PRT	Peritoneal fluid / ascites
BLDV	Blood venous	PLC	Placenta
BON	Bone	PLAS	Plasma
BRTH	Breath(use EXHLD)	PLB	Plasma bag
BRO	Bronchial	PLR	Pleural fluid (thoracentesis fld)
BRN	Burn	PMN	Polymorphonuclear neutrophils
CALC	Calculus (= Stone)	PPP	Platelet poor plasma
CDM	Cardiac muscle	PRP	Platelet rich plasma
CNL	Cannula	PUS	Pus
CTP	Catheter tip	RT	Route of medicine
CSF	Cerebral spinal fluid	SAL	Saliva
CVM	Cervical mucus	SEM	Seminal fluid
CVX	Cervix	SER	Serum
COL	Colostrum	SKN	Skin
CBLD	Cord blood	SKM	Skeletal muscle
CNJT	Conjunctiva	SPRM	Spermatozoa
CUR	Curettage	SPT	Sputum
CYST	Cyst	SPTC	Sputum / coughed
DIAF	Dialysis fluid	SPTT	Sputum/ tracheal aspirate
DOSE	Dose med or substance	STON	Stone (use CALC)
DRN	Drain	STL	Stool (= Fecal)
DUFL	Duodenal fluid	SWT	Sweat
EAR	Ear	SNV	Synovial fluid (Joint fluid)
EARW	Ear wax (cerumen)	TEAR	Tears
ELT	Electrode	THRT	Throat

Value	Description	Value	Description
ENDC	Endocardium	THRB	Thrombocyte (platelet)
ENDM	Endometrium	TISS	Tissue
EOS	Eosinophils	TISG	Tissue gall bladder
RBC	Erythrocytes	TLGI	Tissue large intestine
EYE	Eye	TLNG	Tissue lung
EXHLD	Exhaled gas (=Breath)	TISPL	Tissue placenta
FIB	Fibroblasts	TSMI	Tissue small intestine
FLT	Filter	TISU	Tissue ulcer
FIST	Fistula	TUB	Tube NOS
FLU	Body fluid, unsp	ULC	Ulcer
GAS	Gas	UMB	Umbilical blood
GAST	Gastric fluid/contents	UMED	Unknown medicine
GEN	Genital	URTH	Urethra
GENC	Genital cervix	UR	Urine
GENL	Genital lochia	URC	Urine clean catch
GENV	Genital vaginal	URT	Urine catheter
HAR	Hair	URNS	Urine sediment
IHG	Inhaled Gas	USUB	Unknown substance
IT	Intubation tube	VLT	Vault
ISLT	Isolate	VOM	Vomitus
LAM	Lamella	BLD	Whole blood
WBC	Leukocytes	BDY	Whole body
LN	Line	WAT	Water
LNA	Line arterial	WICK	Wick
LNV	Line venous	WND	Wound
LIQ	Liquid NOS	WNDA	Wound abscess
LYM	Lymphocytes	WNDE	Wound exudate
MAC	Macrophages	WNDD	Wound drainage
MAR	Marrow	XXX	To be specified in another part of the message
MEC	Meconium		

**Table B 1: HL7 Table 0070 – Specimen source code**

**Body Site:**

Value	Description	Value	Description
ADB	Abdomen	ISH	Loop, Ishial
ACET	Acetabulum	LUMBA	Lumbar
ACHIL	Achilles	LMN	Lumen
ADE	Adenoids	LUNG	Lung
ADR	Adrenal	LN	Lymph Node
AMN	Amniotic fluid	LNG	Lymph Node Groin
AMS	Amniotic Sac	LYM	Lymphocytes
ANAL	Anal	MAC	Macrophages
ANKL	Ankle	MALLE	Malleolus
ANTEC	Antecubital	MANDI	Mandible/Mandibular
ANTECF	Antecubital Fossa	MAR	Marrow
ANTR	Antrum	MAST	Mastoid
ANUS	Anus	MAXIL	Maxilla/Maxillary
AORTA	Aorta	MAXS	Maxillary Sinus
AR	Aortic Rim	MEATU	Meatus
AV	Aortic Valve	MEC	Meconium
APDX	Appendix	MEDST	Mediastinum
AREO	Areola	MEDU	Medullary
ARM	Arm	MOU	Membrane
ARTE	Artery	MPB	Meninges
ASCIT	Ascites	METAC	Metacarpal
ASCT	Ascitic Fluid	METAT	Metatarsal
ATR	Atrium	MILK	Milk, Breast
AURI	Auricular	MITRL	Mitral Valve
AXI	Axilla	MOLAR	Molar
BACK	Back	MP	Mons Pubis
BARTD	Bartholin Duct	MONSU	Mons Ureteris
BARTG	Bartholin Gland	MONSV	Mons, Veneris (Mons Pubis)
BRTGF	Bartholin Gland Fluid	MOUTH	Mouth
BPH	Basophils	MRSA2	Mrsa
BID	Bile Duct	MYO	Myocardium
BIFL	Bile fluid	NAIL	Nail
BLAD	Bladder	NAILB	Nail Bed
BLOOD	Blood	NAILF	Nail, Finger
BLDA	Blood, Arterial	NAILT	Nail, Toe

Value	Description	Value	Description
BLDC	Blood, Capillary	NARES	Nares
BLDV	Blood, Venous	NASL	Nasal
CBLD	Blood, Cord	NSS	Nasal Septum
BLD	Blood, Whole	NLACR	Nasolacrimal
BDY	Body, Whole	NP	Nasopharyngeal
BON	Bone	NP	Nasopharynx
BMAR	Bone marrow	NTRAC	Nasotracheal
BOWEL	Bowel	NAVEL	Navel
BOWLA	Bowel, Large	NECK	Neck
BOWSM	Bowel, Small	NERVE	Nerve
BRA	Brachial	NIPPL	Nipple
BRAIN	Brain	NOSE	Nose
BCYS	Brain Cyst Fluid	NOS	Nose (Nasal Passage)
BRST	Breast	NOSE	Nose (Outside)
BRSTFL	Breast fluid	NOSTR	Nostril
BRO	Bronchial	OCCIP	Occipital
BROCH	Bronchiole/Bronchiolar	OLECR	Olecranon
BRONC	Bronchus/Bronchial	OMEN	Omentum
BRV	Broviac	ORBIT	Orbit/Orbital
BUCCA	Buccal	ORO	Oropharynx
BURSA	Bursa	OSCOX	Os Coxa (pelvic girdle)
BURSF	Bursa Fluid	OVARY	Ovary
BUTT	Buttocks	PALAT	Palate
CALF	Calf	PLATH	Palate, Hard
CANAL	Canal	PLATS	Palate, Soft
CANLI	Canaliculis	PALM	Palm
CNL	Cannula	PANCR	Pancreas
CANTH	Canthus	PAFL	Pancreatic Fluid
CDM	Cardiac Muscle	PAS	Parasternal
CARO	Carotid	PARAT	Paratracheal
CARP	Carpal	PARIE	Parietal
CAVIT	Cavity	PARON	Paronychia
CHE	Cavity, Chest	PAROT	Parotid
CECUM	Cecum/Cecal	PAROT	Parotid Gland
CSF	Cerebral Spinal Fluid	PATEL	Patella
CVX	Cervix	PELV	Pelvis
CERVUT	Cervix/Uterus	PENSH	Penile Shaft

Value	Description	Value	Description
CHEEK	Cheek	PENIS	Penis
CHES	Chest	PANAL	Perianal/Perirectal
CHEST	Chest Tube	PERI	Pericardial Fluid
CHIN	Chin	PCARD	Pericardium
CIRCU	Circumcision Site	PCLIT	Periclitoral
CLAVI	Clavicle/Clavicular	PERIH	Perihepatic
CLITO	Clitoral	PNEAL	Perineal
CLIT	Clitoris	PERIN	Perineal Abscess
COCCG	Coccygeal	PNEPH	Perinephric
COCCY	Coccyx	PNM	Perineum
COLON	Colon	PORBI	Periorbital
COLOS	Colostomy	PERRA	Perirectal
COS	Colostomy Stoma	PERIS	Perisplenic
CDUCT	Common Duct	PER	Peritoneal
CONJ	Conjunctiva	PERT	Peritoneal Fluid
CORAL	Coral	PERIT	Peritoneum
COR	Cord	PTONS	Peritonsillar
CORD	Cord Blood	PERIU	Periurethral
CORN	Cornea	PERIV	Perivesicular
CRANE	Cranium, ethmoid	PHALA	Phalanx
CRANF	Cranium, frontal	PILO	Pilonidal
CRANO	Cranium, occipital	PINNA	Pinna
CRANP	Cranium, parietal	PLC	Placenta
CRANS	Cranium, sphenoid	PLACF	Placenta (Fetal Side)
CRANT	Cranium, temporal	PLACM	Placenta (Maternal Side)
CUBIT	Cubitus	PLANT	Plantar
CUFF	Cuff	PLEUR	Pleura
CULD	Cul De Sac	PLEU	Pleural Fluid
CULDO	Culdocentesis	PLR	Pleural Fluid (Thoracentesis Fid)
DELT	Deltoid	POPLI	Popliteal
DENTA	Dental	PREAU	Preauricular
DEN	Dental Gingiva	PRERE	Prerenal
DIAF	Dialysis Fluid	PRST	Prostate Gland
DPH	Diaphragm	PROS	Prostatic Fluid
DIGIT	Digit	PUBIC	Pubic
DISC	Disc	PUL	Pulmonary Artery

Value	Description	Value	Description
DORS	Dorsum/Dorsal	RADI	Radial
DUFL	Duodenal Fluid	RADIUS	Radius
DUODE	Duodenum/Duodenal	RECTL	Rectal
DUR	Dura	RECTU	Rectum
EAR	Ear	RBC	Red Blood Cells
EARBI	Ear bone, incus	RENL	Renal
EARBM	Ear bone, malleus	RNP	Renal Pelvis
EARBS	Ear bone, stapes	RPERI	Retroperitoneal
EARLO	Ear Lobe	RIB	Rib
ELBOW	Elbow	SACRA	Sacral
ELBOWJ	Elbow Joint	SACRO	Sacrococcygeal
ENDC	Endocardium	SACIL	Sacroiliac
EC	Endocervical	SACRU	Sacrum
EOLPH	endolphthamitis	SALGL	Salivary Gland
ENDM	Endometrium	SCALP	Scalp
ET	Endotracheal	SCAPU	Scapula/Scapular
EUR	Endourethral	SCLER	Sclera
EOS	Eosinophils	SCROT	Scrotum/Scrotal
EPICA	Epicardial	SEMN	Semen
EPICM	Epicardium	SEM	Seminal Fluid
EPD	Epididymis	SEPTU	Septum/Septal
EPIDU	Epidural	SEROM	Seroma
EPIGL	Epiglottis	SHIN	Shin
ESOPG	Esophageal	SHOLJ	Shoulder Joint
ESO	Esophagus	SHOL	Shoulder
ETHMO	Ethmoid	SIGMO	Sigmoid
External	Jugular	SINUS	Sinus
EYE	Eye	SKM	Skeletal Muscle
BROW	Eyebrow	SKENE	Skene's Gland
EYELI	Eyelid	SKULL	Skull
FACE	Face	INSTS	Intestine, Small
FBINC	Facial bone, inferior nasal concha	SOLE	Sole
FBLAC	Facial bone, lacrimal	SPRM	Spermatozoa
FBMAX	Facial bone, maxilla	SPHEN	Sphenoid
FBNAS	Facial bone, nasal	SPCOR	Spinal Cord
FBPAL	Facial bone, palatine	SPLN	Spleen

Value	Description	Value	Description
FBVOM	Facial bone, vomer	STER	Sternum/Sternal
FBZYG	Facial bone, zygomatic	STOM	Stoma
FALLT	Fallopian Tube	USTOM	Stoma, Urinary
FEMOR	Femoral	STOMA	Stomach
FMH	Femoral Head	STUMP	Stump
FEMUR	Femur	SCLV	Sub Clavian
FET	Fetus	SDP	Subdiaphragmatic
FIBU	Fibula	SUB	Subdural
FING	Finger	SUBD	Subdural Fluid
FINGN	Finger Nail	SGF	Subgaleal Fluid
FOL	Follicle	SUBM	Submandibular
FOOT	Foot	SUBX	Submaxillary
FOREA	Forearm	SUBME	Submental
FOREH	Forehead	SUBPH	Subphrenic
FORES	Foreskin	SPX	Supra Cervical
FOURC	Fourchette	SCLAV	Supraclavicle/Supraclavicular
GB	Gall Bladder	SUPRA	Suprapubic
GEN	Genital	SUPB	Suprapubic Specimen
GVU	Genital - Vulva	SWT	Sweat
GENC	Genital Cervix	SWTG	Sweat Gland
GL	Genital Lesion	SYNOL	Synovial
GENL	Genital Lochia	SYN	Synovial Fluid
GLAND	Gland	SYNOV	Synovium
GLANS	Glans	TARS	Tarsal
GLUTE	Gluteal	TDUCT	Tear Duct
GLUT	Gluteus	TEAR	Tears
GLUTM	Gluteus Medius	TEMPL	Temple
GROIN	Groin	TEMPO	Temporal
GUM	Gum	TML	Temporal Lobe
HAR	Hair	TESTI	Testicle(Testis)
HAL	Hallux	THIGH	Thigh
HAND	Hand	THORA	Thoracentesis
HEAD	Head	THORA	Thorax/Thoracic
HART	Heart	THRB	Throat
HV	Heart Valve	THUMB	Thumb
HVB	Heart Valve, Bicuspid	TNL	Thumbnail

Value	Description	Value	Description
HVT	Heart Valve, Tricuspid	THM	Thymus
HEEL	Heel	THYRD	Thyroid
HEM	Hemorrhoid	TIBIA	Tibia
HIP	Hip	TOE	Toe
HIPJ	Hip Joint	TOEN	Toe Nail
HUMER	Humerus	TONG	Tongue
HYMEN	Hymen	TONS	Tonsil
ILC	Ileal Conduit	TOOTH	Tooth
ILE	Ileal Loop	TSK	Tooth Socket
ILEOS	Ileostomy	TRCHE	Trachea/Tracheal
ILEUM	Ileum	TBRON	Transbronchial
ILIAC	Iliac	TCN	Transcarina Asp
ILCR	Iliac Crest	ULNA	Ulna/Ulnar
ILCON	Ilical Conduit	UMB	Umbilical Blood
INGUI	Inguinal	UMBL	Umbilicus
JUGI	Jugular, Internal	UMBL	Umbilicus/Umbilical
INT	Intestine	URET	Ureter
ICX	Intracervical	URTH	Urethra
INASA	Intranasal	UTERI	Uterine
INTRU	Intrauterine	SAC	Uterine Cul De Sac
INTRO	Introitus	UTER	Uterus
ISCHI	Ischium	VAGIN	Vagina/Vaginal
JAW	Jaw	VCUFF	Vaginal Cuff
KIDN	Kidney	VGW	Vaginal Vault
KNEE	Knee	VAL	Valve
KNEEF	Knee Fluid	VAS	Vas Deferens
KNEEJ	Knee Joint	VASTL	Vastus Lateralis
LABIA	Labia	VAULT	Vault
LABMA	Labia Majora	VEIN	Vein
LABMI	Labia Minora	VENTG	Ventragluteal
LACRI	Lacrimal	VCSF	Ventricular CSF
LAM	Lamella	VERMI	Vermis Cerebelli
INSTL	Intestine, Large	VERTC	Vertebra, Cervical
LARYN	Larynx	VERTL	Vertebra, Lumbar
LEG	Leg	VERTT	Vertebra, thoracic
LENS	Lens	VESI	Vesicle
WBC	Leukocytes	VESCL	Vesicular

Value	Description	Value	Description
LING	Lingual	VESFLD	Vesicular Fluid
LINGU	Lingula	VESTI	Vestibule (Genital)
LIP	Lip	VITR	Vitreous Fluid
STOOLL	Liquid Stool	VOC	Vocal Cord
LIVER	Liver	VULVA	Vulva
LOBE	Lobe	WRIST	Wrist
LOCH	Lochia		

**Table B 2: Body Site**

**Body Site Modifier:**

Value	Description
ANT	Anterior
BIL	Bilateral
DIS	Distal
EXT	External
LAT	Lateral
L	Left
LOW	Lower
MED	Medial
POS	Posterior
PRO	Proximal
LLQ	Quadrant, Left Lower
LUQ	Quadrant, Left Upper
RLQ	Quadrant, Right Lower
RUQ	Quadrant, Right Upper
R	Right
UPP	Upper

**Table B 3: Body Site Modifier**

## Appendix C: Code Set Abbreviations

Abbreviation	Meaning
5HIAA	5-Hydroxyindoleacetic acid
5TU	5 tuberculin units (Mantoux dose)
Ab	Antibody
ABO	ABO blood group system
Adj	Adjusted
Ag	Antigen
AHG	Anti-human globulin
Alk	Alkaline
ALT	Alanine aminotransferase
AM	Ante meridian
APTT	Activated partial thromboplastin time
asp	aspirate
AST	Aspartate aminotransferase
auto	automated
B. pertussis	Bordetella pertussis
B-J	Bence-Jones
Blding	Bleeding
Br. abortus	Brucella abortus
C. diphtheriae	Corynebacterium diphtheriae
C. trachomatis	Chlamydia trachomatis
CBC	Complete blood count
Cefuroxime inject	Cefuroxime parenteral
CK	Creatine kinase
Cl. difficile	Clostridium difficile
Clav	Clavulanate
conc	concentrated
Creat	Creatinine
CRP	C-reactive protein
CSF	Cerebrospinal fluid
cult	culture
Dalfop	Quinupristin+Dalfopristin
Dexameth	Dexamethasone
DNase	Deoxyribonuclease
EA	Early antigen

Abbreviation	Meaning
EBV	Epstein-Barr virus
EIA	Enzyme immunoassay
Elph	Electrophoresis
EM	electron microscope
ESBL	extended spectrum beta lactamase
ESR	Erythrocyte sedimentation rate
exam	examination
Exc	Excluding
FAI	Free androgen index
FSH	Follicle stimulating hormone
FTA	Fluorescent Treponemal antibody
G6PD	Glucose-6-phosphate dehydrogenase
Gentamicin high	Gentamicin high potency
GGT	Gamma glutamyl transferase
Grp A Strep	Group A Streptococcus
h	hour
H. pylori	Helicobacter pylori
HA	Haemagglutination
Hb	Haemoglobin
HbA1c	Haemoglobin A1c
HbA2	Haemoglobin A2
HbF	Haemoglobin F (foetal)
HbH	Haemoglobin H
HbS	Haemoglobin S
hCG	Human chorionic gonadotropin
hCG (alpha)	Human chorionic gonadotropin alpha subunit
hCG (beta)	Human chorionic gonadotropin beta subunit
HDL	High density lipoprotein
HIV1+2	Human immunodeficiency virus type 1+2
HMMA	Hydroxymethoxymandelic acid
HSV	Herpes simplex virus
HSV1	Herpes simplex virus type 1
HSV2	Herpes simplex virus type 2
Hyperseg	Hypersegmented
ident	identification

Abbreviation	Meaning
IF	Immunofluorescence
IgA	Immunoglobulin class A
IgE	Immunoglobulin class E
IgG	Immunoglobulin class G
IgM	Immunoglobulin class M
Inc	Including
INR	International normalised ratio
ISE	Ion selective electrode
Kanamycin high	Kanamycin high potency
KOH	potassium hydroxide
LDH	Lactate dehydrogenase
LDL	Low density lipoprotein
leuc	leucocyte
LH	Luteinising hormone
Lymphs	Lymphocytes
m	minute
M. TB	Mycobacterium tuberculosis
MB	Muscle Brain
MCH	Mean cell haemoglobin
MCHC	Mean cell haemoglobin concentration
MCV	Mean cell volume
MIC	minimum inhibitory concentration
Microb	Microbiology
MRSA	Methicillin resistant Staphylococcus aureus
Mycobact	Mycobacterium
N	Normal
N. gonorrhoeae	Neisseria gonorrhoeae
N. meningitidis	Neisseria meningitidis
NA	Nuclear antigen
NAAT	nucleic acid amplification test
Non-spec	Non-specific
p	post
P-aminosalicylate	Para aminosalicylate
PCO2	Partial pressure Carbon Dioxide
PCR	Polymerase chain reaction
PM	Post meridian

Abbreviation	Meaning
PO2	Partial pressure Oxygen
PR	Prothrombin ratio
prep	preparation
PSA	Prostate specific antigen
PT	Prothrombin time
Qual	Qualitative
Quinup	Quinupristin
RBC	Red blood cell
RDW	Red cell distribution width
Rh	Rhesus
RPR	Rapid plasma reagin
SA	Surface area
SG	specific gravity
SHBG	Sex hormone binding globulin
SO4	Sulphate
Spec	Specific
Spec	Specimen
Strep	Streptococcal
Streptomycin high	Streptomycin high potency
Sulb	Sulbactam
Sulfamet	Sulfamethoxazole
suscep	susceptibility
Synacth	Synacthen
T. gondii	Toxoplasma gondii
T. pallidum	Treponema pallidum
T3	Triiodothyromine
T4	Thyroxine
Tazob	Tazobactam
TPHA	Treponema pallidum haemagglutination
Trimet	Trimethoprim
TSH	Thyroid stimulating hormone
Ur	Urine
VCA	Viral capsid antigen
VDRL	Venereal Disease Reference Laboratory
VMA	Vanillylmandelic acid
VRE	Vancomycin resistant Enterococci

Abbreviation	Meaning
WBC	White blood cell

Table C: 1: Code Set Abbreviations

## Appendix D: Submission Form for Requesting Changes to the New Zealand Pathology Observation Code Sets

Applicant's details	
Date	
Submitted by (person's name)	
Organisation's name	
Postal address	
Email	
Telephone	

Result/observation Name Change	
Current NZPOCS name	
Desired NZPOCS name <i>Note: maximum 30 characters including spaces</i>	
Reason for change	
Current NZPOCS name	
Desired NZPOCS name <i>Note: maximum 30 characters including spaces</i>	
Reason for change	

Result/observation Code Change	
Current NZPOCS code	
Desired NZPOCS codes	
Reason for change	



## Appendix E: Submission Form for Requesting Additions to the New Zealand Pathology Observation Code Sets

Applicant's details	
Date	
Submitted by (person's name)	
Organisation's name	
Postal address	
Email	
Telephone	
Reason for proposed additional code	

Result/observation attributes	
Attribute definitions and examples can be found under 2.2 in the New Zealand Observation Code Sets document.	
Component/analyte	
Kind of property	
Time aspect	
System/sample type	
Type of scale	
Type of method	
Remarks	

How the submitter would typically report the result/observations	
Result name	
Reported result example	
Reported units	
Related names (common name, acronyms or synonyms)	
Closet LOINC match (ie, LOINC that is similar, but not necessarily the same)	
Additional information attached (eg, kitset package insert or textbook reference)	
Applicant's comments	

Forward the form to [standards@moh.govt.nz](mailto:standards@moh.govt.nz)