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PAEREWA PĀRONGO HAUORA

Bowel Screening Histology Data Standard

Draft for public comment

HISO 10072.2: 2019

MINISTRY OF HEALTH
MANATŪ HAUORA

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1 Introduction

The National Bowel Screening Programme[1] (NBSP) is a free programme for men and women aged 60 – 74 years eligible for publically funded health care. The primary objective of bowel screening is to reduce the mortality rate by diagnosing and treating bowel cancer at an earlier more treatable stage. The introduction of the NBSP in New Zealand followed a successful six-year pilot.

The new NBSP information technology system is called the National Screening Solution (NSS). This system will enable easy management of the bowel screening pathway, support planning and management of participants, monitor safety and quality, and enable ongoing evaluation of the programme. The NSS is a long-term strategic solution that is capable of being extended to support future population health initiatives.

1.1 Purpose

The standard identifies and describes the data elements that need to be captured in information systems of the laboratories contracted to perform NBSP histology services. This data will support the monitoring, operation and quality of the NBSP and may also be used for research and education purposes.

The standard is designed to ensure that consistent information is sent from various laboratories into the NSS.

Laboratory information systems must provide the data described in this standard to the NSS in a way that does not significantly impact laboratory pathologists' ease of working (ie, pathologists should not be expected to manually enter SNOMED CT codes into their information systems).

1.2 Scope

The standard defines the data required to be sent to the NSS. This standard does not define the data sent from the laboratory to the physician responsible for the patient's care.

[1] National Bowel Screening Programme: **https://www.timetoscreen.nz/bowel-screening/about-the-national-bowel-screening-programme/**

1.3 Implementation

Laboratories performing NBSP histology services must update their information systems to ensure that the data specified in this standard is able to be captured accordingly.

1.4 SNOMED CT

SNOMED CT is the endorsed terminology standard for clinical information systems and electronic health records in New Zealand. SNOMED CT is developed by SNOMED International, of which New Zealand is one of a number of member countries.

1.5 New Zealand legislation

The following Acts of Parliament and Regulations have specific relevance to this standard. Readers must consider other Acts and Regulations and their amendments that are relevant to their own organisation, in the implementation or use of this standard:

- Health Act 1956
- Health and Disability Commissioner (Code of Health and Disability Services Consumers' Rights) Regulations 1996
- Health Information Privacy Code 1994
- Health Practitioners Competence Assurance Act 2003
- Privacy Act 1993 (revised 2008)
- Public Records Act 2005
- Retention of Health Information Regulations 1996.

1.6 Data element definitions

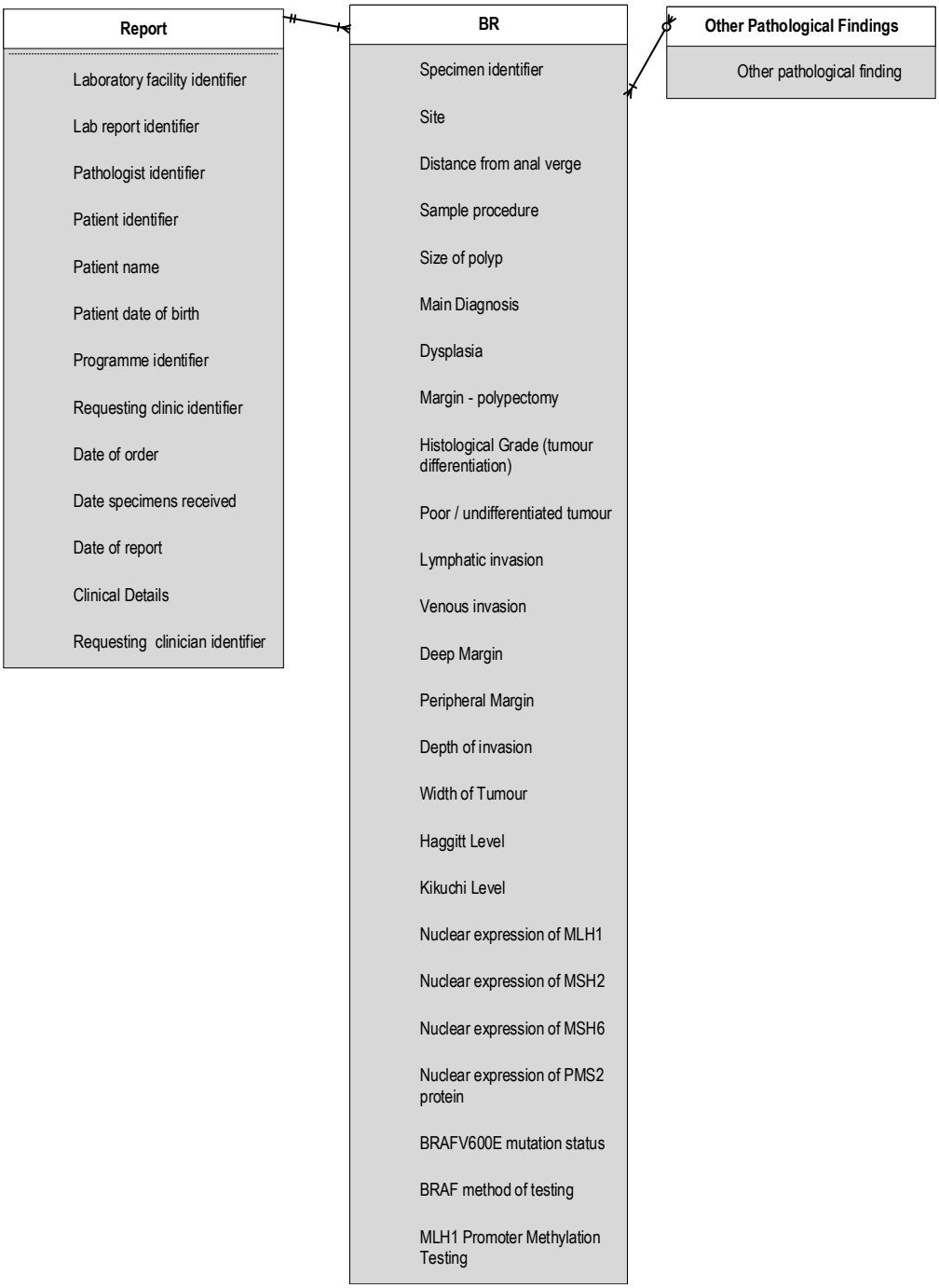
Each data element in this standard is defined according to a set of metadata components from ISO/IEC 11179 *Information Technology – Specification and standardization of data elements* 2003.

Definition	A statement that expresses the essential nature of the data element and its differentiation from all other data elements in this standard		
Source standards	Established data definitions or guidelines pertaining to the data element		
Data type	Alphabetic (A) Numeric (N) Alphanumeric (X) Boolean Date	**Representational class**	Code, free text, value or identifier For date and time data types, use full date or partial date Does not apply to Boolean types
Field size	Maximum number of characters	**Representational layout**	The arrangement of characters in the data element – eg, • 'A(50)' means up to 50 alphabetic characters • 'NNAAAA' means two numeric followed by four alphabetic characters. Full date/time representation is YYYYMMDD hh:mm:ss.
Obligation	Indicates if the data element is mandatory or optional for the entity being discussed. It can include conditional obligations of the data element.		
Data domain	The valid values or codes that are acceptable for the data element. The data elements contained in this standard are dates, free text or coded. Each coded data element has a specified code set.		
Guide for use	Additional guidance about using the data element.		
Verification rules	Quality control mechanisms that preclude invalid values.		

2 Data elements

This section describes the set of histology data that needs to be sent to the NSS for use by the NBSP. The messages sent to the NSS are in addition and different to the existing histology messages that laboratories already send to requesting physicians.

Each report must have one or more specimens. For each specimen, in addition to the main diagnosis, there can be up to five other pathological findings.



2.1 Report

This section lists the relevant data elements for a report.

2.1.1 Laboratory facility identifier

Definition	The unique identifier for the facility (laboratory) that performed the pathology work.		
Source standards	Information on the Health Provider Index is available at **https://www.health.govt.nz/our-work/health-identity/health-provider-index**		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	8	**Representational layout**	FXXNNN-C
Obligation	Mandatory		
Data domain	A valid HPI Facility ID		
Guide for use	This must be the HPI Facility ID for the laboratory that performed the pathology work. For organisations using the Ministry of Health's legacy Health Facility Codes, refer to the Ministry's current list of mappings to identify the relevant HPI Facility ID. The current list is available at h**ttps://www.health.govt.nz/nz-health-statistics/data-references/code-tables/common-code-tables/facility-code-table**.		
Verification rules	A valid HPI Facility ID		

2.1.2 Laboratory report identifier

Definition	A laboratory's unique accession number or 'day number' for the report, ie, the number under which the specimens or episode is documented in the laboratory information system.		
Source standards	N/A		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	30	**Representational layout**	X(30)
Obligation	Mandatory		
Data domain	As defined by the laboratory.		
Guide for use	N/A		
Verification rules	Each laboratory report identifier must be unique for all reports sent from that laboratory.		

The laboratory report identifier will be stored within the NSS to enable communication with a laboratory about a particular report.

2.1.3 Pathologist identifier

Definition	A unique identifier for the pathologist who extracted the samples which this histology report relates to.		
Source standards	HPI documentation: **www.health.govt.nz/our-work/health-identity/health-practitioner-index** See also: • HISO 10005:2008 Health Practitioner Index Data Set: **www.health.govt.nz/publication/hiso-100052008-health-practitioner-index-hpi-data-set** • HISO 10006:2008 Health Practitioner Index Code Set: **www.health.govt.nz/publication/hiso-100062008-health-practitioner-index-hpi-code-set**		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	6	**Representational layout**	NNAAAA
Obligation	Mandatory		
Data domain	HPI Common Person Number (CPN) generated by the HPI system.		
Guide for use	This field uses the Health Provider Index (HPI) CPN, a unique identifying number for the health practitioner delivering the service. This field is only for use where the practitioner is a member of a Responsible Authority under the Health Practitioners Competence Assurance Act 2003.		
Verification rules	CPN can be obtained from the clinician but must be validated with the HPI system.		

2.1.4 Patient identifier

Definition	National Health Index (NHI) number – a unique identifier assigned by the NHI system to a patient.		
Source standards	HISO 10046 Consumer Health Identity Standard: **www.health.govt.nz/publication/hiso-10046-consumer-health-identity-standard** See also NHI data dictionary: **www.health.govt.nz/publication/national-health-index-data-dictionary**.		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	7	**Representational layout**	AAANNNN
Obligation	Mandatory		
Data domain	NHI numbers		
Guide for use	Only the NHI system generates the NHI number assigned to a patient. NHI numbers are not reused once assigned to a patient. Where more than one number exists for a patient, one number is declared 'live' and all other numbers are made 'dormant' and attached to the live record. The NHI number is the primary key for patients' records.		
Verification rules	See the source standards for the check digit algorithm and NHI number validation rules.		

2.1.5 Patient name

This is the name of the NSS participant whose specimens are being examined and reported on. This is a complex field, and the report must contain the data elements identified in the 'Patient name' section of the **HISO 10046 Consumer Health Identity standard**.

2.1.6 Patient birth date

Definition	The date when the patient was born.		
Source standards	HISO 10046 Consumer Health Identity Standard: **www.health.govt.nz/publication/hiso-10046-consumer-health-identity-standard**		
Data type	Date	**Representational class**	Full or partial date
Field size	Max: 8	**Representational layout**	CCYY[MM[DD]]
Obligation	The year component of the date is mandatory. Month is conditional and to be used if known. Day is conditional and to be used if known and month has been recorded.		
Data domain	A valid date.		
Guide for use	Year of birth must be recorded as a minimum.		
Verification rules	The date of birth must be a valid day, month and year combination and cannot be in the future. For a partial date, the month of birth can be left blank if unknown. In this case, the day of birth must be blank.		

2.1.7 Programme identifier

Definition	This will be 'NBSP' for histology sent to NSS as part of the National Bowel Screening Programme.		
Source standards	N/A		
Data type	Alpha	**Representational class**	Code
Field size	4	**Representational layout**	A(4)
Obligation	Mandatory		
Data domain	**Code** / **Description** NBSP / National Bowel Screening Programme		
Guide for use	This is used by the NSS to determine what screening programme the pathology results relate to.		
Verification rules	This must be NBSP.		

2.1.8 Requesting clinic identifier

Definition	This is the HPI Facility ID of the endoscopy clinic that performed the colonoscopy, or other screening procedure, during which the specimens were taken.		
Source standards	Information on the Health Provider Index is available at **https://www.health.govt.nz/our-work/health-identity/health-provider-index**.		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	8	**Representational layout**	FXXNNN-C
Obligation	Mandatory		
Data domain	Valid HPI number only.		
Guide for use	Use the HPI Facility ID of the endoscopy clinic, hospital or surgery that sent the specimens to the laboratory. Use the most specific HPI facility ID available. For organisations using the Ministry of Health's legacy Health Facility Codes, refer to the Ministry's current list of mappings to identify the relevant HPI Facility ID. The current list is available at **https://www.health.govt.nz/nz-health-statistics/data-references/code-tables/common-code-tables/facility-code-table**.		
Verification rules:	A valid HPI Facility ID.		

2.1.9 Requesting clinician identifier

Definition	Identifier for the endoscopist who performed the colonoscopy – this should appear on the histology request form sent to the laboratory.		
Source standards	HPI documentation: **www.health.govt.nz/our-work/health-identity/health-practitioner-index** See also: • HISO 10005:2008 Health Practitioner Index Data Set: **www.health.govt.nz/publication/hiso-100052008-health-practitioner-index-hpi-data-set**. • HISO 10006:2008 Health Practitioner Index Code Set: **www.health.govt.nz/publication/hiso-100062008-health-practitioner-index-hpi-code-set**.		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	6	**Representational layout**	NNAAAA
Obligation	Mandatory		
Data domain	HPI CPN numbers generated by the HPI system.		
Guide for use	This field uses the Health Provider Index (HPI) Common Person Number (HPI_CPN): A unique identifying number pertaining to the health provider that is delivering the service where that health practitioner is a member of a Responsible Authority as set out in the Health Practitioners Competence Assurance Act 2003.[2] This field is only for use where the practitioner is a member of a Responsible Authority under the Health Practitioners Competence Assurance Act 2003.		
Verification rules	CPN can be obtained from the clinician but must be validated with the HPI system.		

2.1.10 Date of order

Definition	The date when the histology order was made, as provided on the request form, which should match the date of the endoscopy.		
Source standards	N/A		
Data type	Date	**Representational class**	Date
Field size	8	**Representational layout**	CCYYMMDD
Obligation	Mandatory		
Data domain	A valid date		
Guide for use	Use the date when the histology order was made		
Verification rules	A valid date that is less than or equal to the current date		

[2] **www.health.govt.nz/our-work/regulation-health-and-disability-system/health-practitioners-competence-assurance-act/responsible-authorities-under-act**

2.1.11 Date specimens received

Definition	The date when the specimen(s) were received in the laboratory		
Source standards	RCPA guideline and policy (8.2.l): **https://www.rcpa.edu.au/Library/College-Policies/Guidelines/Turnaround-Time-in-Anatomical-Pathology**		
Data type	Date	**Representational class**	Date
Field size	8	**Representational layout**	CCYYMMDD
Obligation	Mandatory		
Data domain	A valid date.		
Guide for use	Use the date when the tissue was received in the laboratory. The interim quality standards require that turnaround times are accordant with the RCPA guideline and policy (8.2.l).		
Verification rules	A valid date that is less than or equal to the current date.		

2.1.12 Date of report

Definition	The date when the laboratory report was finalised.		
Source standards	N/A		
Data type	Date	**Representational class**	Date
Field size	8	**Representational layout**	CCYYMMDD
Obligation	Mandatory		
Data domain	A valid date.		
Guide for use	Use the date when the laboratory report was finalised.		
Verification rules	A valid date that is less than or equal to the current date.		

2.1.13 Clinical details

Definition	Additional clinical information provided by the endoscopist.		
Source standards	N/A		
Data type	Alphanumeric	**Representational class**	Free text
Field size	2000	**Representational layout**	X(2000)
Obligation	Conditional. Required where the information is provided on the laboratory request form.		
Data domain	Free text.		
Guide for use	A free-text description of the pathology or any details about it, not already catered for by the elements in this report.		
Verification rules	N/A		

2.2 Specimen

There are one or more specimens for each report. The following identified the data elements for a specimen.

2.2.1 Specimen identifier

Definition	The identifier for the specimen for which the examination is being described.		
Source standards	N/A		
Data type	Alphanumeric	**Representational class**	Identifier
Field size	30	**Representational layout**	X(30)
Obligation	Mandatory		
Data domain	N/A		
Guide for use	This is the same as the Pot ID provided on the pot which the specimen was contained in, and on the laboratory request form. Laboratories may use their own internal identifiers for the pot(s) in an order, but the identifier used in the report must match that used to originally label the pot.		
Verification rules	N/A		

2.2.2 Site

Definition	This is the location the tissue was taken from		
Source standards	N/A		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Obligation	Mandatory		

Data domain

Clinical term	SNOMED CT
Caecum	32713005
Appendiceal orifice	83856002
Ileocaecal valve	23153004
Ileum *(excluding terminal ileum)*	34516001
Terminal ileum	85774003
Right (ascending) colon	9040008
Hepatic flexure	48338005
Transverse colon	485005
Splenic flexure	72592005
Left (descending) colon	32622004
Sigmoid colon	60184004
Rectosigmoid junction	49832006
Rectum	34402009
Anal canal	34381000
Colon (NOS)	71854001
Unknown body region	87100004

Guide for use	'Unknown body region' should only be used when the histology request form is not filled in correctly. If the location where the specimen was removed from cannot categorically be identified by the endoscopist, the distance from the anal verge should be recorded instead on the histology request form. This should then be provided in the 'Distance from anal verge' element and the site documented as 'Colon (NOS)'.
Verification rules	One of the options must be provided.

2.2.3 Distance from the anal verge

Definition	The measurement, in millimetres, of the distance between the anal verge and where the specimen was taken from.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Number
Field size	2	**Representational layout**	N(2)
Obligation	Conditional. Required when provided on laboratory request form.		
Data domain	An integer.		
Guide for use	In some situations, it may not be possible to categorically specify the name of the site where the specimen was taken from. In such cases the endoscopist may provide the distance from the anal verge instead of the location in the large bowel. If the distance from the anal verge is provided on the laboratory request form for the specimen then it should be provided here.		
Verification rules	If the site value is Colon (NOS) then the distance from the anal verge should be provided.		

2.2.4 Sample procedure

Definition	This identifies how the specimen was removed.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Obligation	Mandatory		
Data domain	**Clinical term** / **SNOMED CT** Biopsy / 274323008 Polypectomy / 274025005 Unknown procedure / 428119001 Other procedure on large intestine / 118838009		
Guide for use	Refer to information in the histology request form.		
Verification rules	One of the provided options.		

2.2.5 Size

Definition	This is the size of the specimen in millimetres.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Number
Field size	2	**Representational layout**	N(2)
Obligation	Conditional. Required if documented.		
Data domain	An integer.		
Guide for use	According to programme's interim quality standard 8.2.c, the size of lesions is generally accepted as that measured by the endoscopist and provided on the request form. However, if there is a major discrepancy between the provided size and the size of the lesion microscopically, the largest dimension should be measured by the reporting pathologist to the nearest millimetre on the haematoxylin and eosin slide. Provided in mm.		
Verification rules	An integer.		

2.2.6 Main diagnosis

Definition	This identifies the pathologist's diagnosis of the specimen		
Source standards	The diagnosis options include and expand upon the WHO classification of tumours of the colon and rectum (2010). The options are coded in SNOMED CT.		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Obligation	Mandatory		

Data domain	**Clinical term**	**SNOMED CT**
Normal diagnosis and unsatisfactory specimen	Normal	30389008
	Specimen unsatisfactory for diagnosis	112631006
Cancers	Adenocarcinoma of large intestine	TBD
	Adenocarcinoma in adenomatous polyp	43233001
	Suspicious of adenocarcinoma	315274008
	Mucinous adenocarcinoma	72495009
	Signet ring cell carcinoma	87737001
	Serrated adenocarcinoma	450948005
	Cribriform comedo type adenocarcinoma	733838009
	Medullary carcinoma	32913002
	Micropapillary carcinoma	450895005
	Squamous cell carcinoma	28899001
	Neuroendocrine carcinoma (NEC)	TBD
	Undifferentiated carcinoma	38549000
	Mixed adenoneuroendocrine carcinoma	51465000
	Adenocarcinoma (non-colorectal)	TBD
	Malignant tumour (non bowel)	TBD
	Malignant tumour (other, primary in bowel)	TBD
	Benign neoplasm (other primary bowel)	TBD
	Adenosquamous carcinoma	59367005
	Neuroendocrine tumour (NET)	TBD

Polyps	Tubular adenoma	19665009
	Tubulovillous adenoma	61722000
	Villous adenoma	128859003
	Hyperplastic polyp	62047007
	Sessile serrated adenoma /polyp	443157008
	Traditional serrated adenoma	443734007
	Serrated polyp (not otherwise specified)	449854009
	Inflammatory polyp	76235005
	Mucosal prolapse	29696001
	Mesenchymal tumours – Leiomyoma	44598004
	Mesenchymal tumours – Lipoma	46720004
	Mesenchymal tumours – Gastrointestinal stromal tumour	128755003
	Hamartomatous polyp	27391005
	Lymphoid polyp	80297003
Other pathology	Ulcerative colitis	64766004
	Crohn's disease	34000006
	Chronic idiopathic inflammatory bowel disease, unclassified	359664009
	Inflammation, unspecified	23583003
Guide for use	The members in this code set cover both polyps and cancers. The main diagnosis for the specimen must be provided. Any additional pathological findings can be provided using 'other pathological findings' data elements. The pathologist should be able to enter the diagnosis in the same manner as they always have, or in an intuitive manner when the laboratory information systems are upgraded. Colorectal adenocarcinoma is coded as adenocarcinoma of large intestine. *Guidance is currently being refined on how adenocarcinomas known to be from other sites (such as ovarian or prostate adenocarcinoma) should be coded.* *Guidance is currently being refined on how malignant neoplasms such as a high risk GIST should be coded*.	
Verification rules	The value must be one of the agreed options.	

2.2.7 Dysplasia

Definition	Describes the presence or not of dysplasia and where present the degree.		
Source standards	The interim quality standards require that no more than 10% of adenomata (including sessile serrated adenomata/polyps) are reported as high-grade dysplasia by a pathologist.		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	X(18)
Obligation	Conditional. Required to be if the predisposing adenoma is present.		
Data domain	**Clinical term** / **SNOMED CT** Low grade dysplasia / 43185009 High grade dysplasia / 55237006 Dysplasia (NOS) / 25723000		
Guide for use	Low-grade dysplasia describes unequivocal neoplasia confined to the epithelial glands, while high grade dysplasia incorporates architectural changes with supporting cytologic changes. Dysplasia must be graded for tubular adenomas, tubulovillous adenomas and villous adenomas. It is not required to grade the dysplasia in sessile serrated adenomas/polyps or traditional serrated adenomas. The 'Dysplasia (NOS)' option should be used for sessile serrated adenomas/polyps.		
Verification rules	Required if the predisposing adenoma is present.		

2.2.8 Margin –polypectomy

Definition	This identifies whether there is dysplasia present at the margin of the polyp, and what grade that dysplasia is.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Code
Field size	1	**Representational layout**	N
Obligation	Conditional. Required for all specimens except biopsies.		
Data domain	Involvement by low grade 1 Involvement by high grade 2 No involvement 3 Not assessable 4		
Guide for use	If the margin cannot be determined because the specimen is in fragments or the margin cannot be identified, use 'Not assessable'.		
Verification rules	Not applicable for biopsies. For adenocarcinomas arising in polyps, the peripheral and deep margin fields also apply.		

2.2.9 Histological grade (tumour differentiation)

Definition	The histologic grade or differentiation describes how much an adenocarcinoma resembles the normal tissue from which it arose.		
Source standards	Based on the 2010 WHO classification which uses the degree of gland formation to grade an adenocarcinoma.		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	X(18)
Obligation	Conditional		
Data domain	**Clinical term** / **SNOMED CT** Well differentiated / 263933003 Moderately differentiated / 384812005 Poorly differentiated / 263843001 Undifferentiated / 263918006		
Guide for use	This is required for polypectomy specimens showing adenocarcinomas. It is not required for special variants of adenocarcinoma such as mucinous, medullary, micropapillary, serrated or signet-ring cell carcinoma.		
Verification rules	One of the options provided.		

2.2.10 Poor/undifferentiated tumour

Definition	The presence of any degree of poor differentiation/undifferentiated tumour must be recorded.		
Source standards	RCPA structured reporting protocol for polypectomies: **https://www.rcpa.edu.au/getattachment/777b2f36-3b54-4d97-94c0-040a31f97b2b/Protocol-Polypectomy-local-resections-CR.aspx**		
Data type	Numeric	**Representational class**	Number
Field size	18	**Representational layout**	N(18)
Obligation	Conditional		
Data domain	**Clinical term** / **SNOMED CT** Present / 52101004 Absent / 2667000 Not applicable / 385432009		
Guide for use	This is required for polypectomy specimens with a diagnosis of adenocarcinoma. It is not required for special variants of adenocarcinoma such as mucinous, medullary, micropapillary, serrated or signet-ring cell carcinoma.		
Verification rules	One of the options provided.		

2.2.11 Lymphatic invasion

Definition	This identifies whether there is lymphatic invasion.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	X(18)
Obligation	Conditional. This is required for polypectomy specimens showing adenocarcinoma.		
Data domain	Present (SNOMED CT term: Lymphatic tumour invasion finding) 385414009 Not present (SNOMED CT term: No tumour invasion) 370049004 Cannot be determined (SNOMED CT term: Tumour invasion cannot be assessed) 370048007		
Guide for use	This is required for polypectomy specimens showing adenocarcinoma.		
Verification rules	One of the options provided.		

2.2.12 Venous invasion

Definition	This identifies whether there is venous invasion.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	X(18)
Obligation	Conditional. This is required for polypectomy specimens showing adenocarcinoma.		
Data domain	**Clinical term** — **SNOMED CT** Present (SNOMED CT term: Vascular invasion by tumour present) — 372287009 Not present (SNOMED CT term: No tumour invasion) — 370049004 Cannot be determined (SNOMED CT term: Tumour invasion cannot be assessed) — 370048007		
Guide for use	This is required for polypectomy specimens showing adenocarcinoma.		
Verification rules	One of the options provided.		

2.2.13 Deep margin status

Definition	This field records the distance of the tumour from the deep margin (in mm).		
Source standards	N/A		
Data type	Numeric	**Representational class**	Numeric
Field size	2	**Representational layout**	N(2)
Obligation	Conditional. See guide for use.		
Data domain	An integer.		
Guide for use	This can be used to identify whether the deep margin of the polyp is involved. The distance from the deep margin (in mm) is required for adenocarcinoma arising in polypectomy specimens. If the tissue is received piecemeal, then it is not assessable and a measurement is not required.		
Verification rules	N/A		

2.2.14 Peripheral margin status

Definition	This field records the distance of the tumour from the peripheral (mucosal) margin (in mm).		
Source standards	N/A		
Data type	Numeric	**Data type**	Numeric
Field size	2	**Field size**	N(2)
Obligation	Conditional. See guide for use.		
Data domain	An integer.		
Guide for use	This can be used to identify whether the peripheral margin of the polyp is involved. This is required for adenocarcinoma arising in polypectomy specimens. If the tissue is received piecemeal, then it is not assessable and a measurement is not required.		
Verification rules	N/A		

2.2.15 Depth of invasion

Definition	This is the maximum depth of an invasive adenocarcinoma from the muscularis mucosae in millimetres.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Number
Field size	3	**Representational layout**	N(3)
Obligation	Optional		
Data domain	An integer.		
Guide for use	This is required for adenocarcinomas arising in polypectomy specimens. If the muscularis mucosae is destroyed then the maximum tumour thickness will suffice. In piecemeal resections, the maximum dimension of invasive adenocarcinoma in any one piece should be recorded.		
Verification rules	N/A		

2.2.16 Width of tumour

Definition	This is the maximum width of the invasive adenocarcinoma in millimetres.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Number
Field size	3	**Representational layout**	N(3)
Obligation	Conditional – required for adenocarcinomas.		
Data domain	An integer.		
Guide for use	This is required for adenocarcinomas in intact polypectomy specimens.		

2.2.17 Haggitt level

Definition	This identifies the Haggitt level for polypoid (pedunculated) tumours as determined by the pathologist. Haggitt level can only be determined for a resected polyp and not for a biopsy. It is a four level system.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Code
Field size	1	**Representational layout**	N
Obligation	Conditional. This is required for adenocarcinomas arising in pedunculated polyps removed by polypectomy (not biopsies).		
Data domain	Level 1 = carcinoma invades submucosa; limited to head of polyp		1
	Level 2 = carcinoma invades neck of polyp		2
	Level 3 = carcinoma invades any part of the stalk		3
	Level 4 = carcinoma invades submucosa of bowel wall, below polyp stalk but above muscularis propria		4
	Cannot be determined		0
Guide for use	This is required for adenocarcinomas removed by polypectomy (not biopsies). The level cannot be determined if the tissue is received piecemeal.		
Verification rules	One of the options provided.		

2.2.18 Kikuchi level

Definition	This identifies the Kikuchi level for sessile tumours as determined by the pathologist. It is used for describing the degree of infiltration of a sessile early invasive colorectal cancer. Kikuchi levels can only be determined for resected intact polyps and not for biopsies.		
Source standards	N/A		
Data type	Alphanumeric	**Representational class**	Code
Field size	3	**Representational layout**	XXX
Obligation	Conditional. This is required for sessile adenocarcinomas removed by polypectomy (not biopsies).		
Data domain	Slight submucosal invasion (200–300um (0.2–0.3mm)		sm1
	Invasion of the middle one-third of the submucosa or intermediate between sm2 and sm3		sm2
	Invasion of the deep one-third of the submucosa		sm3
	Cannot be determined		X
Guide for use	This is required for adenocarcinomas arising in sessile polyps removed by polypectomy (not biopsies). The level cannot be determined if the tissue is received piecemeal. The definitions are based on the RCPA Polypectomy and Local Resections of the Colorectum Structured Reporting Protocol (2013).		
Verification rules	One of the options provided.		

2.2.19 Nuclear expression of MLH1

Definition	Mismatch repair protein (MMR) immunohistochemistry helps identify one of four potentially defective MMR genes responsible for a hereditary form of colorectal cancer called Lynch syndrome. In addition, MMR status may predict response to chemotherapy and provide information regarding prognosis. Loss of nuclear expression of MLH1 indicates a need for further testing.		
Source standards	National Bowel Cancer Working Group proposal for standards in molecular testing of colorectal cancer: **https://www.health.govt.nz/system/files/documents/publications/molecular-testing-colorectal-cancer-nz-jun18.pdf**		
Data type	Numeric	**Representational class**	Code
Field size	1	**Representational layout**	N
Obligation	Conditional. Required for adenocarcinoma.		
Data domain	Intact nuclear expression 1 Loss of nuclear expression 2 Other abnormal pattern 3 Equivocal 4 Test failed 5 Not performed 6		
Guide for use	Other abnormal pattern includes but not limited to unequivocally weak or subclonal (partial) loss of nuclear expression. Equivocal is used when the staining is difficult to interpret whether it is normal or abnormal.		
Verification rules	One of the options provided.		

2.2.20 Nuclear expression of MSH2

Definition	Mismatch repair protein (MMR) immunohistochemistry helps identify one of four potentially defective MMR genes responsible for a hereditary form of colorectal cancer called Lynch syndrome. In addition, MMR status may predict response to chemotherapy and provide information regarding prognosis. Loss of MSH2 (usually accompanied by loss of MSH6) raises the possibility of Lynch syndrome.		
Source standards	National Bowel Cancer Working Group proposal for standards in molecular testing of CRC.		
Data type	Numeric	**Representational class**	Code
Field size	1	**Representational layout**	N
Obligation	Conditional. Required for adenocarcinoma.		
Data domain	Intact nuclear expression 1 Loss of nuclear expression 2 Other abnormal pattern 3 Equivocal 4 Test failed 5 Not performed 6		
Guide for use	Other abnormal pattern includes but not limited to unequivocally weak or subclonal (partial) loss of nuclear expression. Equivocal is used when the staining is difficult to interpret whether it is normal or abnormal.		
Verification rules	One of the options provided.		

2.2.21 Nuclear expression of MSH6

Definition	Mismatch repair protein (MMR) immunohistochemistry helps identify one of four potentially defective MMR genes responsible for a hereditary form of colorectal cancer called Lynch syndrome. In addition, MMR status may predict response to chemotherapy and provide information regarding prognosis. Isolated loss of expression raises the possibility of Lynch syndrome.		
Source standards	National Bowel Cancer Working Group proposal for standards in molecular testing of CRC.		
Data type	Numeric	**Representational class**	Code
Field size	1	**Representational layout**	N
Obligation	Conditional. Required for adenocarcinoma		
Data domain	Intact nuclear expression 1 Loss of nuclear expression 2 Other abnormal pattern 3 Equivocal 4 Test failed 5 Not performed 6		
Guide for use	Other abnormal pattern includes but not limited to unequivocally weak or subclonal (partial) loss of nuclear expression. Equivocal is used when the staining is difficult to interpret whether it is normal or abnormal.		
Verification rules	One of the options provided.		

2.2.22 Nuclear expression of PMS2 protein

Definition	Mismatch repair protein (MMR) immunohistochemistry helps identify one of four potentially defective MMR genes responsible for a hereditary form of colorectal cancer called Lynch syndrome. In addition, MMR status may predict response to chemotherapy and provide information regarding prognosis. Isolated loss of expression suggests Lynch syndrome.		
Source standards	National Bowel Cancer Working Group proposal for standards in molecular testing of CRC.		
Data type	Numeric	**Representational class**	Code
Field size	1	**Representational layout**	N
Obligation	Conditional. Required for adenocarcinoma.		
Data domain	Intact nuclear expression 1 Loss of nuclear expression 2 Other abnormal pattern 3 Equivocal 4 Test failed 5 Not performed 6		
Guide for use	Other abnormal pattern includes but not limited to unequivocally weak or subclonal (partial) loss of nuclear expression. Equivocal is used when the staining is difficult to interpret whether it is normal or abnormal.		
Verification rules	One of the options provided.		

2.2.23 BRAFV600E mutation status

Definition	BRAFV600E mutational analysis is performed when there is a loss of expression of MLH1 and PMS2 to rule out the methylation pathway to colorectal cancer. The oncologists may also use this for prognosis and treatment selection.		
Source standards	NBCWG proposal for standards in molecular testing of CRC.		
Data type	Numeric	**Representational class**	Code
Field size	1	**Representational layout**	N
Obligation	Conditional. Required in those colorectal adenocarcinomas with MLH1 loss, microsatellite instability or stage IV colorectal disease.		
Data domain	BRAFV600E mutation present 1 BRAFV600E mutation absent 2 Not tested 3 Test failed 4		
Guide for use	Lynch syndrome is unlikely if BRAFV600E mutation is present in adenocarcinoma with loss of MLH1.		
Verification rules	Required in those colorectal adenocarcinomas with MLH1 loss, microsatellite instability or stage IV colorectal disease.		

2.2.24 BRAF method of testing

Definition	This indicates the means by which BRAFV600E mutation status was determined.		
Source standards	N/A		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Obligation	Conditional. Required if BRAFV600E mutation status documented as present, absent or failed.		
Data domain	Immunohistochemistry 117617002 Non-immunohistochemical assay (eg, RT-PCR, Sanger sequencing, NGS, FA test etc) 116148004 (SNOMED clinical term: Molecular genetics procedure)		
Guide for use	Only required if BRAFV600E mutation status documented as present, absent or failed.		
Verification rules	Only required if BRAFV600E mutation status documented as present, absent or failed.		

2.2.25 MLH1 promoter methylation testing

Definition	Analysis for MLH1 promoter methylation should be performed when BRAFV600E mutation is absent in adenocarcinoma with loss of MLH1.		
Source standards	National Bowel Cancer Working Group proposal for standards in molecular testing of colorectal cancer.		
Data type	Numeric	**Representational class**	code
Field size	1	**Representational layout**	N
Obligation	Conditional. Required if MLH1 and PMS2 show absent nuclear expression and BRAFV600E mutation is absent.		
Data domain	MLH1 promoter hypermethylation present 1 MLH1 promoter hypermethylation absent 2 Not tested 3 Test failed 4		
Guide for use	Lynch syndrome is unlikely if MLH1 promoter hypermethylation is present in adenocarcinoma with loss of MLH1.		
Verification rules	Only required if: MLH1 and PMS2 show absent nuclear expression and BRAFV600E mutation is absent.		

2.3 Other pathological findings

For each specimen, in addition to a main pathological finding, there can be up to five other pathological findings, or no other pathological findings.

2.3.1 Other pathological finding

Definition	This identifies the pathologist's other pathological finding(s) in addition to the main diagnosis of the specimen. The members in this code set cover both polyps and cancers.		
Source standards	The diagnosis options include and expand upon the WHO classification of tumours of the colon and rectum (2010). The options are coded in SNOMED CT.		
Data type	Numeric	**Representational class**	Code
Field size	18	**Representational layout**	N(18)
Obligation	Optional		
Data domain	The clinical terms and corresponding SNOMED CT values that are used for this field are the same as those used in the 'Main diagnosis field'.		
Guide for use	This field can be used to provide a pathological finding in addition to the main diagnosis for a specimen. There can be up to five instances of this field for each specimen. The pathologist should be able to enter the diagnosis in the same manner as they always have, or in an intuitive manner when the laboratory information systems are upgraded. Colorectal adenocarcinoma is coded as adenocarcinoma of large intestine, while adenocarcinomas known to be from other sites (such as ovarian or prostate adenocarcinoma) should be coded as adenocarcinoma, no subtype for the purposes of this data. Malignant neoplasms such as a high risk GIST should be coded as 'malignant, tumour, other'.		
Verification rules	The value must be one of the agreed options.		