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# Bowel Screening Messaging Implementation Guide

HISO 10072.2:2022

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# Contents

## List of figures



## List of tables

# 1 Introduction

The National Bowel Screening Programme[1] (NBSP) is a free programme for men and women aged 60–74 years who are eligible for publicly 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 can be extended to support future population health initiatives.

## 1.1 Purpose

This implementation guide helps in the development of applications using messaging to report bowel screening histology data into the NSS. Also included in this guide is the structure of electronic messages using HL7® version 2.4 (HL7).

This implementation guide identifies and describes the messages that laboratories contracted to perform NBSP histology services need to send to the NSS. The data in these messages will support the monitoring, operation and quality of the NBSP and may also be used for research and education purposes. The purpose of this implementation guide is to ensure that consistent information is sent from various laboratories to the NSS in the same way.

## 1.2 Scope

This implementation guide presents guidelines for sending HL7 version 2.4 messages containing bowel screening histology data to the NSS. It uses definitions from the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

The messages covered are bowel screening information provided by laboratories and the response from the NSS. This guide does not cover pathology messages between district health boards and laboratories – those messages are instead covered by the HISO 10008 Pathology and Radiology Messaging Standard and Implementation Guide.

1 **www.timetoscreen.nz/bowel-screening/about-the-national-bowel-screening-programme**

This guide covers the:

- specific use of message segments where there are alternative uses, and the enforcement of optional fields that are required for the NSS
- provision of all the technical information required for a health provider (or their system vendor) to make all the necessary system changes to support the NSS.

## 1.3 Legislation and regulations

The following Acts of Parliament and regulations are relevant to this implementation guide:

- 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
- Health (Retention of Health Information) Regulations 1996.

Readers must consider other Acts and regulations and any amendments that are relevant to their own organisation when implementing or using the implementation guide.

## 1.4 Related specifications

Other specifications used in developing this implementation guide, or referenced in its operation, offer additional clarification if needed. These are:

- HISO 10072.1:2019 Bowel Screening Histology Data Standard
- HISO 10004 New Zealand Pathology Observation Code Set (NZPOCS)
- HISO 10008.2:2015 Pathology and Radiology Messaging Standard
- HISO 10008.1:2015 Pathology and Radiology Implementation Guide
- HISO 10029:2015 Health Information Security Framework
- HISO 10064:2017 Health Information Governance Guidelines
- HISO: 10005 Health Practitioner Index Data Set
- HISO: 10006 Health Practitioner Index Code Set
- HL7 Standard version 2.4 – An Application Protocol for Electronic Data Exchange in Healthcare Environments. Ann Arbor: Health Level Seven Inc
- SNZ HB 8169:2002. Health Network Code of Practice (Amendment 1 2006).

# 1.5 Revision history

| Updated | Details |
|---|---|
| April 2022 | The following updates to **Table 26: OBX specimen data guide** in Appendix A.<br>• included the following data elements that were added to HISO 10072.1:2019 Bowel Screening Histology Data Standard in November 2021:<br>  ○ 2.2.9 Polyp profile<br>  ○ 2.2.17 Extent of invasion<br>  ○ 2.2.18 Invasion into the adjacent structure/organ<br>  ○ 2.2.19 Tumour budding assessment indicator<br>  ○ 2.2.20 Number of tumour buds<br>  ○ 2.2.21 Tumour budding score<br>  ○ 2.2.26 Loss of expression for MMR protein<br>• Replaced the OBX-2 value type of IS with CE in tables and examples where applicable<br>Appendix B: Example message has been updated to align with names in Table 26.<br>• Replaced the NZPOCS code of XNZ5463 for Haggit level to a LOINC code of 96115-1 |

# 2 Business processes

## 2.1 Security requirements

Laboratories must ensure that data is kept confidential and protected from tampering when they are transmitting it over networks, including Connected Health. Laboratories exchanging data with the NSS must comply with the HISO 10029:2015 Health Information Security Framework (HISF).

Laboratories must encrypt sensitive information to secure it from outside and insider threats (HISF 15.1).

## 2.2 Screening message process

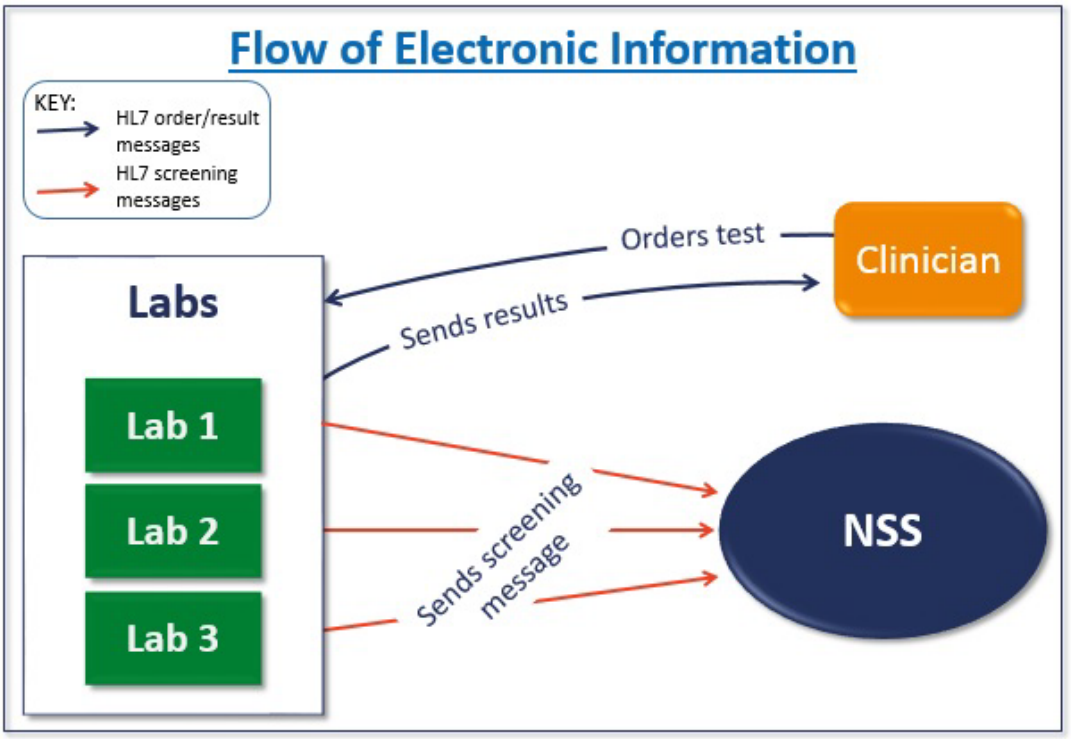
Laboratories with contracts to deliver histology services as part of the National Bowel Screening Programme must provide electronic histology messages in line with this implementation guide, or have a roadmap toward achieving this that they have agreed with the National Bowel Screening Programme. Laboratories cannot provide notification of histology information to the NSS through any other electronic or manual mechanism.

This implementation guide does not cover business processes for exchanging histology information between district health boards and laboratories.

## 2.3 Screening message data flow

Figure 1 provides a simplified view of the flow of electronic histology information in the National Bowel Screening Programme. This implementation guide covers only the HL7 notification messages that laboratories send to the NSS (in red). For simplicity, the diagram does not show acknowledgement and error messages that the NSS sends back to laboratory systems.

**Figure 1: Flow of electronic histology information in the National Bowel Screening Programme**




# 2.4 Correcting reports

It is important that the NSS has correct information to support robust NBSP quality assurance processes.

Laboratories can amend histology results and provide supplementary reports. Whenever a laboratory sends a supplementary or amended report back to a clinician relating to NBSP histology, if the data in the original screening message to the NSS has changed the laboratory **must** also send an amended report to the NSS. If nothing has changed, the laboratory **may** choose to resend the report.

As well as altering or adding histology information, laboratories can issue a correction of non-result data – such as a change to the collector identifier. The NSS will store all of the information sent in the corrected message and will mark all information previously sent to the NSS as outdated and potentially incorrect. Laboratory systems can choose to mark all data elements as changed in a correct message (using OBX-11) when only some have changed. This will include data elements that were present in the initial message but not present in the corrected message.

If a report has been sent associated with the wrong patient, the laboratory must correct this error by sending a delete message.

The NSS will reject any unexpected screening messages that a laboratory sends for people who are not registered as participants in the National Bowel Screening Programme.

# 3 Information requirements

Laboratories providing NBSP histology services are required to conform to the programme's quality standards,[2] data definitions and elements. The National Screening Unit has developed these data definitions and data elements to enable clear and concise reporting and monitoring of the NBSP. These data definitions are based on:

- recognised population screening priorities
- consensus between represented stakeholders
- once-only data collection (and agreed responsibility)
- source data based on robust definitions
- acceptable impact or burden on services
- collection with appropriate frequency and timeliness.

This implementation guide is intended for use by those implementing messaging solutions. It details how to provide each of these elements using HL7 version 2.4 in a nationally consistent way. It also details where laboratories may provide additional information such as a participant's sex and address.

It is recommended that this document is read together with the HISO 10072.1:2019 Bowel Screening Histology Data Standard (data standard) for more information on these data elements. The data standard identifies and describes the data elements that laboratories contracted to perform NBSP histology services must capture. The HISO 10072.1:2019 Bowel Screening Histology Data Standard is part of the National Bowel Screening Programme's quality documentation.

[2] **www.nsu.govt.nz/publications/national-bowel-screening-programme-interim-quality-standards**

# 4 Privacy requirements

Information can only be used or disclosed in accordance with the Health Act 1956 and Health Information Privacy Code 1994.

Additional security provided for through an electronic system, such as role-based security (ie, blocking certain information from general view), will be used to ensure individual privacy. For more guidance on privacy considerations, see the Health Information Governance Guidelines.[3]

[3] **www.health.govt.nz/publication/hiso-100642017-health-information-governance-guidelines**

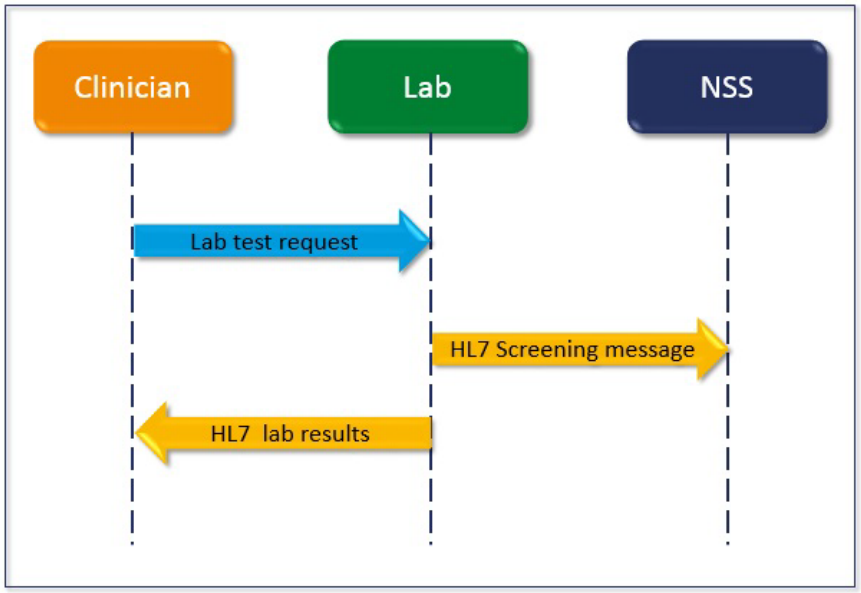
# 5 Transactions and message types

## 5.1 Exchanging information

HL7 version 2.4 is an international standard that is used globally and within New Zealand to manage the workflow and content involved when providers are exchanging clinical information about patients. The NSS has adopted HL7 version 2.4. Message specifications have been developed based on information requirements to support the monitoring, operation and quality of the National Bowel Screening Programme.

Figure 2 shows the standard electronic message and the steps involved with it. Each message has a corresponding acknowledgement message, but for simplicity the diagram does not include these.

**Figure 2: Flow for standard notification**




Step 1. The clinician performs a colonoscopy or other bowel screening procedure.

Step 2. The laboratory performs tests.

Step 3. The laboratory returns a test result to the clinician.

Step 4. The laboratory sends bowel screening information to the NSS.

## 5.2 Message conventions

Tables 1 and 2 below show the segments that are used and the responses. Items enclosed within square brackets [ ] are optional, and those within braces { } may be repeated multiple times. Section 5.5 sets out some general considerations for implementation.

## 5.3 ORU – Laboratory results message

Please note that these should be read together with the appropriate standard. While some items may be optional in HL7, they may be mandatory in this implementation and further restrictions may be applied that are not in the reference standard.

**Table 1: ORU – Laboratory results message**

| Segment name | Description |
|---|---|
| MSH | Message header |
| PID | Patient identification |
| OBR | Order detail – observation request |
| {OBX} | Observation/result |

## 5.4 ACK – Response message

**Table 2: ACK – Response message**

| Segment name | Description |
|---|---|
| MSH | Message header |
| MSA | Message acknowledgement |
| [ERR] | Error |

## 5.5 General considerations

The NSS accepts data as standard unsolicited results (ORU) but restricts some fields to specific ranges of values. Some optional fields are mandatory when sending data to the NSS.

The NSS does not support delimiters other than the default ones specified in the standard. It is essential to construct messages in segmented form.

Only segments MSH, MSA, ERR, PID, OBR and OBX will be processed; any others will be discarded.

Where multiple OBX occur with the same code in OBX-3, then it is necessary to use sub-IDs in OBX-4, starting at 1 and incrementing by 1 for each subsequent OBX in a set.

## 5.6 Specimen data

Every report will include data for one or more specimens. Specimen data is supplied in OBX segments. These OBX segments will be distinguished using sub-IDs in OBX-4.

For each specimen, there is :

- required data, which must always be provided
- conditional data, which must be provided in specific situations.

Up to five 'other pathological findings' can additionally be provided for each specimen.

Appendix A provides the allowable values for OBX-2 and OBX-3. It also gives a reference to the related section in the HISO 10072.1:2019 Bowel Screening Histology Data Standard, which describes when the data must be provided and the allowable values for OBX-5.

## 5.7 Data types

Table 3 lists the data types used in the definitions of segments. All of these are standard HL7 types. Consult HL7, Chapter two for further information.

**Table 3: HL7 data types**

| Data type | Meaning | Comment |
|---|---|---|
| CM | Composite data type | This field is a combination of other data items. Where it occurs, the structure of the composite will be defined in field notes. |
| DT | Date | Always formatted as YYYYMMDD. |
| FT | Formatted text | Same as ST but allows embedded HL7 formatting characters. |
| HD | Hierarchic identifier | Treated the same as ST in this implementation as there is no name space specified. |
| ID | Coded value | The value in this field must be drawn from a table of HL7 defined values. The table of acceptable values will be found in the field notes. |
| IS | Coded value | The value in this field must be drawn from a table of user-defined values. The table of acceptable values will be found in the field notes. |

| Data type | Meaning | Comment |
|---|---|---|
| NM | Numeric data | A number value. |
| SI | Sequence ID | A non-negative integer. |
| ST | String data | A string of alphanumeric characters. |
| TS | Time stamp | Always formatted as YYYYMMDD[HHMM[SS]]. HL7 allows 4 additional fields of milliseconds. These are not used in this implementation. |
| TX | Text data | ST that allows some additional special characters. |

# 5.8 Composite data types

These composites are used in the definitions of the segments. Where additional clarification is required, these tables may be repeated in the segment notes. The composites provided below are limited to those that this implementation guide uses.

## 5.8.1 CE – Coded element

The CE data type transmits codes, and the text associated with the code. The maximum length of this field is 250.

For National Bowel Screening messages, this is used in OBX fields as well as being used within OBR-4 – 'Universal service ID', OBR-46 – Placer supplemental service information, and OBR-47 – Filler facility code.

Table 4 shows the CE data type components.

**Table 4: CE – Coded element**

| Component | Len | Type | Opt | Notes |
|---|---|---|---|---|
| <identifier> | 10 | ST | R | |
| <text> | 30 | ST | R | |
| <name of coding system> | 10 | ID | R | |
| <alternate identifier> | | | | *Not used.* |
| <alternate text> | | | | *Not used.* |
| <name of alternate coding system> | | | | *Not used.* |

The coded element for the National Bowel Screening Programme should include the identifier (NBSP), text (National Bowel Screening Prog) and the name of the coding system (L).

Examples:

*OBR-4 'Universal service ID':*
OBR||8642753100012^LIS||**NBSP^National Bowel Screening Prog^**L|...

*OBR-46 Placer supplemental service information:*
... 20190305|||F|||||||12ABCD^^^^HI ||||||2|||||||||**F08099-F^HPI Facility ID^HF** |F12345-F^HPI Facility ID^HF

*OBR-47 Filler facility code:*
... 20190305|||F|||||||12ABCD^^^^HI ||||||2|||||||||F08099-F^HPI Facility ID^HF |**F12345-F^HPI Facility ID^HF**

## 5.8.2 CWE – Coded with exceptions

There is no requirement to use the CWE composite data type in an NBSP histology message. For laboratory IT stakeholders that prefer the relevant details in the OBX-6 units segment, refer to Section 5.1.6.6 CWE – Coded with Exceptions in the HISO 10008.2:2015 Pathology and Radiology Messaging Standard.

## 5.8.3 CX – Extended composite ID with check digit components

The CX type is used for a participant's National Health Index (NHI) identifier in PID-3.

**Table 5: CX – Extended composite ID with check digit components**

| Sub component | Type | Notes |
|---|---|---|
| <ID> | ST | The value of the identifier itself. |
| <check digit> | | *Not used.* |
| <code identifying the check digit scheme employed> | | *Not used.* |
| <assigning authority> | HD | 'NZLMOH' |
| <identifier type code> | ID | A code corresponding to the type of identifier. This will always be 'NHI' for the National Health Index identifier. |

Example:

PID|1||**ZBS0001^^^NZLMOH^NHI**||Testparticipant^John||19600122|M|...

## 5.8.4 EI – Entity identifier

The entity identifier defines a given entity within a specified series of identifiers. This guide uses this composite data type in only one field: OBR-2 – Placer order number. Table 6 shows the EI components.

**Table 6: EI – entity identifier components**

| Sub-component | Type | Notes |
|---|---|---|
| <entity identifier> | ST | This is usually defined to be unique within the series of identifiers created by the <assigning authority>, defined by a hierarchic designator. |
| <namespace ID> | SI | Used as the HL7 identifier for the user-defined table of values for this component. |
| <universal ID> | ST | Is a string formatted according to the scheme defined by the <universal ID type>. |
| <universal ID type> | ID | L, LN, SCT |

## 5.8.5 XAD – Extended address

There is no requirement for laboratories to send patient address details in an NBSP histology message to the NSS as this information will be obtained from other sources. For laboratory IT stakeholders that prefer to send patient address details to the NSS, these details must be provided in XAD format within PID11. For further information on XAD, see Section 5.1.6.26 XAD – Extended Address in HISO 10008.2:2015 Pathology and Radiology Messaging Standard.

## 5.8.6 XCN – Extended composite ID number

The XCN type is used in a number of places within the NBSP histology message to contain a clinician's HPI CPN and, where required, an HPI Facility ID in each use case.

**Table 7: XCN – Extended composite ID number**

| | Component | Type | Notes |
|---|---|---|---|
| 1 | <Entity identifier>^ | ST | This must contain a HPI_CPN. |
| 2 | <family name>^ | FN | Use is optional but not required. |
| 3 | <given name>^ | ST | Use is optional but not required. |
| 4 | <middle initial or name>^ | ST | Use is optional but not required. |
| 5 | <suffix (eg, JR or III) ^ | ST | Use is optional but not required. |
| 6 | <prefix (eg, DR)>^ | ST | Use is optional but not required. |
| 7 | <degree (eg, MD)> ^ | IS | Use is optional but not required. |

| | Component | Type | Notes |
|---|---|---|---|
| 8 | <source table>^ | | *Not used.* |
| 9 | <assigning authority>^ | HD | This should contain 'NZLMOH'. |
| 10 | <name type code>^ | | *Not used.* |
| 11 | <identifier check digit>^ | | *Not used.* |
| 12 | <code identifying the check digit scheme employed>^ | | *Not used.* |
| 13 | <identifier type code>^ | IS | This should contain 'HI' (to represent HPI CPN). |
| 14 | <assigning facility (HD)> | HD | |
| 15 | <name representation code>^ | ID | |
| 16 | <name context>^ | CE | An HPI Facility ID **must** be provided here when the XCN is used in OBR-28 Result copied to. For other uses, providing an HPI Facility ID is optional. When provided, it must be in CE format, eg, **F01234-F&HPI Facility ID&HF**. |
| 17 | <name validity range>^ | DR | *Not used.* |
| 18 | <name assembly order>^ | ID | *Not used.* |

**Note:** The HPI Facility ID is mandatory in OBR-28 Result copies to.

The XCN type is used in:

- OBR-10 – Collector identifier to contain the HPI CPN of the clinician who collected the samples
- OBR-16 – Ordering provider to contain the HPI CPN of the clinician who ordered the histology tests
- OBR-28 – Result copies to and contains the HPI CPN of the clinician who the histology results have been sent to and the HPI Facility ID of the facility the histology results are sent to. Note that the results message sent to clinicians is in a different format to this screening message
- OBR-32 – Principal result interpreter to contain the HPI CPN of the histologist who is responsible for the histology tests.

## 5.8.7 XPN – Patient name

This composite is used for the name of any patients identified in the message.

**Table 8: PN – Patient name composite**

| Component | Type | Notes |
|---|---|---|
| <Family name>^ | ST | Limited to 25 characters. |
| <Given name>^ | ST | Limited to 20 characters. |

**Note:** The field length limits align with the HISO 10008.2:2015 Pathology and Radiology Messaging Standard.

Example:

*The patient name in PID-5:*

PID|1||ZBS0001^^^NZLMOH^NHI||**Testparticipant^John**||19600122|M|...

# 5.9 Interpreting 'optionality' and 'required for'

Table 9 sets out the way to interpret the column headings and values identified in Sections 5.10–5.15.

**Table 9: Interpreting 'optionality' and 'required for'**

| **Len (Length)** | **Defines the total length of the field.** | |
|---|---|---|
| Opt (Optionality) | R (Required) | This field must always contain data. |
| | O (Optional) | This field does not have to contain data. |
| | C (Conditional) | This field must contain data in certain situations as described in the HISO 10072.1:2019 Bowel Screening Histology Data Standard. |

# 5.10 MSH – Message header segment

**Table 10: MSH – Message header segment**

| Data element | Field | Len | Type | Opt | Comments |
|---|---|---|---|---|---|
| Field separator | MSH-1 | 1 | ST | R | The field separator character will be '\|'. |
| Encoding | MSH-2 | 4 | ST | R | To ensure messaging consistency, the following encoding characters must be used:<br>^ – component separator<br>~ – repetition separator<br>\ – escape character<br>& – sub-component separator |
| Sending application | MSH-3 | 180 | HD | R | The sending application that generated the message. |
| Sending facility | MSH-4 | 180 | HD | R | This field contains the sending facility. The preference is that this contains an HPI Facility ID. If the message is routed via a commercial service and a different ID is required |

| Data element | Field | Len | Type | Opt | Comments |
|---|---|---|---|---|---|
| | | | | | in order for the NSS to return ERR, ACK and NAK messages, then that different ID can be provided here. |
| Receiving application | MSH-5 | 180 | HD | R | The value must be 'PHNZBS'. |
| Receiving facility | MSH-6 | 180 | HD | R | Component 1 (IS) 'NZLMOH'<br>Component 2 (ST) 'F02099-**J**<br>Component 3 (ID) 'HF' |
| Date/time of message | MSH-7 | 26 | TS | R | Format: YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ] |
| Security | MSH-8 | | | | *Not used.* |
| Message type | MSH-9 | 15 | CM | R | Minimum requirement is the text 'ORU' or 'ACK'. The field can optionally extend to the trigger event and message structure components in the following format:<br>ORU^R01^ORU_R01<br>ACK^R01^ACK_R01 |
| Message control ID | MSH-10 | 20 | ST | R | Number or other identifier generated by the sending application that uniquely identifies a message. |
| Processing ID | MSH-11 | 3 | PT | R | The following values must be used:<br>P – normal processing<br>D – debugging<br>T – training.<br>P is the default. |
| Version ID | MSH-12 | 60 | VID | R | Format: '2.4' HL7 version 2.4 format can optionally extend to the 'Internationalisation Code' and 'International Version ID' components allowed by HL7. |

## 5.10.1 MSH-1 – Field separator

The field separator character will be '|'.

Example:

```
MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY|PHNZBS|NZLMOH^F02099-
J^HF|201903131532||ORU^R01|3629|P|2.4
```

## 5.10.2 MSH-2 – Encoding characters

This field contains the separator characters for component, repeat and the escape character and sub-components, respectively. This field must contain '^~\&'.

Example:

MSH|**^~\&**|SENDING_APPLICATION|SENDING_FACILITY|PHNZBS|NZLMOH^F02099-J^HF|201903131532||ORU^R01|3629|P|2.4

## 5.10.3 MSH-3 – Sending application

This field must be filled in with the name of the sending application.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field.

Example:

MSH|^~\&|**SENDING_APPLICATION**|SENDING_FACILITY|PHNZBS|NZLMOH^F02099-J^HF|201903131532||ORU^R01|3629|P|2.4

## 5.10.4 MSH-4 – Sending facility

This field must uniquely identify the facility that sends the message. The preference is for this to contain an HPI Facility ID, and to provide it in the same format as MSH-6 – Receiving facility, eg, NZLMOH^F02099-J^HF.

If the message is routed via a commercial service and a different ID is required for the NSS to return ERR, ACK and NAK messages, then that different ID can be provided here.

**Note:** This is a variance to HL7 and is a required field for bowel screening messaging.

Example:

MSH|^~\&|SENDING_APPLICATION|**SENDING_FACILITY**|PHNZBS|NZLMOH^F02099-J^HF|201903131532||ORU^R01|3629|P|2.4

## 5.10.5 MSH-5 – Receiving application

This field identifies the receiving application. As these messages are being sent to the NSS, this field should contain 'PHNZBS' (for Population Health New Zealand Bowel Screening).

**Note:** This is a required field for messages sent to the NSS.

Example:

MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY|**PHNZBS**|NZLMOH^F02099-J^HF|201903131532||ORU^R01|3629|P|2.4

## 5.10.6 MSH-6 – Receiving facility

This field identifies the receiving facility. This uses the HD data type and should contain the components set out in Table 11.

**Table 11: MSH-6 – Receiving facility**

| Component | Type | Notes |
|---|---|---|
| <namespace ID>^ | IS | NZLMOH (for Ministry of Health) |
| <universal ID>^ | ST | 'F02099-**J**' (the HPI Facility ID for the National Screening Unit) |
| <universal ID type>^ | ID | 'HF' (to identify that this is a Facility ID) |

**Note:** This is a required field in a message being sent to the NSS.

Example:

MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY|PHNZBS|**NZLMOH^F02099-J^HF**|201903131532||ORU^R01|3629|P|2.4

## 5.10.7 MSH-7 – Date/time of message

This field identifies the date and time that the sending system created the message. It is strongly recommended that it be completed absolutely precisely at all times.

**Note:** This is a required field in a message being sent to the NSS.

Example:

MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY|PHNZBS|NZLMOH^F02099-J^HF|**201903131532**||ORU^R01|3629|P|2.4

## 5.10.8 MSH-9 – Message type

This field identifies the message type. It should always contain ORU^R01 for laboratory result messages and ACK^R01 for acknowledgement messages.

Example:

*This is an ORU^R01 event message:*

MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY| PHNZBS|NZLMOH^F02099-J^HF|201903131532||**ORU^R01**|3629|P|2.4

## 5.10.9 MSH-10 – Message control ID

This field is a number or another identifier that uniquely identifies a message from a particular sender. Each sender is responsible for ensuring that the message control IDs from their facility are unique.

Example:

MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY| PHNZBS|NZLMOH^F02099-J^HF|201903131532||ORU^R01|**3629**|P|2.4

## 5.10.10 MSH-11 – Processing ID

This field tells how a receiving system should process this message.

**Table 12: MSH-11 – Processing ID**

| Value | Meaning |
|---|---|
| P | Process this message as normal. |
| D | This message is being used for debugging purposes. It should be properly acknowledged, but the data should be ignored. |
| T | Training. |

Example:

*This message should be processed as normal:*

MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY|NSS|NBSP|201903131532||ORU^R01|ABC1234|**P**|2.4

## 5.10.11 MSH-12 – Version ID

This field contains the HL7 version number of this message with further optional clarification components.

Example:

*This message subscribes to HL7 version 2.4.*

MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY| PHNZBS|NZLMOH^F02099-J^HF|201903131532||ORU^R01|ABC1234|P|**2.4**

# 5.11 MSA – Message acknowledgement segment

The MSA segment contains information to be sent when replying to or acknowledging another message.

**Table 13: MSA – Message acknowledgement segment**

| Data element | Field | Len | Opt | Required for | Comments |
|---|---|---|---|---|---|
| Acknowledgement code | MSA-1 | 2 | R | BusProc | Values are AA, AE, AR. |
| Message control ID | MSA-2 | 20 | R | BusProc | This ensures matching of response to original message. |

## 5.11.1 MSA-1 – Acknowledgement code

This field provides information about the processing of the message to which this message is a response. This field will always be present, and must contain one of the values listed in Table 14.

**Table 14: MSA-1 – Acknowledgement code**

| Value | Meaning | Comment |
|---|---|---|
| AA | Application accept | The message was processed successfully. In an ORU message, this field will always have this value. |
| AE | Application error | The message had semantic difficulties. |
| AR | Application reject | The message contained errors such as required fields missing or fields too long. This may also be generated if a serious error has been caused by processing the original message. |

Example:

*The message that this message is replying to was processed correctly:*
MSA|**AA**|ABC1234

### 5.11.2 MSA-2 – Message control ID

This field contains the message control ID of the message from the sending system that this message is responding to. Thus the systems can keep a record of those messages that have been responded to and those that have not. As all the messages to the NSS that are covered in this implementation guide are unsolicited ORU messages, the value in this field is the same as that in MSH-10 – Message control ID.

Example:

*The message to which this message is responding was processed correctly:*
MSA|AA|**ABC1234**

## 5.12 ERR – Error segment

The ERR segment is used to add error comments to acknowledgement messages.

**Table 15: ERR – Error segment**

| Data element | Field | Len | Opt | Comments |
|---|---|---|---|---|
| Error code | ERR-1 | 80 | R | |

### 5.12.1 ERR-1 – Error code and location

This field identifies an erroneous segment in another message. It should be completed as much as possible. It is composed of the components listed in Table 16.

**Table 16: ERR-1 – Error code and location**

| Component | Len | Type | Notes |
|---|---|---|---|
| <Segment ID>^ | 3 | ST | Name of segment (eg, OBR). |
| <Set ID> | 4 | NM | The set ID of the offending segment. |
| <Field position>^ | | | *Not used.* |
| <Text> | 51 | ST | Text describing the error. |

Example:

*This shows that the required field OBR-2 in the first occurrence of the OBR segment in the message was missing:*
ERR|OBR^1^2^^Required field missing

# 5.13 PID – Patient identification

**Table 17: PID – Patient identification**

| Data element | Field | Len | Type | Opt | Required for | Comments |
|---|---|---|---|---|---|---|
| Set ID | PID-1 | 4 | SI | R | BusProc | |
| Patient identifier list | PID-3 | 250 | CX | R | BusProc | The participant's NHI identifier. |
| Patient name | PID-5 | 250 | XPN | R | BusProc | |
| Date of birth | PID-7 | 26 | TS | R | BusProc | Date of birth only required. |
| Sex | PID-8 | 1 | IS | O | Not required | |
| Address | PID-11 | 250 | XAD | O | Not required | |

## 5.13.1 PID-1 – Set ID

This field uniquely identifies each repeat of the PID segment. The value is 1 for the first PID segment in the message and increases incrementally for each subsequent PID segment.

**Note:** This is a variance to HL7 and is a required field in a message being sent to the NSS.

Example:

*This is the first PID segment in this message:*
PID|**1**||ZBS0001^^^ NZLMOH^NHI||Testparticipant^John||19600122|M|||133 Molesworth Street, Thorndon, Wellington

## 5.13.2 PID-3 – Patient identifier list

This field contains the patient's NHI identifier and the assigning authority using the composite data type CX.

This is referred to as the 'Patient identifier' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

Example:

PID|1||**ZBS0001^^^ NZLMOH^NHI**||Testparticipant^John||19600122|M|||133 Molesworth Street, Thorndon, Wellington

## 5.13.3 PID-5 – Patient name

This field contains the patient's name using the XPN data type.

This is referred to as the 'Patient name' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Note:** This is a required field in a message being sent to the NSS.

Example:

PID|1||ZBS0001^^^NZLMOH^NHI||**Testparticipant^John**||19600122|M|||133 Molesworth Street, Thorndon, Wellington

## 5.13.4 PID-7 – Date of birth

This field contains the patient's date of birth and (optionally) the time of birth. This is referred to as the 'Patient date of birth' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

Example:

PID|1||ZBS0001^^^NZLMOH^NHI||Testparticipant^John||**19600122**|M|||133 Molesworth Street, Thorndon, Wellington

## 5.13.5 PID-8 – Sex

This field contains the patient's sex. The NSS does not require this information from laboratories; providing it is optional. Table 18 gives the PID-8 values.

**Table 18: HL7 User Defined Table 0001 – administrative sex**

| Value | Description |
|---|---|
| F | Female |
| M | Male |
| I | Indeterminate |
| U | Unknown |

Example:

PID|1||ZBS0001^^^NZLMOH^NHI||Testparticipant^John||19600122|**M**|||133 Molesworth Street, Thorndon, Wellington

## 5.13.6 PID-11 – Address

This field contains the address information of the patient. The NSS does not require this information from laboratories as participant address is obtained from other sources.

For laboratory IT stakeholders that would prefer to send patient address details to the NSS, they must do so using the XAD data type. For further details, refer to Section 5.1.6.26 XAD – Extended Address of HISO 10008.2:2015 Pathology and Radiology Messaging Standard.

If a laboratory provides the patient address, it must always send the mailing address. If the first address is not the mailing address, then a repeat delimiter should be sent to indicate an empty mailing address.

# 5.14 OBR – Observation request

**Table 19: OBR –Observation request message**

| Data element | Field | Len | Type | Opt | Comments |
|---|---|---|---|---|---|
| Placer order number | OBR-2 | 50 | EI | R | |
| Universal service ID | OBR-4 | 250 | CE | R | This field is used to indicate that this result is being sent to the NSS as it is part of the NBSP. |
| Requested date/time | OBR-6 | 26 | TS | R | Date of order. |
| Collector identifier | OBR-10 | 250 | XCN | R | This includes the HPI CPN of the endoscopist who collected the samples, and the HPI Facility ID of the endoscopy clinic or hospital at which the samples were collected. |
| Relevant clinical information | OBR-13 | 300 | ST | O | Clinical information on patient or specimen. |
| Specimen received date/time | OBR-14 | 26 | TS | R | Date and time specimen was received at laboratory. |
| Ordering provider | OBR-16 | 250 | XCN | R | |
| Results report/status change date/time | OBR-22 | 26 | TS | R | Required for result corrections. |
| Observation result status | OBR-25 | 1 | ID | R | F, C and X only. |
| Result copies to | OBR-28 | 250 | XCN | R | |
| Principal result interpreter | OBR-32 | 200 | CM | R | This field contains the HPI CPN for the pathologist who was responsible for interpreting the results in the report. |
| Number of specimens received | OBR-37 | 4 | NM | R | |
| Placer supplemental service information | OBR-46 | 250 | CE | R | Placer facility code. |
| Filler supplemental service information | OBR-47 | 250 | CE | R | Filler facility code. |

## 5.14.1 OBR-2 – Placer order number

This field is the unique number that the placer application has assigned to this order. This uniqueness shall persist over time.

This is referred to as the 'Laboratory report identifier' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

Example:

OBR||**20809880170^LCS**||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.2 OBR-4 – Universal service ID

This field is used to indicate that this result is being sent to the NSS as it is part of the NBSP.

This is referred to as the 'Programme identifier' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Table 20: OBR-4 – Universal service ID**

| Component | Len | Type | Opt | Notes |
|---|---|---|---|---|
| <Code>^ | 10 | ST | R | This must be 'NBSP'. |
| <Description >^ | 30 | ST | R | This must be 'National Bowel Screening Prog'. |
| <Coding system> | 10 | ST | R | This must be 'L'. |

Example:

OBR||20809880170^LCS||**NBSP^National Bowel Screening Prog^L**||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.3 OBR-6 – Requested date/time

This field contains the clinically relevant date and time of the observation. This is the date and time the samples or specimens were collected. This should be provided to the laboratory by the endoscopy clinic on the paper histology request form or in an order message. If this is not provided, the laboratory must contact the clinic that provided the samples and request it.

This is referred to as 'When specimens collected' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Example:

*The specimen was collected on 1 March 2019 at 9:10 am.*

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||**201903010910**||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.4 OBR-10 – Collector identifier

This field contains the identifier for the clinician who collected the samples. This is referred to as the 'Pathologist identifier' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

It is optional for this field to also contain the HPI Facility ID for the facility where the samples were collected. If this is provided, it must be the same as the HPI Facility ID provided in the required OBR-16 – Ordering provider.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Examples:

*With the HPI Facility ID provided:*

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||**34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF**|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

*Without the HPI Facility ID provided:*

OBR||8642753100012^LIS||NBSP^National Bowel Screening Prog^L||201903010910||||**34ABCD^^^^^^^^NZLMOH^^^^HI**|||This is some example data that the endoscopist recorded.|
201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.5 OBR-13 – Relevant clinical information

This field contains additional clinical information the clinician provided on a paper histology request form or via an electronic order.

This is referred to as 'Clinical details' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

Example:

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||**This is some example data that the endoscopist recorded.**|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.6 OBR-14 – Specimen received date/time

This is the date and time the laboratory received the specimen to perform the test. In many cases, this is the same as the observation date and time. HL7 requires the use of this field.

This is referred to as 'When specimens received' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Example:

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|**201903011130**||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.7 OBR–16 – Ordering provider

This XCN field contains the HPI CPN of the clinician responsible for ordering the test. This may be the same as the clinician details that are provided in OBR-10 but may differ in some situations. Providing the facility information is optional.

This is referred to as the 'Requesting clinician identifier' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Examples:

*With the HPI Facility ID provided:*

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||**56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF**|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

*Without the HPI Facility ID provided:*

OBR||8642753100012^LIS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI||||This is some example data that the endoscopist recorded.|201903011130||**56ABCD^^^^^^^^NZLMOH^^^^HI**||||||201903011432|||F|||56ABCD^^^^^^^HF^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^HF^NZLMOH^^^^HI ^^^ F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF |F12345-F^HPI Facility ID^HF

## 5.14.8 OBR 22 – Results report/status change date/time

This field contains the date and time on which the laboratory report was issued.

This is referred to as 'When report released' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

Example:

*The laboratory report was released on 1 March 2019 at 14:32 am.*

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||||**201903011432**|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.9 OBR-25 – Observation result status

This field provides information about the status of the result. In almost all messages in this implementation, the results are final and verified; therefore 'F' should be used. Other acceptable values are 'C' for a corrected result, or 'X' for deleting a result sent in error.

Example:

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||||201903011432|||**F**|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.10 OBR 28 – Result copies to

This XCN field provides information about which clinicians the separate histology results message was sent to.

The ‘OBR 28 – Result copies to’ field can be repeated if the result was sent to multiple clinicians. Both the HPI CPN of the clinician and the HPI Facility ID of the facility that the results message was sent to are required.

Example:

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||**56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF**||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.11 OBR-32 – Principal result interpreter

This field identifies the pathologist responsible for interpreting the results in the report, and can optionally contain the HPI Facility ID for the laboratory in which they interpreted the results. If the HPI Facility ID is provided, it must be the same as the facility provided in OBR-47 – Filler facility code and may be the same as the sending facility provided in MSH-4. However, it may differ from MSH-4 where messages are sent from a different facility to the one in which the results were interpreted.

This field must contain details for the lead pathologist (the ‘final signer’). This is referred to as the ‘Pathologist identifier’ in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Example:

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||**12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF**|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.12 OBR-37 – Number of specimens received

This field contains the number of specimens received by the laboratory.

This is referred to as the ‘Number of specimens received’ in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Example:

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility

ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||**2**|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF

## 5.14.13 OBR-46 – Placer supplemental service information

For the purposes of the NBSP histology messages, this field contains supplemental service information – that is, the placer facility code (HPI Facility ID) of the endoscopy unit or hospital placing the order.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Example:

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||**F08099-F^HPI Facility ID^HF**|F12345-F^HPI Facility ID^HF

## 5.14.14 OBR-47 – Filler supplemental service information

For the purposes of the NBSP histology messages, this field contains supplemental service information – that is, the filler facility code (HPI Facility ID) of the laboratory processing the order.

This is referred to as the 'Laboratory facility identifier' in the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Example:

OBR||20809880170^LCS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|**F12345-F^HPI Facility ID^HF**

# 5.15 OBX – Observation result

The OBX segment is used to transmit a single observation or observation fragment. Table 21 details the OBS attributes.

**Table 21: OBX – Observation result message segment**

| Data element | Field | Len | Type | Opt | Required for: | Comments |
|---|---|---|---|---|---|---|
| Set ID | OBX-1 | 4 | SI | C | BusProc | Identifier for repeats. |
| Value type | OBX-2 | 2 | ID | R | BusProc | Refer to Table 26. |
| Observation identifier | OBX-3 | 250 | CE | R | BusProc | LOINC or NZPOCS codes to be used where available. Local codes to be used when LOINC and NZPOCS are not available. |
| Observation sub-ID | OBX-4 | 20 | ST | R | BusProc | Specimen ID |
| Observation value | OBX-5 | 65536 | | R | BusProc | |
| Units | OBX-6 | 250 | CE | O | Not required | |
| Observation result status | OBX-11 | 1 | ID | R | BusProc | |

Note: LOINC = Logical Observation Identifiers Names and Codes; NZPOCS = New Zealand Pathology Observation Code Set.

## 5.15.1 OBX-1 – Set ID

This field is used to number OBX segments in the message.

Example**:**

*Standard set IDs:*

```
OBX|1|ST|89873-4^Specimen identifier^LN|1|123456AB|||||F
OBX|2|CE|33725-3^Site^LN|1|32713005^Caecum structure^SCT|||||C
OBX|3|NM|33748-5^Distance from anal verge^LN|1|8|||||F
```

## 5.15.2 OBX-2 – Value type

This field contains the format of the observation value in the OBX (field 5) and should always be filled. It can contain any value supported by the HISO 10072.1:2019 Bowel Screening Histology Data Standard.

**Table 22: OBX-2 – Value type**

| Value | Meaning |
|---|---|
| ST | OBX-5 contains an HL7 string. This is the default. |

| | |
|---|---|
| TX | OBX-5 contains HL7 text, which is a string intended for user display. |
| FT | OBX-5 contains HL7 text, including formatting characters. Please see HL7 version 2.4, Section 2.4.6, for information on the use of escape sequences and formatting characters. |
| CE | See detail in OBX-3 below. |
| NM | Numeric |

Example:

OBX|2|CE|33725-3^Site^LN|1|32713005^Caecum structure^SCT|||||F

## 5.15.3 OBX-3 – Observation identifier

This field contains a unique identifier for the specific observation this result reports.

This may be the same as OBR-4 universal service ID if there is only one result to report for that test.

**Table 23: OBX-3 – Observation identifiers**

| Component | Len | Type | Opt | Notes |
|---|---|---|---|---|
| <Code>^ | 10 | ST | R | In some cases, the value is obvious and can be omitted; for example, when the source is one HL7 table specified in the standard. If the coding system is local, use 'L' in this field; otherwise use the name of the coding system (ie, 'LN' for LOINC). |
| <Description>^ | 30 | ST | R | |
| <Coding system> | 10 | ST | R | |

For the list of allowable observation identifiers, see Appendix A.

Example:

OBX|3|NM|33748-5^Distance from anal verge^LN|1|8|||||F

## 5.15.4 OBX-4 – Observation sub-ID

This field is used to distinguish between multiple OBX segments with the same observation ID organised under one OBR. This is the specimen ID for the pottle.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

Example:

OBX|12|CE|84882-0^Main Diagnosis^LN |**1**|30389008^Normal^SCT|||||F

## 5.15.5 OBX-5 – Observation value

This field contains the value observed. This field can repeat. This may be as simple as a numerical value; it may contain detailed text describing the outcome; or the observation value can be returned as a coded value and term as shown in Table 24.

**Note:** This is a variance to the HISO 10008.2:2015 Pathology and Radiology Messaging Standard as it is a required field for this implementation.

**Table 24: OBX-5 – Observation value**

| Component | Len | Type | Opt | Notes |
|---|---|---|---|---|
| <Code>^ | 10 | ST | R | |
| <Description>^ | 30 | ST | O | |
| <Coding system> | 10 | ID | O | |

Example 1:

*Simple observation value*

OBX|5|NM|84883-8^Depth of invasion^LN|1|**4**|mm|||||F

Example 2:

*SNOMED CT observation value*

OBX|12|CE|84882-0^Main Diagnosis^LN|1|**30389008^Normal^SCT**||||||F

## 5.15.6 OBX 6 – Units

This optional CE field can be used for units of measurement. If used, the units sent must match those specified for the data element in the HISO 10072.1:2019 Bowel Screening Histology Data Standard. OBX 6 – units has been included in the implementation guide as laboratory IT stakeholders have requested having the option of providing it.

Example:

OBX|5|CE|84883-8^Depth of invasion^LN|1|4|mm|||||F

## 5.15.7 OBX-11 – Observation result status

This field provides information about the status of the result for the test described in OBX-3. In almost all messages in this implementation, the results are final and verified; therefore F should be used. Other acceptable values are listed in Table 25.

**Table 25: OBX-11 – Observation result status**

| Value | Meaning |
|---|---|
| C | Correction; replaces final result. |
| D | Delete, currently held result with same ID. (Note: The complete OBR should be deleted with an X and the remaining correct results re-sent.) |
| F | Final result. |

The NSS will accept correction messages where every element is marked as C, and messages where only the element that is changed is marked as C.

If a screening message has been sent with errors that are not result related (eg, wrong patient or clinician, or incorrect date/time information), then the laboratory can correct this error by sending a delete message, then sending a new final result message.

Example:

*This result is a correction:*

OBX|12|CE|84882-0^Main Diagnosis^LN|1|87737001^Signet ring cell carcinoma^SCT|||||**C**

# Appendix A: OBX specimen data guide

**Table 26: OBX specimen data guide**

| OBX-2 – Value type | OBX-3 – Observation identifier | | | HISO 10072.1:2019 Bowel Screening Histology Data Standard section reference |
|---|---|---|---|---|
| | Code | LOINC name | Coding system | |
| ST | 89873-4 | Unique identifier | LN | 2.2.1 Specimen identifier |
| CE | 33725-3 | Tumour site | LN | 2.2.2 Site |
| NM | 33748-5 | Distance from anal verge | LN | 2.2.3 Distance from anal verge |
| CE | 29300-1 | Procedure type | LN | 2.2.4 Sample procedure |
| NM | 33723-8 | Specimen length | LN | 2.2.5 Size |
| CE | 84882-0 | Histologic type | LN | 2.2.6 Main diagnosis |
| CE | XNZ5459 | Dysplasia | NZ | 2.2.7 Dysplasia |
| CE | 81169-5 | Residual tumour Postop Imp Cancer | LN | 2.2.8 Margin – polypectomy |
| CE | XNZ551 | Polyp profile | NZ | 2.2.9 Polyp profile |
| CE | 33732-9 | Histological grade | LN | 2.2.10 Histological grade (tumour differentiation) |
| CE | XNZ5460 | Poor/undifferentiated tumour | NZ | 2.2.11 Poor/undifferentiated tumour |
| CE | 33739-4 | Lymphatic.small vessel.invasion | LN | 2.2.12 Lymphatic invasion |
| CE | XNZ5461 | Venous invasion | NZ | 2.2.13 Venous invasion |
| NM | 85291-3 | Surgical margin tumour involvement.deep | LN | 2.2.14 Deep margin status |
| NM | XNZ5462 | Peripheral margin status | NZ | 2.2.15 Peripheral margin status |
| NM | 84883-8 | Deepest extent of tumour invasion | LN | 2.2.16 Depth of invasion |
| CE | XNZ5516 | Extent of invasion | NZ | 2.2.17 Extent of invasion |
| ST | XNZ5518 | Invasion into adjacent structure/organ | NZ | 2.2.18 Invasion into the adjacent structure/organ |
| CE | XNZ5520 | Tumour budding assessment indicator | NZ | 2.2.19 Tumour budding assessment indicator |

| OBX-2 – Value type | OBX-3 – Observation identifier | | | HISO 10072.1:2019 Bowel Screening Histology Data Standard section reference |
|---|---|---|---|---|
| | Code | LOINC name | Coding system | |
| NM | XN5522 | Number of tumour buds | NZ | 2.2.20 Number of tumour buds |
| ST | XN5524 | Tumour budding score | NZ | 2.2.21 Tumour budding score |
| NM | 33728-7 | Size.max.dim Tumour | LN | 2.2.22 Width of tumour |
| CE | 96115-1 | Haggitt level | LN | 2.2.23 Haggitt level |
| ST | XNZ5464 | Kikuchi level | NZ | 2.2.24 Kikuchi level |
| CE | 33741-0 | Perineural invasion | LN | 2.2.25 Perineural invasion |
| CE | XN5526 | Loss of expression for MMR protein | NZ | 2.2.26 Loss of expression for MMR protein |
| CE | 81691-8 | MMR prot Mlh1 Ca spec Ql ImStn | LN | 2.2.27 Nuclear expression of MLH1 |
| CE | 81694-2 | MMR endo PMS2 Ca spec Ql ImStn | LN | 2.2.28 Nuclear expression of PMS2 |
| CE | 81692-6 | MMR prot Msh2 Ca spec Ql ImStn | LN | 2.2.29 Nuclear expression of MSH2 |
| CE | 81693-4 | MMR prot Msh6 Ca spec Ql ImStn | LN | 2.2.30 Nuclear expression of MSH6 |
| CE | 85299-6 | BRAF V600E Ca spec Ql ImStn | LN | 2.2.31 BRAFV600E mutation status |
| CE | XNZ5465 | BRAF method of testing | NZ | 2.2.32 BRAF method of testing |
| CE | 58416-9 | MLH1 gene methylation Tiss Ql | LN | 2.2.33 MLH1 Promoter Methylation Testing |
| CE | 81317-0 | Additional pathological findings | LN | 2.3.1 Other pathological finding |

See **HISO 10072.1:2022 Bowel Screening Histology Data Standard section reference** for details of the relevant data element.

# Appendix B: Example message

Here is an example message containing one specimen. All data in this example message is completely fictitious.

Note: This also shows an example of how multiple other pathological findings is captured (see OBX|26).

MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY|PHNZBS|NZLMOH^F02099-J^HF|201903131532||ORU^R01|3629|P|2.4

PID|1||ZBS0001^^^ NZLMOH^NHI||Testparticipant^John||19600122|M|||133 Molesworth Street, Thorndon, Wellington

OBR||8642753100012^LIS||NBSP^National Bowel Screening Prog^L||201903010910||||34ABCD^^^^^^^^NZLMOH^^^^HI|||This is some example data that the endoscopist recorded.|201903011130||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||201903011432|||F|||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||1|||||||||F08099-F^HPI Facility ID^HF |F12345-F^HPI Facility ID^HF

OBX|1|ST|89873-4^Specimen identifier^LN|1|123456AB||||||F
OBX|2|CE|33725-3^Site^LN|1|32713005^Caecum^SCT||||||C
OBX|3|NM|33748-5^Distance from anal verge^LN|1|8|||||F
OBX|4|CE|29300-1^Sample procedure^LN|1|274025005^Polypectomy^SCT||||||C
OBX|5|NM|33723-8^Size^LN|1|3||||||F
OBX|6|CE|84882-0^Main diagnosis^LN|1|28899001^Squamous cell carcinoma^SCT||||||P
OBX|7|CE|XNZ5459^Dysplasia^NZ|1|55237006^Severe dysplasia^SCT||||||F
OBX|8|CE|81169-5^Margin - polypectomy^LN|1|161831000210100^Involvement by low grade dysplasia^SCT||||||F
OBX|9|CE|33732-9^Histological grade (tumour differentiation)^LN|1|395529007^Low grade^SCT||||||F
OBX|10|CE|XNZ5460^Poor/undifferentiated tumour^NZ|1|52101004^Present^SCT||||||F
OBX|11|CE|33739-4^Lymphatic invasion^LN|1|395717001^Lymphatic (small vessel) invasion by tumour present^SCT||||||F
OBX|12|CE|XNZ5461^Venous invasion^NZ|1|372287009^Vascular invasion by tumour present^SCT||||||P
OBX|13|NM|85291-3^Deep margin status^LN|1|5||||||F
OBX|14|NM|XNZ5462^Peripheral margin status^NZ|1|6||||||F
OBX|15|NM|84883-8^Depth of invasion^LN|1|13||||||F
OBX|16|NM|33728-7^Width of tumour^LN|1|24||||||F
OBX|17|CE|96115-1^Haggitt level^LN|1|277733009^Level 1^SCT||||||P
OBX|18|ST|XNZ5464^Kikuchi level^NZ|1|sm1||||||F
OBX|19|CE|81691-8^Nuclear expression of MLH1^LN|1|161871000210103^Intact nuclear expression^SCT||||||F

```
OBX|20|CE|81694-2^Nuclear expression of PMS2^LN|1|161881000210101^Loss of nuclear expression^SCT|||||F
OBX|21|CE|81692-6^Nuclear expression of MSH2^LN|1|161871000210103^Intact nuclear expression^SCT|||||F
OBX|22|CE|81693-4^Nuclear expression of MSH6^LN|1|161881000210101^Loss of nuclear expression^SCT |||||C
OBX|23|CE|85299-6^BRAFV600E mutation status^LN|1|2667000^Absent^SCT|||||F
OBX|24|CE|XNZ5465^BRAF method of testing^LN|1|117617002^Immunohistochemistry procedure^SCT|||||F
OBX|25|CE|58416-9^MLH1 Promoter Methylation Testing^LN|1|280414007^Equivocal^SCT|||||F
OBX|26|CE|81317-0^Other pathological finding^LN|1|29696001^Prolapse^SCT~12345678^Second code name^SCT~45678912^Third code name^SCT|||||D
NTE|1|L|this is a comment
```

Here is an example message containing more than one specimen. All data in this example message is completely fictitious.

```
MSH|^~\&|SENDING_APPLICATION|SENDING_FACILITY|PHNZBS|NZLMOH^F02099-J^HF|202001010001||ORU^R01|3629|P|2.4
PID|1||ZBS0001^^^^NHI||Testparticipant^John||19950506|M
OBR||8642753100012^LIS||NBSP^National Bowel Screening Prog^L||201912310001||||34ABCD^^^^^^^^NZLMOH^^^^HI|||Test|201912310001||56ABCD^^^^^^^^NZLMOH^^^^HI^^^F08099-F&HPI Facility ID&HF|||||189912300000|||F|||||||12ABCD^^^^^^^^NZLMOH^^^^HI^^^F12345-F&HPI Facility ID&HF|||||2|||||||||F08099-F^HPI Facility ID^HF|F12345-F^HPI Facility ID^HF
OBX|1|ST|89873-4^Specimen identifier^LN|1|1||||||C
OBX|2|CE|33725-3^Site^LN|1|9040008^Right (ascending) colon^SCT|||||C
OBX|3|CE|29300-1^Sample procedure^LN|1|274025005^Polypectomy^SCT|||||C
OBX|4|NM|33723-8^Size^LN|1|1||||||C
OBX|5|CE|84882-0^Main diagnosis^LN|1|30389008^Normal^SCT|||||C
OBX|6|CE|XNZ5459^Dysplasia^NZ|1|43185009^Low grade dysplasia^SCT|||||C
OBX|7|CE|81169-5^Margin - polypectomy^LN|1|161861000210109^ No involvement by dysplasia^SCT|||||C
OBX|8|ST|89873-4^Specimen identifier^LN|2|2||||||C
OBX|9|CE|33725-3^Site^LN|2|32713005^Caecum^SCT|||||C
OBX|10|CE|29300-1^Sample procedure^LN|2|274025005^Polypectomy^SCT|||||C
OBX|11|NM|33723-8^Size^LN|2|2||||||C
OBX|12|CE|84882-0^Main diagnosis^LN|2|128755003^Mesenchymal tumours - Gastrointestinal stromal tumour^SCT|||||C
OBX|13|CE|XNZ5459^Dysplasia^NZ|2|25723000^Dysplasia (not further specified)^SCT|||||C
OBX|14|CE|81169-5^Margin - polypectomy^LN|2|1||||||C
OBX|15|CE|33732-9^Histological grade (tumour differentiation)^LN|2|395530002^High-grade (poorly differentiated to undifferentiated)SCT^|||||C
OBX|16|CE|XNZ5460^Poor/undifferentiated tumour^NZ|2|52101004^Present^SCT|||||C
OBX|17|CE|33739-4^Lymphatic invasion^LN|2|395717001^Present^SCT|||||C
OBX|18|CE|XNZ5461^Venous invasion^NZ|2|372287009^Present^SCT^|||||C
OBX|19|NM|85291-3^Deep margin status^LN|2|2||||||C
OBX|20|NM|XNZ5462^Peripheral margin status^NZ|2|1||||||C
OBX|21|NM|84883-8^Depth of invasion^LN|2|1||||||C
OBX|22|NM|33728-7^Width of tumour^LN|2|1||||||C
OBX|23|CE|96115-1^Haggitt level^LN|2|277733009^Level 1^SCT|||||C
OBX|24|ST|XNZ5464^Kikuchi level^NZ|2|sm2||||||C
OBX|25|CE|33741-0^Perineural invasion^LN|2|369731000^Present^SCT|||||C
```

OBX|26|CE|81691-8^Nuclear expression of MLH1^LN|2|161881000210101^Loss of nuclear expression^SCT||||||C
OBX|27|CE|81694-2^Nuclear expression of PMS2^LN|2|161901000210103^Other abnormal pattern^SCT||||||C
OBX|28|CE|81692-6^Nuclear expression of MSH2^LN|2|161881000210101^Loss of nuclear expression^SCT||||||C
OBX|29|CE|81693-4^Nuclear expression of MSH6^LN|2|280414007^ Equivocal ^SCT||||||C
OBX|30|CE|85299-6^BRAFV600E mutation status^LN|2|52101004^Present^SCT||||||C
OBX|31|CE|XNZ5465^BRAF method of testing^NZ|2|117617002^Immunohistochemistry^SCT||||||C
OBX|32|CE|58416-9^MLH1 Promoter Methylation Test^LN|2|52101004^Present^SCT||||||C