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Electronic Pathology Reporting

INTERFACE SPECIFICATION

Version 1.4.1 September 10, 2010

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1 REVISION HISTORY

Revision	Date	Author	Revision Summary
0.0	Dec 2, 2009	Lalin Perera	Initial Draft
0.01	Jan 4, 2010	Lalin Perera	Second Draft
0.02	Jan 5, 2010	Lalin Perera	Third Draft
0.03	Jan 18, 2010	Lalin Perera	Forth Draft
1.0	Feb 4, 2010	Lalin Perera	First Release
1.1	Mar 11, 2010	Lalin Perera	Errata
1.2	May 5, 2010	Lalin Perera	Changes eCC identifier and version in section 4.2.4
1.3	June 6, 2010	Lalin Perera	Changes to specification to MSH-3, MSH-8 & MSH-12 to comply with future CCO HL-7 Interface standard
1.4	August 27, 2010	Lalin Perera	Changed all examples with Ckeys to omit the trailing zeros. Changed description of Collector Identifier in OBR-10 to include non-physicians. Referred-from fields changed from "Required" to "Required but may be empty" Updated source explanation of CAP eCC teamplate version. Corrected HL-7 mapping for Consult Indicator in section 3.3.1 Removed Cancer Registry business rules in section 3.1 and replaced it with a reference to the CCO Data Book or Toolkit Reference document. Postal Code field changed from "Required but may be empty" to "Required" Referred-from fields changed from "Required" to "Required but may be empty" Change in the description for "Status of Report" (OBR-25). Change to coding specifications in section: Coding "Fixed-list-fill-in" Answers Section 4.2.6 "Convention for Coding Multiple Carcinomas in the Endometrium Checklist" has been removed from the

			Interface Spec and added to the Data Book – since it is a business rule and not a technical specification.
1.4.1	September 10, 2010	Lalin Perera	Added missing "^" to HL-7 sample in section: Coding "Fixed-list-fill-in" Answers

2 INTRODUCTION

Cancer pathology data, in the form of pathology reports, are collected to identify cancer patients, and specific information about their disease. The pathology report is, in the majority of cases, the initial identification of a cancer patient within the cancer system, making the pathology report a key CCO data source. It is important to collect this data in a timely fashion to facilitate a variety of other uses of the data once a cancer patient has been identified. Other uses include: epidemiologic and health services research, cancer system planning, pathology data quality and surgical pathology indicators and other measures.

Specifically, the data elements outlined in this data set include those elements needed for patient record linkage, confirmation of a cancer diagnosis and investigation as required. The pathology data are linked to several other CCO data sources in order to compile a complete record for each cancer patient in the system.

To facilitate the timely collection of pathology data, CCO provides an electronic data collection system called the Pathology Information Management System (PIMS). Where PIMS is implemented, it is used to transmit data from the hospital to CCO in a secure, near real-time, fashion. Where PIMS is not available, cancer pathology reports are faxed, mailed or sent on disk to CCO.

This specification document will be revised and re-released over time as the underlying NAACCR and CAP standards evolve. For this reason, the document is dated and versioned and its revision history is listed above.

3 THE PATHOLOGY REPORTING DATA BOOK STANDARD

The 2010-2011 version of Data Book for Cancer Pathology Data has been updated to reflect all previously reported issues and aligns with the most current NAACCR Volume 5 version 3 (HL7 2.5.1) technical transmission standards as well as the College of American Pathologist's (CAP) 2010 electronic Cancer Checklist (eCC) content standard. Please see Appendix 3 for the CAP Checklists.

The 2010 CAP standard presented here aligns with the data elements required for Collaborative Staging and were approved by the CAP Cancer Board for inclusion in the new 2010 (AJCC 7th Edition) CAP checklists scheduled for release in 2009/2010.

Note on conversion from AJCC 6th to 7th Edition TNM Staging: as hospitals transition from the CAP AJCC 6th Edition Checklists to the CAP AJCC 7th Edition checklists, it is imperative that the pathology reports are clearly labeled with the AJCC TNM Staging Edition that is relevant to that pathology report.

3.1 Cancer Registry Business Rules

Please refer to the latest version of the Phase 2 Reference Guide or the CCO 2010-2011 Data Book for Cancer Pathology Data to find the latest Cancer Registry business Rules.

3.2 Pathology Reporting Roadmap

CCO recognizes that the CAP cancer checklists and protocols are rapidly evolving. In order to help set expectations with our clients, CCO will not be releasing any subsequent standards until the College of American Pathologists has released the revised checklists in 2009/2010. These checklists will be based on the 7th edition of TNM and will be fully aligned to facilitate the collection of data related to Collaborative Staging. Going forward CCO will no longer be releasing a CCO developed data standard and will adopt the encoded CAP cancer checklists and protocols as they are published by CAP. Furthermore, CCO anticipates collecting all disease site data in this manner and collection will no longer be limited to the five disease site resections identified to date. In the future, all mandatory disease sites and procedures, as defined by CAP and endorsed by the Canadian Association of Pathologists, including biopsies will be collected in this manner.

Regarding the collection of data identifying the patient and health providers involved in their care, CCO will be updating the PIMS banner information to conform to the NAACCR Vol. II and Vol. V standards which can

be found at www.naaccr.org. Furthermore, CCO will be collecting provider identification information as published by the College of Physicians and Surgeons of Ontario which aligns with how data is being collected now for the provincial Wait Times Information System, the Enterprise Master Patient Index System and the Ontario Laboratory Information System.

The expectation is that all hospitals will be submitting information as per the roadmap by 2011.

Should you have any questions about this, please contact: pathology@cancercare.on.ca.

3.3 Data Elements

3.3.1 Pathology Header

Data Element	Definition [NAACCR Item #]	Usage	Len	HL-7 Field
Health Insurance Number	Health insurance number of the patient	RE	12	PID-3
Surname	Last name of patient [2230]	R	40	PID-5
First Given Name	First name of patient [2240]	R	40	PID-5
Date of Birth	Patient's date of birth [240]	R	16	PID-7
Gender Code	Gender code of patient [220]	R	1	PID-8
City	City of patient's residence [70]	RE	50	PID-11
Province Code	Two character Province code of patient's residence [80]	RE	2	PID-11
Country Code	Four-digit SEER Geocode of patient's country of residence	RE	4	PID-11
Postal Code	Postal code of patient's residence [100]	RE	9	PID-11
Date of Death	Date and time of death (time portion optional) [1755]	RE	16	PID-29
Vital Status	Death Indicator [1760]	RE	1	PID-30
Type of Report	Code to indicate the type of the report. The report types will vary by facility depending on the functionality of the lab [7480]: Autopsy Bone Marrow Cytology Cytology (gynecological) Flow Cytometry Hematology Surgical Pathology Surgical Pathology (biopsy only)[1] Other Unknown	R	128	OBR-4

[1] Surgical Pathology (biopsy only) is a CCO-exclusive value that is not defined by NAACCR.

Data Element	Definition [NAACCR Item #]	Usage	Len	HL-7 Field
Transmitting Master Number	MOHLTC Master Number of the facility that transmits the report to CCO	R	4	MSH-4
Current DX Accession Number	Specimen ID at the facility where the current diagnosis is made by a pathologist [7090] (or [7091] if referred-in)	R	16	OBR-3
Current DX Master Number	MOHLTC Master Number of the facility where the current diagnosis is made by a pathologist [7010] (or [7011] if referred-in)	R	4	PID-3
Current DX MRN	Patient chart number at the facility where the current diagnosis is made by a pathologist [2300]	R	16	PID-3
Referred-from Accession Number	Specimen ID at the facility where the original diagnosis is made by a pathologist [7090]	RE	16	OBR-2
Referred-from Master Number	MOHLTC Master Number of the facility where the original diagnosis is made by a pathologist [7010]	RE	4	PID-3
Referred-from MRN	Patient chart number at the facility where the original diagnosis is made by a pathologist	RE	16	PID-3
Collected Master Number	MOHLTC Master Number of the facility where the specimen was taken (i.e. Surgery Hospital) [7190]	RE	4	PID-3
Collected MRN	Patient chart number at the facility where the specimen was taken (i.e. Surgery hospital)	RE	16	PID-3
Surgeon Full Name	Full name of the surgeon/physician or other health care professional who performed the procedure. Surgeon name field should be filled in all cases regardless of the type of the professional performing the procedure	RE	128	OBR-10
Surgeon ID	CPSO number of the surgeon/ physician who performed the procedure. For health professionals (e.g. dentists, nurse practitioners, other non-MDs, etc) who do not have a CPSO number, this field should be left blank. [2480]	RE	5	OBR-10
Pathologist Full Name	Full name of the pathologist who created the report [7260][7270][7280][7290]	R	128	OBR-32

Data Element	Definition [NAACCR Item #]	Usage	Len	HL-7 Field
Pathologist ID	CPSO number of the pathologist who created the report [7300]	R	5	OBR-32
Specimen Collected Date	Date the specimen was collected (surgery date) [7320]	R	16	OBR-7
Report Sign Out Date	Date pathology report was signed off (completed), in text format [7530]	R	16	OBR-22
Status of Report	F=Final, or C=Change. When a report is initially sent, it will have a status of 'F'. If the lab re-transmits that report for any reason (including supplements/addenda or amendments) the re-sent report should have a status of 'C' [7330]	R	1	OBR-25
Consult Indicator	This is to indicate whether the report is an external consult report in which case it should be marked with "Y" for yes. This field should remain empty if this is not an external consult report.	RE	1	OBR-20

Usage: R – required; RE – Required but may be empty (if not applicable)

3.3.2 Pathology Body

The body of the pathology report contains the medically relevant information about the pathology test. This information can be represented as narrative text or synoptic data.

Narrative text information is divided into sections based on their context:

1. Clinical history
2. Tissue submitted
3. Gross pathology
4. Microscopic description
5. Final diagnosis
6. Comments
7. Supplemental Reports
8. Addendums

Synoptic data is represented by pre-defined sets of discrete data fields (templates). The definitions of these templates are standardized by the College of American Pathologists in their 2010 Cancer Checklists.

There are 76 different checklists in the 2010 CAP Checklist standard, describing pathological findings for 65 different body systems. Each checklist has its own distinct set of data elements and rules. The 2010 CAP Checklists are published on the CAP web site (http://www.cap.org).

The 2010 CAP Checklists are defined electronically in the 2010 electronic Cancer Checklist (eCC) standard. This standard is defined in an XML document template (XDT) and is available via subscription from CAP.

4 THE PATHOLOGY REPORTING MESSAGE STANDARD

The HL-7 message specification for e-Path conforms to the following standard: NAACCR vol. 5 v3 (June, 2009) Pathology Laboratory Electronic Reporting.

This standard specifies the coding of a pathology report using an HL-7 version 2.5.1 "Unsolicited Observation/Event R01" message type (ORU^R01).

The segment layout of this message type is depicted in shown below.

```
ORU^R01          Observational Results (Unsolicited)
MSH              Message Header segment
[{SFT}]          Software segment
{                - PATIENT_RESULT begin
   [               -- PATIENT begin
      PID             Patient Identification segment
      {[NK1]}         Next Of Kin segment
      [PV1]           Patient Visit segment
   ]               -- PATIENT end
   {               -- ORDER RESULT begin
      [ORC]           Common Order segment
      OBR             Observations Report ID segment
      {[NTE] }        Notes and Comments segment
      {               --- RESULT begin
         OBX             Observation/Result segment
         {[NTE]}         Notes and Comments segment
      }               --- RESULT end
      [{              --- SPECIMEN INFORMATION begin
         SPM             Specimen
         {[OBX]}         Observation Related to Specimen
      }]              --- SPECIMEN INFORMATION end
   }               -- ORDER RESULT end
}                - PATIENT RESULT end
[DSC]            Continuation Pointer

Where:
   [ ] depicts optional segment sets
   { } depicts repeatable segment sets
```

For pathology reporting only the **MSH**, **PID**, **OBR** and **OBX** segments are used.

4.1 Pathology Report Header Data

4.1.1 Message Header (MSH) Segment

Fld	HL-7 Field {Data Book Item}	Opt	Description
1	Field separator	R	The character to be used as the field separator for the rest of the message. The field separator always appears in the fourth character position of MSH segment and is used to separate adjacent data fields within a segment. The recommended value is "|", ASCII (124)
2	Encoding characters	R	Characters used as separators to delimit components, repetitions, escaped characters, sub-components within a field. The recommended value is "^~\&"

Fld	HL-7 Field {Data Book Item}	Opt	Description
3	Sending application	R	This value should be hard-coded to "PATHLAB_LIS"
4	Sending facility {Transmitting Master Number}	R	The facility that is transmitting the HL7 message. This component is formatted using 3 subcomponents: 1. namespace ID - Text name of your facility 2. universal ID - MOHLTC master number for your facility 3. universal ID type - "MOH" indicating that the universal ID is a MOHLTC master number e.g. |UNIVERSITY HEALTH NETWORK^3910^MOH|
5	Receiving application	O	Uniquely identifies the receiving application among all other applications within the network enterprise, should be set to "PIMS"
6	Receiving facility	O	Identifies the receiving application and should be set to "CCO"
7	Date/time of message	R	Date and time that the message was created by the sending system, format: YYYYMMDDHHMMSS
8	Security	R	This will be set to a 40-character hard-coded security token the value of which will be provided to the individual facilities by the CCO Implementation team (one each for Prod and Test environments)
9	Message type	R	The receiving system uses this field to know the data segments to recognize and, possibly, the application to which to route this message. This should be set to "ORU^R01"
10	Message control ID	R	Number or other identifier that uniquely identifies the message. The receiving system echoes this ID back to the sending system in the message acknowledgment. For electronic laboratory reporting, we recommend using the date/time stamp followed by the sequence number as: YYYYMMDDHHMMSS#### (# = counter number).
11	Processing ID	R	Used to decide how to process the message as defined in HL7 processing rules. Field appears as: P for production, T for training, or D for debugging
12	Version ID	R	Matched by the receiving system to its own HL7 version to be sure the message will be interpreted correctly. This should be set to "2.5"
13	Sequence number	X	(not-used by PIMS)
14	Continuation pointer	X	(not-used by PIMS)

Fld	HL-7 Field {Data Book Item}	Opt	Description
15	Accept acknowledgment type	O	Identifies the conditions under which accept acknowledgments are required to be returned in response to this message: AL - Always NE - Never ER - Only on error SU - Only on success
16	Application acknowledgment type	O	Identifies the conditions under which application acknowledgments are required to be returned in response to this message: AL - Always NE - Never ER - Only on error SU - Only on success
17	Country code	X	(not-used by PIMS)
18	Character set	X	(not-used by PIMS)
19	Principal language of message	X	(not-used by PIMS)
20	Alternate character set handling scheme	X	(not-used by PIMS)
21	Message Profile Identifier	X	(not-used by PIMS)

4.1.2 Patient Identification (PID) Segment

Fld	HL-7 Field {Data Book Item}	Opt	Description
1	Set ID - PID	R	The Set ID field numbers the repetitions of the PID segment (i.e., multiple patient reports). For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.
2	Patient ID (External)	X	(not-used by PIMS)
3	Patient identifier list {Collected MRN} {Collected Master Number} {Referred-from MRN} {Referred-from Master Number} {Current DX MRN} {Current DX Master Number} {Health Insurance Number}	R	The list of identifiers used by the facility to uniquely identify a patient. For pathology reporting, the patient identifiers are: Collected MRN & Master No as identifier type: CMR Format: CollectedMRN^^^^CMR^CollectionHospitalName&MOHMasterNumber&MOH Referred-out MRN & Master No as identifier type: RMR Format: ReferredfromMRN^^^^RMR^ReferredfromHospitalName&MOHMasterNumber&MOH Current MRN & Master No as identifier type: MRN Format: CurrentDXMRN^^^^MRN^CurrentHospitalName&MOHMa

Fld	HL-7 Field {Data Book Item}	Opt	Description
			sterNumber&MOH Health Insurance Number as identifier type: JHN Format: HealthInsuranceNumber&Version&Origin^^^^JHN Example: 0123456789&AM&ON^^^^JHN
4	Alternate patient ID - PID	X	(not-used by PIMS)
5	Patient name {Surname} {First Given Name}	R	The name of the patient Format: |Surname^FirstGivenName[^MiddleNameOrInitial]*| Example: Smith^John^B *MiddleNameOrInitial is optional
6	Mother's maiden name	X	(not-used by PIMS)
7	Date/time of birth {Date of Birth}	R	The patient's date of birth in the format: YYYYMMDD
8	Sex {Gender Code}	R	The patient's sex: F - Female M - Male H - Hermaphrodite, Undetermined T - Transsexual O - Other U - Unknown
9	Patient alias	X	(not-used by PIMS)
10	Race	X	(not-used by PIMS)
11	Patient address {City} {Province Code} {Postal Code} {Country Code}	O	The mailing address of the patient's residence. Format: Address1^Address2^City^ProvinceCode^PostalCode^SEERCountryGeocode Example: 123 Any Street^^Toronto^ON^M5E1Z2^220 (where 220 is the SEER Geocode for Canada)
12	County code	X	(not-used by PIMS)
13	Phone number - home	X	(not-used by PIMS)
14	Phone number - business	X	(not-used by PIMS)
15	Primary language	X	(not-used by PIMS)
16	Marital status	X	(not-used by PIMS)
17	Religion	X	(not-used by PIMS)

Fld	HL-7 Field {Data Book Item}	Opt	Description
18	Patient account number	X	(not-used by PIMS)
19	SSN number - patient	X	(not-used by PIMS)
20	Driver's license number - patient	X	(not-used by PIMS)
21	Mother's identifier	X	(not-used by PIMS)
22	Ethnic group	X	(not-used by PIMS)
23	Birth place	X	(not-used by PIMS)
24	Multiple birth indicator	X	(not-used by PIMS)
25	Birth order	X	(not-used by PIMS)
26	Citizenship	X	(not-used by PIMS)
27	Veterans military status	X	(not-used by PIMS)
28	Nationality	X	(not-used by PIMS)
29	Patient death date and time {Date of Death}	RE	The date and time at which the patient death occurred in the format: YYYYMMDD. This field should only be valued if PID-30 is valued "Y"
30	Patient death indicator {Vital Status}	R	Indicates whether or not the patient is deceased in the format: "Y" or "N"
31	Identity Unknown Indicator	X	(not-used by PIMS)
32	Identity Reliability Code	X	(not-used by PIMS)
33	Last Update Date/Time	X	(not-used by PIMS)
34	Last Update Facility	X	(not-used by PIMS)
35	Species Code	X	(not-used by PIMS)
36	Breed Code	X	(not-used by PIMS)
37	Strain	X	(not-used by PIMS)
38	Production Class Code	X	(not-used by PIMS)
39	Tribal Citizenship	X	(not-used by PIMS)

4.1.3 Observation Report (OBR) Segment

Fld	HL-7 Field {Data Book Item}	Opt	Description
1	Set ID – OBR	R	The sequence number of one of multiple OBRs under one PID. For the first order transmitted, the sequence number shall be 1; for the second order, it shall be 2; and so on. For example, the second OBR under a single PID would appear as: |2|
2	Placer Order Number {Referred-from Dx Accession Number}	O	A unique number assigned to the pathology report by the referring (ordering) facility (where the original diagnosis was made by a pathologist) if the report is the result of a consult.
3	Filler Order Number {Current Dx Accession Number}	R	The order number associated with the filling application. It is assigned by the order filler (receiving) application at the pathology lab where the current diagnosis is made by a pathologist.
4	Universal Service ID {Type of Report}	R	The identifier code for the ordered observation/test/ battery that indicates the type of the report. The report types will vary by facility depending on the functionality of the lab. The coding for this component is specified in the "Type of Report" Coding section below.
5	Priority	X	(not-used by PIMS)
6	Requested Date/Time	X	(not-used by PIMS)
7	Observation Date/Time {Specimen Collected Date}	R	Date the specimen was collected (surgery date) format: YYYYMMDD.
8	Observation End Date/Time	X	(not-used by PIMS)
9	Collection Volume	X	(not-used by PIMS)
10	Collector Identifier {Surgeon ID} {Surgeon Full Name}	O	Surgeon ID - (5-digit) CPSO number of the surgeon/ physician who performed the procedure. For health professionals (e.g. dentists, nurse practitioners, other non-MDs, etc) who do not have a CPSO number, this field should be left blank.. Surgeon Full name – Full name of the surgeon/physician or other health care professional who performed the procedure. Surgeon name field should be filled in all cases regardless of the type of the professional performing the procedure Format: [CPSO#]^Surname^GivenName[^MiddleName^…] Example: 12345^Smith^John^C^^MD

Fld	HL-7 Field {Data Book Item}	Opt	Description
11	Specimen Action Code	X	(not-used by PIMS)
12	Danger Code	X	(not-used by PIMS)
13	Relevant Clinical Info.	X	(not-used by PIMS)
14	Specimen Received Date/Time	X	(not-used by PIMS)
15	Specimen Source	X	(not-used by PIMS)
16	Ordering Provider	X	(not-used by PIMS)
17	Order Callback Phone Number	X	(not-used by PIMS)
18	Placer Field 1	X	(not-used by PIMS)
19	Placer Field 2	X	(not-used by PIMS)
20	Filler Field 1 {Consult Indicator}	RE	Indicator of whether the report is an external consult report `Y` = Consult `N` or *blank* = Not a consult
21	Filler Field 2	X	(not-used by PIMS)
22	Results Rpt/Status Chng-Date/Time {Report Sign-out Date}	R	Specifies the date results reported or status changed. This field is used to indicate the date that the results are composed into a report and released format: `YYYYMMDD`
23	Charge to Practice	X	(not-used by PIMS)
24	Diagnostic Serv Sect ID	X	(not-used by PIMS)
25	Result Status {Status of Report}	R	Status of the report: `F` - Final `C` - Change. When a report is initially sent, it will have a status of 'F'. If the lab re-transmits that report for any reason (including supplements/addenda or amendments) the re-sent report should have a status of 'C'
26	Parent Result	X	(not-used by PIMS)
27	Quantity/Timing	X	(not-used by PIMS)
28	Result Copies To	X	(not-used by PIMS)
29	Parent	X	(not-used by PIMS)
30	Transportation Mode	X	(not-used by PIMS)

Fld	HL-7 Field {Data Book Item}	Opt	Description
31	Reason for Study	X	(not-used by PIMS)
32	Principal Result Interpreter {Pathologist ID} {Pathologist Full Name}	R	ID (College of Physician and Surgeon's numbers) of the pathologist who created the report. Full name of the pathologist who created the report. Format: `[CPSO#]^Surname^GivenName[^MiddleName^…]` Example: `12345^Smith^John^CM^^MD`
33	Assistant Result Interpreter	X	(not-used by PIMS)
34	Technician	X	(not-used by PIMS)
35	Transcriptionist	X	(not-used by PIMS)
36	Scheduled Date/ Time	X	(not-used by PIMS)
37	Number of Sample Containers	X	(not-used by PIMS)
38	Transport Logistics of Collected Sample	X	(not-used by PIMS)
39	Collector's Comment	X	(not-used by PIMS)
40	Transport Arrangement Responsibility	X	(not-used by PIMS)
41	Transport Arranged	X	(not-used by PIMS)
42	Escort Required	X	(not-used by PIMS)
43	Planned Patient Transport Comment	X	(not-used by PIMS)
44	Procedure Code	X	(not-used by PIMS)
45	Procedure Code Modifier	X	(not-used by PIMS)
46	Placer Supplemental Service Information	X	(not-used by PIMS)
47	Filler Supplemental Service Information	X	(not-used by PIMS)
48	Medically Necessary Duplicate Procedure Reason.	X	(not-used by PIMS)
49	Result Handling	X	(not-used by PIMS)
50	Parent Universal Service Identifier	X	(not-used by PIMS)

4.1.4 "Type of Report" Coding

The following table shows how the "Type of Report" data element is coded in the HL-7 OBR-4 component

Type of Report	HL-7 OBR-4 Coding
Autopsy:	18743-5^Autopsy note^LN^A^Autopsy^L
Bone Marrow:	48807-2^Bone marrow aspiration report^LN^B^Bone Marrow^L
Cytology:	33716-2^Study Report: Cytology.non-gyn^LN^C^Cytology^L
Cytology (gyn):	33717-0^Study Report: Cytology.Cvx/Vag^LN^GC^Cytology (gyn)^L
Flow Cytometry:	33719-6^Study Report FC, Immunophenotype^LN^F^Flow Cytometry^L
Hemotology:	^^^H^Hematology^L
Pathology (resection):	11529-5^Surgical Pathology Study Report^LN^P^Pathology^L
Biopsy (only):	11529-5^Surgical Pathology Study Report^LN^BX^Biopsy^L
Other:	^^^O^Other^L
Unknown:	^^^U^Unknown^L

4.2 Pathology Body Data

The body of the Pathology report is coded into OBX segments. The narrative and synoptic portions of the report are divided and preceded by their own OBR segments. The preceding OBR segments are identical except for their Set Id (OBR-1).

The Synoptic section(s) are always coded first. The Narrative-text section is always the last.

MSH
PID
OBR - Set id 1 (for a primary cancer)
OBX - Set id 1 (1st **CAP Checklist** identifier & version)
OBX - Set id 2 (Question and answer 1)
OBX - Set id 3 (Question and answer 2)
OBX - .
OBX - .
OBR - Set id 2 (for a secondary cancer)
OBX - Set id 1 (2nd **CAP Checklist** identifier & version)
OBX - Set id 2 (Question and answer 1)
OBX - Set id 3 (Question and answer 2)
OBX - .
OBX - .
OBR - Set id 3 (for **narrative text information**)
OBX - Set id 1 (Section Id and text 1)
OBX - Set id 1 (Section Id and text 2)
OBX - .
OBX - .

4.2.1 Narrative Text Data

Narrative report observations are coded in OBX segments with data type '`FT`' (Formatted Text). The code indicating the section id is located in the OBX-3 field and the corresponding section text is contained in OBX-5. The section id is LOINC encoded.

Observation Result (OBX) Segment

Fld	HL-7 Field	Opt	Description
1	Set ID	R	Observation /Result Sequence
2	Value type	R	'FT' indicates narrative section
3	Observation Identifier	R	Section ID for narrative section id (LOINC encoded) – see Narrative Section LOINC Codes below.
4	Observation sub-ID	X	(not-used by PIMS)
5	Observation Value	R	Narrative text for the specified section
6	Units	X	(not-used by PIMS)
7	Reference ranges	X	(not-used by PIMS)
8	Abnormal flags	X	(not-used by PIMS)
9	Probability	X	(not-used by PIMS)
10	Nature of abnormal test	X	(not-used by PIMS)
11	Observation result status	R	The observation result status: F - Final C - Change When a report is initially sent, it will have a status of 'F'. If the lab re-transmits that report for any reason (including supplements/addenda or amendments) the re-sent report should have a status of 'C'
12	Effective Date of Reference Range Values	X	(not-used by PIMS)
13	User defined access checks		(not-used by PIMS)
14	Date/time of the Observation		(not-used by PIMS)
15	Producer's Reference		(not-used by PIMS)
16	Responsible observer		(not-used by PIMS)
16	Observation method		(not-used by PIMS)
18	Equipment Instance Identifier		(not-used by PIMS)
19	Date/Time of the Analysis		(not-used by PIMS)
20	Reserved for harmonization with V2.6		(not-used by PIMS)
21	Reserved for harmonization		(not-used by PIMS)

Fld	HL-7 Field	Opt	Description
	with V2.6		
22	Reserved for harmonization with V2.6		(not-used by PIMS)
23	Performing Organization Name		(not-used by PIMS)
24	Performing Organization Address		(not-used by PIMS)
25	Performing Organization Medical Director		(not-used by PIMS)

4.2.1.1 Narrative Section LOINC Codes

Section Id	LOINC Section Coding
1. Clinical history	`22636-5^Path report.relevant Hx^LN`
2. Tissue submitted	`22633-2^Path report.site of origin^LN`
3. Gross pathology	`22634-0^Path report.gross description^LN`
4. Microscopic description	`22635-7^Path report.microscopic observation^LN`
5. Final diagnosis	`22637-3^Path report.final diagnosis^LN`
6. Comments	`22638-1^Path report.comments^LN`
7. Supplemental Reports	`22639-9^Path report.supplemental reports^LN`
8. Addendums	`35265-8^Path Report.addendum spec^LN`

4.2.1.2 Escape Sequences

Any non-ASCII characters or formatting embedded in the narrative text sections must be replace by the appropriate escape sequence from the table below.

Sequence	Description
\F\	"|" (Field separator)
\S\	"^" (Component separator)
\T\	"&" (Sub-component separator)
\R\	"~" (Repetition separator)
\E\	Escape character
\.fi\	Begin word-wrap
\.nf\	Do not (end) word-wrap
\.br\	Line break
\X0D\	Carriage return

Sequence	Description
\X0A\	Line Feed
\X09\	Tab

4.2.2 Discrete Synoptic Data

Discrete Synoptic data is coded as separate OBX segments (one data-element) with a data type of 'CWE' (Coded with Exceptions). The identifier is coded in the OBX-3 field and the data value in OBX-5.

Observation Result (OBX) Segment

Seq	HL-7 Field	Opt	Description
1	Set ID	R	Observation /Result Sequence
2	Value type	R	'CWE' indicates discrete synoptic data
3	Observation Identifier	R	The discrete synoptic data element name - See Coding Checklists as Discrete Synoptic Data below
4	Observation sub-ID	RE	Used to link "Fixed-list-fill-in" observations (see Coding "Fixed-list-fill-in" Answers)
5	Observation Value	R	Value for discrete synoptic data element – See Coding Checklists as Discrete Synoptic Data below
6	Units	RE	ISO or ANSI encoded unit of measure, if applicable to the observation value Example: mm^millimeter^ISO+ mo^month^ANSI+
7	Reference ranges	X	(not-used by PIMS)
8	Abnormal flags	X	(not-used by PIMS)
9	Probability	X	(not-used by PIMS)
10	Nature of abnormal test	X	(not-used by PIMS)
11	Observation result status	R	The observation result status: F - Final C - Change When a report is initially sent, it will have a status of 'F'. If the lab re-transmits that report for any reason (including supplements/addenda or amendments) the re-sent report should have a status of 'C'
12	Effective Date of Reference Range Values	X	(not-used by PIMS)

Seq	HL-7 Field	Opt	Description
13	User defined access checks	X	(not-used by PIMS)
14	Date/time of the Observation	X	(not-used by PIMS)
15	Producer's Reference	X	(not-used by PIMS)
16	Responsible observer	X	(not-used by PIMS)
16	Observation method	X	(not-used by PIMS)
18	Equipment Instance Identifier	X	(not-used by PIMS)
19	Date/Time of the Analysis	X	(not-used by PIMS)
20	Reserved for harmonization with V2.6	X	(not-used by PIMS)
21	Reserved for harmonization with V2.6	X	(not-used by PIMS)
22	Reserved for harmonization with V2.6	X	(not-used by PIMS)
23	Performing Organization Name	X	(not-used by PIMS)
24	Performing Organization Address	X	(not-used by PIMS)
25	Performing Organization Medical Director	X	(not-used by PIMS)

4.2.3 Coding of CAP eCC Elements

CAP eCC's are coded as discrete synoptic data. As discrete synoptic data, each CAP eCC data element has a data element name or "question"; and a data value or "answer".

Example: The first data element in the Checklist for Breast Excisions has a question: "Specimen Type"; which can have an answer of "Mastectomy".

A checklist's data elements (questions and answers) are coded in HL-7 in successive OBX segments: the OBX-3 field contains the question; and OBX-5 contains the answer.

Each question is composed of two (primary and alternate) identifiers from different coding systems (Ckey and SNOMED CT - as suggested by CAP[2]). The primary identifier is always required whereas the alternate identifier is only required when available.

[2] Oct. 16, 2009 CAP Webinar – "eCC conversation with the College of American Pathologists"

Identifier	Seq	Component	Usage	Data Type	Len	Example
Primary	1	Identifier (Ckey)	R	ST	20	**16272.1000043**
	2	Text (eCC entry descriptor)	R	ST	199	**Histologic Type of Invasive Carcinoma (Note H)**
	3	Name of Coding System	R	ID	20	**CAPECC**
Alternate	4	Alternate Identifier (SNOMED CT Concept Id)	RE	ST	20	**371441004**
	5	Alternate Text (SNOMED CT descriptor)	RE	ST	199	**Histologic type**
	6	Name of Coding System	RE	ID	20	SCT

HL-7 Data Types: ST - String data; ID - Code value for HL-7 defined tables
Usage: R - Required; RE - Required (or Empty if it is unavailable)

The Ckey (Composite key) is a decimal number assigned by CAP as an identifier for each question (question id) in the CAP eCC definitions[3] (released by CAP as individual Checklist-specific XML document template files). The SNOMED CT Concept Id is a code mapped to the question Ckeys (mappings are also released by CAP as separate XML documents).

The SNOMED CT code must be optional because some may not be assigned at the time that the CAP eCC is released. Destination systems can assign the missing SNOMED CT codes to received checklists at a later time, when their mappings are released (as long as the Ckeys are retained).

CAP eCC data elements may come with a pre-defined set of values for its answers. Each of these potential answers will have an assigned Ckey (answer id).

Other data elements may require answers to be purely ad-hoc such as numeric or free-text information. These will not have associated answer ids.

There can also be a combination of these two conventions, where a set of pre-defined values are provided along with an option of specifying an "Other"-type answer which allows free-entry of an ad-hoc value. In this case the pre-defined values as well as the "Other" option all have answer ids.

4.2.3.1 Coding "Free-text"

Data elements that have "free-text" answers (such as comment fields) accept any text or numerical values as answers. In this case coding the alternate identifier (SNOMED CT Concept Id) is omitted as it is not applicable.

Example:

```
OBX|19|CWE|16784.1000043^Comment(s)^CAPECC||^smaller invasive carcinomas
differ||||||F|
```

Numeric measurement values should always be stated in the unit of measure specified by CAP for the particular data element. The unit of measure for the numeric value should be specified in the OBX-6 field when applicable.

Example:

```
OBX|11|CWE|16246.1000043^Specimen Size (for excisions less than total
mastectomy) (Note C)^CAPECC||^2.3|cm^centimeter^ISO+|||||F|
```

[3] Ckeys are also used to identify templates (template-id) fixed value answers for some questions (answer-id)

In past versions of the CCO Interface specification, numeric values were coded as left-zero-padded strings with implied decimal place (e.g. "023" for 2.3). This encoding is no longer required. Simply specify numbers as their string equivalent (i.e. "2.3").

4.2.3.2 Coding "Fixed List" Answers

Questions that require "fixed list" answers have an associated set of pre-defined values. To code a "fixed list" answer specify the relevant answer id and descriptor as the primary identifier and the mapped SNOMED CT Concept Id and descriptor as the alternate identifier (if it exists).

Example:

```
OBX|2|CWE| 16272.1000043^Specimen (Note A)^CAPECC||16221.1000043^Partial
Breast^CAPECC||||||F|
```

4.2.3.3 Coding "Fixed-list-fill-in" Answers

A "fixed list" answers may accept a "fill-in" answer which is an ad-hoc text response to the eCC element question.

Unlike the "free-text" answers, a "fixed-list-fill-in" answer has an associated Ckey (answer id). To code this type of answer, the answer id and the CAPECC coding system **are** coded in the answer (OBX-5 field). Coding the alternate identifier (SNOMED CT Concept Id) is omitted as it is not applicable.

The prefix-text of a "fill-in value" answer (e.g. "Other (specify)" is included in its own OBX segment along including the answer id. The filled-in text portion is coded in its own subsequent OBX segment with no answer id.

To link these two parts of the answer, the observation sub-id (OBX-4) component of each of these OBX segments is populated with the first (integer) part of the answer's Ckey

Example:

```
OBX|26|CWE|16272.1000043^ Histologic Type of Invasive Carcinoma (Note
H)^CAPECC^371441004^Histologic type^SCT|16292|16292.1000043^
Other(s) (specify)^CAPECC||||||F|

OBX|27|CWE|16272.1000043^ Histologic Type of Invasive Carcinoma (Note
H)^CAPECC^371441004^Histologic type^SCT|16292|^Ductal carcinoma in situ with
no microinvasion||||||F|
```

4.2.3.4 Coding Multi-value-selection Answers

When eCC element with a value-list allows multiple value selections in an answer (i.e. "check all that apply"), the multiple selections are coded in successive OBX segments each with the same coded question (i.e. identical OBX-3 fields).

Example:

```
OBX|6|CWE| 16250.1000043^Tumor Site: Invasive Carcinoma (Note D^CAPECC^
371480007^Tumor site^SCT||16254.1000043^Lower inner quadrant^
CAPECC^19100000^Structure of lower inner quadrant of breast^SCT||||||F|

OBX|7|CWE|16250.1000043^ Tumor Site: Invasive Carcinoma (Note D^CAPECC^
371480007^Tumor site^SCT||16255.1000043^Central^
CAPECC^49058007^Structure of central portion of breast^SCT||||||F|
```

4.2.4 Coding the Checklist Identifier and Version

The Checklist Identifier and Version should be specified in the first OBX segment of the message with a CWE (Coded with exceptions) data type[4].

[4] NAACCR Standards for Cancer Registries Vol.5 - Pathology Laboratory Electronic Reporting Version 3 §3.2 Question 2

The CAP eCC Identifier for a particular checklist is its "template-id". This is specified as an attribute within the particular CAP eCC definition XML document. This identifier is in the form of a Ckey (e.g. 189.1000043 for the "Carcinoma of the Breast: Complete Excision" checklist)

The version of a checklist defines its particular CAP eCC release (e.g. 2.000.011 for the April 2010 release of the CAP eCC). The CAP eCC Identifier for the checklist version is its "template-xml-version" (This attribute is only available in the CAP eCC XML from the May 2010 release and onward.

The Checklist Identifier and Version are concatenated together (delimited by a ":") and coded into the OBX-5 component.

Example:

```
OBX|1|CWE|VERSION^Template Version
Identifier^L||189.1000043:2.000.011^INVASIVE CARCINOMA OF THE BREAST: Complete
Excision …^CAPECC||||||F
```

This would represent the CAP eCC for the April 2010 release for "Carcinoma of the Breast: Complete Excision".

4.2.5 Handling Multiple Checklists

To code multiple eCC's, the OBX segments for each set of checklists is preceded by its own OBR segment[5] (see § "Pathology Body Data").

Each OBR segment is followed by an OBX segment that specifies the CAP eCC identifier and version (see § "Coding the Checklist Identifier and Version"). The multiple OBR segments are differentiated by a sequential integer number coded in the OBR-Set ID (in the OBR-1 field).

[5] NAACCR Standards for Cancer Registries Vol.5 - Pathology Laboratory Electronic Reporting Version 3 §3.2 Questions 6 & 8

