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Cancer Registries, Inc.

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Volume V

Laboratory Electronic Reporting for Pathology

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Edited by
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- *Volume I: Data Exchange Standards and Record Description.* Intended for programmers, this provides the record layout and specifications for the standard for data exchange, including correction and analysis formats.
- *Volume II: Data Standards and Data Dictionary.* Intended for central registries, this provides detailed specifications and codes for each data item in the data exchange record.
- *Volume III: Standards for Completeness, Quality, Analysis, and Management of Data.* Intended for central registries, this provides detailed standards for many aspects of the operation of a population-based cancer registry.
- *Volume IV: Standard Data Edits.* This standard document currently is made available only electronically, as program code and a database. It documents standard computerized edits for data corresponding to the data standards Volume II.

All standards documents can be viewed or downloaded from NAACCR's website at www.naaccr.org.

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Document History

Revision Date	Changed By	Pages Changed	Description of Change
7/20/2020	Sandy Jones	3	Added a document history table to track changes over time
7/20/2020	Sandy Jones	9	Corrected codes used in OBR-4 and OBX-3 for synoptic primary path report, synoptic consult report, and synoptic addendum report.
7/20/2020	Sandy Jones	19	Corrected a typo in the NAACCR Item # for ORC-21 to map to
7/20/2020	Sandy Jones	79	Added, under PV1-7 and PV1-8, the omitted NAACCR Item # that cancer registries can map other physician ID number to
7/20/2020	Sandy Jones	80	Added a note, under PV1-9, that identifies the NAACCR data items that cancer registries should map PV1-9 Consulting Doctor to.
7/20/2020	Sandy Jones	293	Corrected typographical errors in the numbering of OBX segments in sample synoptic segmented report.
7/20/2020	Sandy Jones	298	Corrected the CAP eCC synoptic report template version ID
7/20/2020	Sandy Jones	303	Added a comment for NAACCR Item 7190 and added NAACCR Item 7195 that ORC-21.1 Path Ordering Facility Number NPI should be mapped to.
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Preface

The earliest version of pathology laboratory electronic reporting guidelines was only one chapter in the North American Association of Central Cancer Registries (NAACCR) Standards Volume II, Version 10, Chapter VI, “Pathology Laboratory Electronic Reporting.” Over the years, these guidelines have evolved into a stand-alone document. *Standards for Cancer Registries, Volume V, Pathology Laboratory Electronic Reporting, Version 2.0* documents recommended message and format standards for electronic transmission of reports (pathology, cytology, and hematology) from pathology laboratories to central cancer registries. Standards Volume V Version 2.1 evolved from modifications made to Version 2.0 as pathology laboratories and central cancer registries developed tools to transmit electronic laboratory reports to cancer registries. In Standards Volume V Version 3.0, the Health Level Seven (HL7) section was upgraded to HL7 Version 2.5.1, which includes more robust guidance for handling specimen information. Standards Volume V Version 4.0, Chapter 3, “Synoptic Reporting,” was expanded to include additional guidance on the transmission format of synoptic cancer pathology reports and complex cancer pathology reports examples. Standards Volume V Version 5.0 has been revised to capture more information from multiple types of reports originating from the same specimen, to gather and group anatomical and additional reports as pathology reporting continues to evolve. The purpose of this manual is to describe guidelines for electronic pathology reporting, including capture of biomarker information from a pathology laboratory to a cancer registry.

This Volume retains the standard specifications for electronic pathology reporting using HL7 Version 2.5.1, as it did in the previous version (Version 4.0). Although HL7 has released Version 2.6 through Version 2.8 as approved American National Standards Institute (ANSI) standards prior to the date of this publication, national standards organizations are recommending HL7 Version 2.5.1. The older version, HL7 Version 2.3.1, does not contain the robustness to handle the specimen-specific information required by cancer registries today. For this reason, the NAACCR Volume V Revision Task Force decided to define this standard using HL7 Version 2.5.1, the first version of HL7 to introduce the SPM (specimen) segment, in 2003. Unlike Volume V Version 4.0, in which the SPM segment was considered optional, in this version (5.0) of NAACCR Volume V, the SPM segment is required to correctly track identifiers in modern laboratory analyses.

It is the hope of the NAACCR Volume V Revision Task Force that making these consensus standards available to the community will make it easier and less costly for pathology laboratories, central cancer registries, and software vendors to implement uniform, standard methods for the transmission and receipt of electronic pathology reports. Ultimately, our goal is to develop resources that will support current and future initiatives toward standardization through the recommended communication protocols that will assure the collection of reliable, accurate, and timely pathology reports of cancer specimens examined by pathology laboratories. The content of this Volume will assist pathology laboratories in transmitting electronic reports to cancer registries by utilizing the recommended format standard. It is not intended to be the final revision of the standard, which will evolve over time as more is learned about laboratory technology, electronic reporting, new information technologies, vocabulary and codes, reporting regulations, and confidentiality.

1. Introduction

1.1. BACKGROUND

“Public health surveillance is the systematic, ongoing collection, management, analysis, and interpretation of data followed by the dissemination of these data to public health programs.”¹ This broad definition also applies to *cancer* surveillance, where the monitoring and tracking of *cancer* occurrence—be that at the state, provincial/territorial, or national level—provides invaluable information for cancer screening, prevention, diagnosis, treatment, or cancer research. In addition, cancer surveillance may initiate cancer cluster investigations, facilitate trend monitoring, contribute to evaluations of the effectiveness of prevention measures, and guide public health policy. Because most cancers are definitively diagnosed by histology, cancer surveillance programs use pathology reports to identify new cases and to collect information on previously reported cases.

Each state, province, and territory has requirements for cancer registries to conduct population-based cancer surveillance. Cancer registries often rely on pathology laboratories to report certain findings. In the past, these reports were handwritten or printed in a format unique to each registry or laboratory. Today, laboratories send reportable data to cancer registries electronically. The development of this Guide facilitates the implementation of a standard message format for the transmission of electronic pathology reports, including how to incorporate results from genomic tests into the Health Level Seven (HL7) message. The North American Association of Central Cancer Registries (NAACCR) Volume V Revision Task Force led the development of this Guide, with extensive technical assistance from Klein Consulting, staff at the Centers for Disease Control and Prevention, staff at Ontario Health–Cancer Care Ontario, and representatives from the College of American Pathologists (CAP).

This guide contains the specifications for sending reportable cancers and benign/borderline intracranial and central nervous system (CNS) tumors to appropriate hospital, state, provincial, and territorial cancer registries using HL7 messages. The message is specific to any potentially reportable cancer or benign/borderline intracranial and CNS tumor diagnosis and is applicable for most laboratory-reportable findings as defined by NAACCR. This guide specifies the electronic communication of these tumors, consistent with recommended reporting of reportable conditions from laboratories to cancer registries, using HL7 Version 2.5.1. The Implementation Guide follows the specifications described in the HL7 Standard Version 2.5.1 and focuses on one type of HL7 message, the Observational Report – Unsolicited (ORU). The Guide provides (1) a description of the utility and requirement of each data field in the ORU message, (2) examples of complete messages, and (3) tables of recommended codes.

1.2. PROBLEM STATEMENT, GOALS, AND SCOPE OF THIS DOCUMENT

1.2.1. The Problem

In many instances, sometimes as a result of precision medicine, tumor specimens are being analyzed by multiple laboratories, with each lab transmitting a unique report to the Central Cancer Registry. For central cancer registries, as receivers of such information, this expansion of players involved in the specimen journey highlights the need for interoperability within and across systems that store pathology and genomic findings. The struggle to assemble relevant information on the patient at the tumor/specimen level—including how to carry institutional and provider identifiers in one message transmission—is exacerbated by the lack of a standardized system for reporting.

¹ Porta M, ed. *Dictionary of Epidemiology, 5th Edition*. International Epidemiological Association. New York, NY: Oxford University Press; 2008.

1.2.2. The Proposed Solution

The Volume V Revision Task Force has developed this document as a recommended approach for pathology laboratories to report electronically to central cancer registries. HL7 Version 2.5.1 is the recommended data format for transmitting electronic pathology laboratory reports. A standard pathology laboratory data set, data dictionary, and HL7 transmission format were developed to enhance the completeness, timeliness, consistency, and efficiency with which cancer data are transmitted by pathology laboratories and received and processed by central cancer registries.

1.2.3. Goals of the Standards for Cancer Registries Volume V: Laboratory Electronic Reporting for Pathology

The goals of this document are to define the data standards for cancer registration as used by cancer registries, pathology laboratories, vendors, and other groups, and to provide guidelines for the implementation of these standards.

1.2.4. Scope of This Document

The scope of this document is limited to standards and guidelines to transmit cancer information from laboratories to cancer registries. This Standards Volume V document describes data items, data item definitions, and transmission specifications. In addition, the use of HL7 as the primary recommended clinical data interchange standard will provide a cost-effective solution to addressing data exchange in the 21st century.

Although this Guide describes in detail a data exchange protocol for submitting anatomical pathology reports (traditional narrative and synoptic) for reportable tumors (cancers and selected benign/borderline intracranial and CNS tumors) to hospital and central cancer registries, it is not an HL7 or an interfacing tutorial. The reader is expected to have a basic understanding of interface concepts, HL7 messaging standards, and electronic laboratory-based reporting of public health information.

The document is an update to NAACCR *Standards for Cancer Registries, Volume V, Pathology Laboratory Electronic Reporting, Version 4.0*, which consists of an HL7 Version 2.5.1 implementation guide. Any user-defined variations from the standard are described, and electronic copies of this document are available on the NAACCR website (www.naacccr.org). Reporting requirements may vary by hospital, state, district, territory, or province. Reportable tumor definitions are available from the state/provincial cancer registries.

13. STANDARDS AND GUIDELINES FOR ELECTRONIC TRANSMISSION OF REPORTS FROM PATHOLOGY LABORATORIES TO CENTRAL CANCER REGISTRIES

This document refers to two formats for transmitting electronic pathology laboratory reports to central cancer registries. The first format that NAACCR recommends using is described within this guide, and the second format that may be used, but that is not recommended, is the pipe-delimited format (described in Volume V, Version 2.2).

1.3.1. Implementation Guide for Transmission of Laboratory-Based Reports to Cancer Registries Using Version 2.5.1 of the HL7 Standards Protocol

These chapters of Volume V are for electronic communication of reportable cancers and benign/borderline intracranial and CNS tumors, consistent with recommended reporting of reportable conditions from laboratories to cancer registries using HL7 Version 2.5.1. The Implementation Guide follows the specifications described in the HL7 Standard Version 2.5.1 and focuses on one type of HL7 message, the ORU.

14. HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT

Within the United States, the Health Insurance Portability and Accountability Act (HIPAA, or the Act), P.L. 104-191, enacted on August 21, 1996, includes provisions related to insurance coverage and a section that is relevant to electronic reporting of health care information. HIPAA requires that standards be adopted for certain uniform financial and administrative transactions, data elements, and security of electronic health information systems. It also includes provisions for adopting standards for the privacy of health information. The Act preempts state laws and imposes civil monetary penalties and prison terms for certain violations.

HIPAA also imposes changes in the membership and duties of the National Committee on Vital and Health Statistics (NCVHS). It includes a provision that the NCVHS will make recommendations and legislative proposals to the Secretary of the U.S. Department of Health and Human Services on the adoption of uniform data standards for patient medical record information and the electronic exchange of such information. HIPAA addresses state regulatory reporting by stating, “[N]othing in this part shall limit the ability of a State to require a health plan to report, or to provide access to, information for management audits, financial audits, program monitoring and evaluation, facility licensure or certification, or individual licensure or certification.”²

For public health authorities, HIPAA states, “Nothing in this part shall be construed to invalidate or limit the authority, power, or procedures established under any law providing for the reporting of disease or injury, child abuse, birth, or death, public health surveillance, or public health investigation or intervention.”³ Covered entities that are named in the HIPAA legislation are “health plans, health care clearinghouses, and health care providers who transmit any health information in electronic form in connection with a transaction referred to in Section 1173(a) of the Act.”⁴ The regulation implementing the HIPAA privacy provisions allows public health exemptions for disclosure without patient consent of individually identifiable health information for the purposes quoted above.

Under HIPAA, state cancer registries qualify as public health authorities operating as agencies authorized by law to “collect or receive such information for the purposes of preventing or controlling disease... and for the conduct of public health surveillance, public health investigations, and public health interventions” (45 CFR 164.512). As such, public health reporting to state agencies from pathology laboratories is exempt from HIPAA privacy rules. Pathology laboratories, as covered entities, may report this public health information to state cancer registries using the HL7 Standard as described here; HIPAA provisions will not alter these reports.

At a State level, an example of recent changes to electronic pathology reporting can be seen in California’s passage of AB 2325. This state law, signed September 14, 2016, requires all pathologists diagnosing cancer to report cancer diagnoses to the California Cancer Registry (CCR) via electronic means beginning on January 1, 2019. For further information, see the CCR website at www.ccrca.org/AB2325.shtml.

Within Canada, the Canada Health Act (CHA or the Act) is Canada’s federal legislation for publicly funded health care insurance. The Act sets out the primary objective of Canadian health care policy, which is “to protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers.”⁵ The CHA establishes criteria and conditions related to insured health services and extended health care services that the provinces and territories must fulfill.

² The Health Insurance Portability and Accountability Act, 42 U.S.C. 1320d-7.

³ *Ibid.*

⁴ Association of American Physicians and Surgeons, Inc., <https://www.aapsonline.org/confiden/1173.htm>, accessed April 13, 2020.

⁵ Canada Health Act, r.S.C., 1985, c. C-6.

Provinces and Territories enact pathology reporting requirements through independent cancer surgery agreements with hospitals, laboratories, and other health care agencies and also legislate the collection, use, and disclosure of personal health information.

At a provincial level, one example is that Ontario collects pathology cancer data pursuant to section 23(a) of O.Reg 965, of the Public Hospitals Act and pursuant to the cancer registries' authority as a Prescribed Entity under section 45 of the Personal Health Information Protection Act, 2004.

15. PATHOLOGY REPORT DESCRIPTIONS AND DEFINITIONS

This section identifies the formal names and terms that are used throughout this Guide. Pathology data currently are captured, formatted, and transmitted to cancer registries a variety of ways.

There are many styles of pathology reports, with great variation in the level of pathological detail, use of narrative versus structured layouts, use of tables and images, use of terminology encoding, and use of electronic transmission. These reports can be structured such that the information captured from the pathologist allows free-text narrative or question-answer pairs with predefined answer selection that may or may not have unique identifiers assigned to every question and answer.

The narrative message style refers to the way pathology information is transmitted in the HL7 message. The message style will depend greatly on how information is captured and stored in the system. If the pathology report structure allows the pathologist to write a narrative response, then the message style will be narrative. A narrative message may be submitted as unstructured free-text data or as structured text that is organized and reported in discrete sections.

A synoptic message style will have very specific question-and-answer sets for the pathologist to complete. Ideally, each answer will be stored in a discrete field that uses a coded value for the answer (in electronic Cancer Checklist message format, or eCC); however, when this is not the case, the information may be stored as a block of text (synoptic summary format). Depending on how the data are stored in the system, the synoptic message style will be transmitted as either a fully encoded eCC message format or a synoptic segmented message format. The fully encoded eCC message format structure includes a template identifier for the form and unique identifiers for both the questions and answers. The synoptic message format includes the questions and answers as formatted text so that the questions and their associated answers appear on separate lines.

The relationship between the different concepts outlined below is shown graphically in [Section 2.2.1](#), Registry Reporting Domain Model, below.

1.5.1. Kinds of Pathology Reports

Many kinds of reports may be transmitted to cancer registries, depending on jurisdictional rules and local customary practice. In addition to the pathology study report itself, there may be supplemental reports on additional cancers, special studies, other laboratory procedures, supporting clinical information, etc. The most common kinds of reports sent to registries are described below.

1.5.1.1. Primary Report

This is the principal pathology report that contains all of the pathologic and prognostic information associated with the patient's surgical case (specimen(s)).

1.5.1.2. Supplemental Reports

Some kinds of supplemental reports have specific Logical Observation Identifiers Names and Codes (LOINC) codes, and others may not. **The use of LOINC code 22639-9 is deprecated and should not be included in any new or updated interfaces. The LOINC code 35265-8 [Addendum] should be used instead.**

1.5.1.3. Addenda

An addendum report is a type of ancillary report that contains additional information, typically the results of ancillary diagnostic studies completed after the original pathology report has been released. These reports contain additional information attached to the pathology report, generally after the original report has been issued,⁶ and may address subsequent testing or stains, comparison with previous specimens, second opinions from other pathologists or laboratories, or a change in diagnosis resulting from re-examining the specimen(s) or sampling new areas within the specimen. Reports from prognostic tests could be considered reportable to the central cancer registry, depending on the individual state law. If these reports mention any clinical history of cancer, then the report may be deemed reportable.

1.5.1.4. Amendments

Amended reports are created to correct errors or discrepancies in the original final report. Typical reasons to create an amended report include correction of typographical errors, modification of the final diagnosis, or documentation of the resolution of a specimen-labeling discrepancy. Note that no special LOINC code is required for Amendments. The LOINC code selected is the code for the report that is being amended, whatever kind the report is, and whatever style the amendment is, with a Result Status (OBR-25) of “C” indicating that the message contains a correction to the previously transmitted report; this differentiates them from the original sent, which carries the Result Status of “F” for Final. Note that preliminary reports (Result Status “P”) should not be sent to the registry.

1.5.1.5. Consultation Notes (consults)

A consultation report is a report that provides advice or guidance by a second or additional expert or a deliberation by pathologists on a diagnosis and/or interpretation of diagnostic test results. This may be a second opinion of the specimen diagnosis.

1.5.1.6. Autopsy Report

This is a pathology report that contains all clinical and pathologic information obtained at the time of death and at a postmortem examination.⁷

1.5.1.7. Pathology Report Collection

Sometimes several kinds of reports are transmitted together in a single HL7 message (preferred method). These are grouped together as a comprehensive collection, as they often need to be interpreted together as a set. For a more complete description of this structure, see [Section 2.2.1](#), Registry Reporting Domain Model.

1.5.2. Pathology Report Formatting

Pathology reports can be grouped *by content* into reports for biopsies, resections, biomarkers, and many other ancillary studies. All of these reports can be submitted in a message layout that is narrative, structured, or a combination of both. Standards are available for most types of primary resection reports in the form of the [CAP Cancer Protocols \(CCPs\)](#). CAP standards are also available for some cancer biomarkers in the form of the CAP Biomarker Reporting Templates. The resection standards are in common use, especially in laboratories accredited by CAP and/or the American College of Surgeons’ Commission on Cancer (CoC). At present, CAP templates for cancer biomarkers and biopsies are less commonly used. Even when the CAP

⁶ Goldsmith JD, Siegal GP, Suster S, Wheeler TM, Brown RW. “Reporting guidelines for clinical laboratory reports in surgical pathology.” *Arch Pathol Lab Med.* 132 2008;(10):1608–16.

⁷ Edge S, Byrd DR, Compton CC, Fritz AG, Greene FL, Trotti A, eds. *AJCC Cancer Staging Manual 7th Edition*. American Joint Committee on Cancer. New York, NY: Springer; 2010, p. 13.

standards are used, however, the format of the pathology report may not necessarily follow the original CCP format.

Structured narrative style comments are commonly used for clinical history, gross descriptions, and microscopic descriptions. However, structured narrative style reports are not a substitute for electronically structured synoptic reporting, described in [Chapter 3](#).

This section describes five (5) possible message formats that have been used to structure electronic pathology reports for cancer registry reporting:

- a. **Unstructured Narrative** pathology report (also known as a Text Blob). The laboratory is not able to separate the pathology report text into sections such as Clinical History, Gross Observation, Microscopic Observation, Final Dx, Final Dx Text/Path Report Text using LOINC codes (or other codes). See [Appendix E](#) for sample message.
- b. **Structured Narrative** pathology message text in which LOINC codes are used to submit (any or all) the following path report sections: Clinical History, Nature of Specimen, Gross Observation, Microscopic Observation, Final Dx, Comments, Supplemental Reports, etc. See [Appendix E](#) for sample message.
- c. **Synoptic Reports**, which include CAP case summaries and/or biomarker templates. These reports should be transmitted using one of the following message styles (see [Appendix E](#) for sample messages):
 - **Synoptic Summary message** format involves all question-and-answer pairs reported on separate lines sent in one single Observation/Result (OBX) segment. The Report Template Source will be reported as Synoptic Summary. If a template version is available, then it is reported in a separate OBX segment.
 - **Synoptic Segmented message** format involves question-and-answer pairs sent in separate OBX segments. The Report Template Source will be reported as Synoptic Segmented Message. If a template version is available, then it is reported in a separate OBX segment.
 - **Synoptic eCC message** format involves question-and-answer pairs in separate OBX segments. See [Chapter 3](#) rules for reporting eCC templates. Each OBX segment in a synoptic eCC message contains one or more identifiers derived from the XML template. This format is sometimes referred to as a “fully encoded” message style.

1.5.2.1. Unstructured Narrative

Unstructured narrative cancer pathology reports are provided in a paragraph-based or narrative-style format, with specific pathologic findings contained in the narrative text. These reports generally are dictated by a pathologist and then transcribed by a transcriptionist. For unstructured narrative reports in which sections cannot be split into discrete segments and are reported as one paragraph of text, then OBR-4 would be LOINC code 11529-5 (Surgical Pathology Study Report) and OBX-3 would be LOINC code 33746-9 (Pathologic Findings).

1.5.2.2. Structured Narrative

A structured narrative report is defined as a report that is generally narrative and formally divided into labeled sections, with each section having a designated LOINC code. Refer to OBR-4 guidance and the LOINC table to identify the appropriate LOINC code to include in OBR-4. The individual sections of the pathology report and their LOINC codes (for use in OBX-3) are listed in Table 1 and described below.

Table 1: Structured Narrative NAACCR Item to LOINC Component Mapping

NAACCR Item Name	NAACCR Item #	LOINC Code	LOINC Component Name
Path-Final Diagnosis	7450	22637-3	Path report.final diagnosis
Path-Text Diagnosis	7400	33746-9	Pathologic findings
Path-Clinical History	7410	22636-5	Pathology report.relevant Hx
Path-Nature of Specimen	7420	22633-2	Pathology report.site of origin
Path-Gross Pathology	7430	22634-0	Pathology report.gross observation
Path-Micro Pathology	7440	22635-7	Path report.microscopic observation
Path-Comment Section	7460	22638-1	Pathology report.comments
*Path-Suppl Reports	7470	*22639-9	Pathology report.supplemental reports
Path-Addendum		35265-8	Path report.addendum

* This code (#22639-9) was used for supplemental reports, but since there are explicit LOINC codes for consult reports and addendum, the use of this code is deprecated and should not be included in any new or updated interfaces. LOINC code 35265-8 should be used for narrative supplemental reports, and LOINC code 60569-1 should be used in OBR-4.1 for CAP synoptic checklists that are specific to tumor marker/biomarker tests.

Diagnosis Sections

LOINC code: 22637-3 Path report.final diagnosis

The final diagnosis section is generally a summation of the “final word” on pathologic and prognostic findings by the pathologist. This section is used in narrative reports. Note that this section does not exist as a separate section in synoptic reports; rather, multiple single items describe it (site, histology, grade, laterality, etc.).

LOINC code: 33746-9 Pathologic findings

In general, the text diagnosis section contains all the information that pertains to the pathologic diagnosis of each specimen submitted during the course of one surgical procedure.

Clinical History Section (may also contain Reason for Study)

LOINC code: 22636-5 Pathology report.relevant Hx

The clinical history section provides a brief account of the patient’s past and present state of health that is relevant to the tissue sample the pathologist is examining. Note that this section often exists as a separate section in synoptic reports, in addition to specific structured history items in the synoptic template itself.

Site of Origin Section (Nature of Specimen)

LOINC code: 22633-2 Pathology report.site of origin Spec

Describes the site(s) and laterality of the specimen(s). If more than one specimen is included on the pathology report, each is generally assigned an identifying letter or numeral.

Gross Observation Section

LOINC code: 22634-0 Pathology report.gross observation

The gross/macrosopic description section contains the written description (e.g., size, weight, color, etc.) of all removed tissue or foreign materials received by the surgical pathology laboratory.

Microscopic Observation Section

LOINC code: 22635-7 Path report.microscopic observation

The microscopic description section describes the salient histopathologic findings of the case. Specific attributes that the pathologist may look for and report in the microscopic section include histologic grade, tumor margins, assigning of TNM pathological staging, etc. These attributes are typically contained within specific synoptic templates, and so generally are included as a unit only in structured narrative reports.

Comments/Notes Section

LOINC code: 22638-1 Pathology report.comments

The comments/notes field is optional and typically includes additional information that provides further clarification on the clinical findings and/or diagnosis contained within the body of the report. Synoptic templates have structured components for pathology comments, and this separate section typically is used only in narrative reports.

Supplemental Reports Section

LOINC code: 22639-9 Pathology report.supplemental reports

This code (#22639-9) was used for supplemental reports, but because there are explicit LOINC codes for consult reports and addendum, the use of this code is deprecated and should not be included in any new or updated interfaces. If no specific LOINC code is available for the ancillary test, then the LOINC code 35265-8 for path report.addendum should be used.

Report Addendum Section

LOINC code: 35265-8 Path report.addendum

The addendum report section is a type of ancillary report that contains additional information, typically the results of ancillary diagnostic studies completed after the original pathology report has been released. By definition, addendum reports provide additional information that may come, for example, from flow cytometry and immunohistochemistry. This additional information does not result in a change to the final diagnosis of the original pathology report.

1.5.2.3. Synoptic Report

A synoptic report is a narrative report that is formally divided into explicit items covering specific observations on a specimen and laid out in a predefined format. These reports include CAP case summaries and/or biomarker templates. The LOINC code should be Synoptic Report (60568-3) in OBR-4.

1.5.2.3.1. Synoptic Summary Message

A Synoptic Summary Message format is all question-and-answer pairs reported on separate lines sent in one single OBX. The Report Template Source should be reported as Synoptic Summary. If a template version is available, then report OBX using LOINC code 60574-1 (template version).

1.5.2.3.2. Synoptic Segmented Message

The Synoptic Segmented Message format is question-and-answer pairs sent in separate OBX. The Report Template Source should be Synoptic Segmented Message. If a template version is available, then report OBX using LOINC code 60574-1 (template version).

1.5.2.3.3. Synoptic eCC Message

The eCC message format is fully encoded question-and-answer pairs in separate OBX. See [Chapter 3](#) rules for reporting eCC templates.

1.5.3. LOINC Coding for Reports

The kinds and styles of reports are labeled by a LOINC code contained in the HL7 message carrying the transmitted report and are carried in the OBR-4 for the report. Table 2 provides a summarized list of report types with associated LOINC codes and NAACCR Data Item 7480 (Path Report Type 1) data element codes.

Table 2: LOINC Coding of Report Style

NAACCR Data Item # 7480 Code	Description	Kind of Report	Message Style	LOINC Code Use in OBR-4	LOINC Code Use in OBX-3	LOINC Component
01	Pathology	Primary Report	Unstructured Narrative/ Structured Narrative	11529-5		Surgical Pathology Study report
01	Pathology	*Supplemental Report	Unstructured Narrative/ Structured Narrative	*22639-9		Path report.supplemental reports
01	Pathology	Consult Report	Unstructured Narrative/ Structured Narrative	60570-9 24611-6 (legacy systems)		Consultation note
01	Pathology	Autopsy Report	Unstructured Narrative/ Structured Narrative	18743-5		Autopsy note
01	Pathology	Addendum	Unstructured Narrative/ Structured Narrative	35265-8		Path report.addendum
01	Pathology	Primary Report	Synoptic Summary; Synoptic Segmented; Synoptic eCC	60568-3	See Chapter 3	Synoptic report
01	Pathology	Consult Report	Synoptic Summary; Synoptic Segmented; Synoptic eCC	60571-7	See Chapter 3	Consultation note.synoptic
01	Pathology	Addendum	Synoptic Summary; Synoptic Segmented; Synoptic eCC	60569-1	See Chapter 3	Report addendum.synoptic
01	Pathology	Pathology Report Collection	Any	60567-5		Comprehensive pathology report panel
02	Cytology			33716-2		Study report: Cytology.non-gyn
03	Gyn Cytology			33717-0		Study report: Cytology.Cvx/Vag
04	Bone Marrow (biopsy/aspirate)			48807-2		Bone marrow aspiration report
05	Autopsy			18743-5		Autopsy note
06	Clinical Laboratory Blood Work, NOS			Various		
07	Tumor Marker (p53, CD's Ki, CEA, Her2/Neu, etc.)			Various		
08	Cytogenetics			55228-1		Study report; Cytogenetics
09	Immunohistochemical Stains			55229-9		Study report; Immune Stains
10	Molecular Studies			26435-8		Molecular pathology studies
11	Flow Cytometry, Immunophenotype			33719-6 55230-7		Study report FC Immunophenotype
98	Other			NA		NA
99	Unknown			NA		NA

* This code (#22639-9) was used for supplemental reports, but because there are explicit LOINC codes for consult reports and addendum, the use of this code is deprecated and should not be included in any new or updated interfaces. LOINC code 35265-8 should be used for narrative supplemental reports, and LOINC code 60569-1 should be used in OBR-4.1 for CAP synoptic checklists that are specific to tumor marker/biomarker tests.

Amended reports do not have any special LOINC codes; the code of the original report should be used, with a Result Status (OBR-25) of “C” indicating that the message contains a correction to the previously transmitted

report; this differentiates them from the original sent, which carries the Result Status of “F” for Final. Note that preliminary reports (Result Status “P”) should not be sent to the registry.

Many supplemental reports may be custom laboratory studies or other types of reports. These should be reported with the LOINC code for the study done, carried in the OBR-4.

1.6. SAMPLE PATHOLOGY REPORTS

The sample reports below illustrate many of the data items for which this guide provides encoding rules for HL7 Messages to Cancer Registries. For more examples of Synoptic Reports, see [Chapter 3](#).

1.6.1. Sample Traditional Unstructured Narrative Pathology Report

The anatomic pathology report example below is a typical simple report with content to be transmitted from a laboratory or hospital to a cancer registry. See [Appendix E](#) for an example of an ORU message that supports sending the data, as illustrated in the sample pathology report below.

PATHOLOGY REPORT					
Report Identification		Patient Information			
Facility ID:	33D1234567	Chart/MRN:	00466144	Address:	495 East Overshoot Drive
Requisition ID:	7654098	SSN/SIN:	123456789		
Accession ID:	97 810430	Surname:	CANE	City/Town:	Delmar
Specimen ID:	3567829	Given Name:	CANDY	State/Prov:	NY
Report Date:	2004-07-28	Sex:	F	Zip/Post Code:	12054
Report Type:	Final	Date of Birth:	1957-07-06	Country:	
Requester ID:	594110NY	Age:	47 (at procedure date)		
Requester:	CARING, CAREN M.D. Albany Medical Center, 43 New Scotland Ave. NY, Albany 12208	Insurer:	USHC		
Procedure Date:	2004-07-20	Insurance No:	3270686987		
Surgeon ID:	123456	Race:	White		
Surgeon:	MYELOMUS, JOHN	Ethnicity:			
Pathologist ID:	109771				
Pathologist:	GLANCE, JUSTIN				
Clinical Dx/ Comment	Carcinoma of breast. Post-operative diagnosis: same.				
Clinical History	47-year old white female with (L) UOQ breast mass				
Tissue Submitted	left breast biopsy apical axillary tissue contents of left radical mastectomy				
Gross Pathology	<p>Part #1 is labeled “left breast biopsy” and is received fresh after frozen section preparation. It consists of a single firm nodule measuring 3 cm in circular diameter and 1.5 cm in thickness, surrounded by adherent fibrofatty tissue. On section, a pale gray, slightly mottled appearance is revealed. Numerous sections are submitted for permanent processing.</p> <p>Part #2 is labeled “apical left axillary tissue” and is received fresh. It consists of two amorphous fibrofatty tissue masses without grossly discernible lymph nodes therein. Both pieces are rendered into numerous sections and submitted in their entirety for history.</p> <p>Part #3 is labeled “contents of left radical mastectomy” and is received fresh. It consists of a large ellipse of skin overlying breast tissue, the ellipse measuring 20 cm in length and 14 cm in height. A freshly sutured incision extends 3 cm directly lateral from the areola, corresponding to the closure for removal of part #1. Abundant amounts of fibrofatty connective tissue surround the entire breast and the deep aspect includes an 8 cm length of</p>				

	pectoralis minor and a generous mass of overlying pectoralis major muscle. Incision from the deepest aspect of the specimen beneath the tumor mass reveals tumor extension gross to within 0.5 cm of muscle. Sections are submitted according to the following code: DE – deep surgical resection margins; SU, LA, INF, ME – full-thickness radial samplings from the center of the tumor superiorly, laterally, inferiorly, and medially, respectively; NI – nipple and subjacent tissue. Lymph nodes dissected free from axillary fibrofatty tissue from Levels I, II, and III will be labeled accordingly.
Microscopic	Sections of part #1 confirm frozen section diagnosis of infiltrating duct carcinoma. It is to be noted that the tumor cells show considerable pleomorphism, and mitotic figures are frequent (as many as 4 per high-power field). Many foci of calcification are present within the tumor. Part #2 consists of fibrofatty tissue and a single tiny lymph node free of disease. Part #3 includes 18 lymph nodes, three from Level III, two from Level II, and 13 from Level I. All lymph nodes are free of disease, with the exception of one Level I lymph node, which contains several masses of metastatic carcinoma. All sections taken radially from the superficial center of the resection site fail to include tumor, indicating the tumor to have originated deep within the breast parenchyma. Similarly, there is no malignancy in the nipple region, or in the lactiferous sinuses. Sections of deep surgical margin demonstrate diffuse tumor infiltration of deep fatty tissues; however, there is no invasion of muscle. Total size of primary tumor is estimated to be 4cm in greatest dimension.
Final Dx	1. Infiltrating duct carcinoma, left breast. 2. Lymph node, no pathologic diagnosis, left axilla. 3. Ext. of tumor into deep fatty tissue. Metastatic carcinoma, left axillary lymph node (1) Level I. Free of disease 17 of 18 lymph nodes – Level I (12), Level II (2), and Level III (3).
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1.6.2. Sample Structured Narrative Pathology Report

The anatomic pathology report example below is a typical simple report with content to be transmitted from a laboratory or hospital to a cancer registry. See [Appendix E](#) for an example of an ORU message that supports the sending of the data as illustrated in the sample pathology report below.

Report Identification		Patient Information			
Facility ID:	33D1234567	Chart/MRN:	00466144	Address	495 East Overshoot Drive
Requisition ID:	7654098	SSN/SIN:	123456789		
Accession ID:	97 810430	Surname:	CANE	City/Town:	Delmar
Specimen ID:	3567829	Given Name:	CANDY	State/Prov:	NY
Report Date:	2004-07-28	Sex:	F	Zip/Post Code:	12054
Requester:	CARING, CAREN M.D. Albany Medical Center, 43 New Scotland Ave. NY, Albany 12208	Date of Birth:	1957-07-06	Country:	
Procedure Date:	2004-07-20	Age:	47 (at procedure date)		
Surgeon ID:	123456	Insurer:	USHC		
Surgeon:	MYELOMUS, JOHN	Insurance No:	3270686987		
Pathologist ID:	109771	Race:	White		
Pathologist:	GLANCE, JUSTIN	Ethnicity:			
Clinical Dx/Comment	Carcinoma of breast. Post-operative diagnosis: same.				
Clinical History	47-year old white female with (L) UOQ breast mass				
Tissue Submitted	Left breast lesion – short stitch superior. Long stitch lateral.				
Gross Pathology	SPECIMEN SITE DESCRIBED ON CONTAINER: left breast lesion SPECIMEN DESCRIPTION Tissue/s: consistent with breast lumpectomy, with attached skin ellipse Handling Prior to Receipt in Lab: specimen received intact Clinical Orientation: attached short suture, described on requisition as “superior” and attached long				

	<p>suture, described as “lateral” – used for the orientation of the specimen (below)</p> <p>Resection Margins: inked: red medial and lateral blue superior green inferior black deep</p> <p>Other Handling in Lab: sectioned and left for overnight fixation Approximate Fixation Time: > 48 hours / < 7 days Specimen Size: breast 7.1 × 6.2 × 2.5 cm in greatest dimensions; skin ellipse 3.3 × 0.6 cm Diagnostic Imaging for Identification of Suspect Area/s: not required Breast Tumor: present – see below Size: difficult to measure accurately; a 0.6 cm area of hemorrhage immediately adjacent tumor, obscuring tumor margin approximately 2.0 × 1.2 cm in greatest dimensions Location: 11 o’clock – as per prior clinical history Appearance: spiculated, ill-defined, firm, grey-white Evidence of Spread or Complications: none Resection Lines: 0.3 cm from the closest resection margin – the deep 0.8 cm from the next closest resection margin – the junction of the superior and inferior (superficially) 1.2 cm from all remaining resection margins, the next closest being the medial Other Breast: moderately fibrous centrally, and surrounding tumor Nipple: not applicable – not included with specimen Skin: normal Lymph Nodes: none seen Axillary Tissue: not applicable – none included with specimen Other Abnormalities/Comments: none</p> <p>MATERIAL SUBMITTED FOR HISTOLOGY: entire tumor, and other representative sections</p> <p>BLOCKS SUBMITTED TO HISTOLOGY: A,B complete cross-section of tumor, in its largest dimension – split in two C tumor including closest (deep) resection margin D-G ? tumor including deep margin H fibrous breast, including inferior resection margin I breast, including lateral resection margin J breast, including medial resection margin K section immediately superficial but perpendicular to that in A,B, including superior margin and skin ellipse</p>
<p>Microscopic</p>	<p>Neoadjuvant Treatment: unknown – not provided clinically Specimen Type: lumpectomy Lymph Node Sampling: sentinel lymph node biopsy Specimen Size: Greatest Dimension (cm): 7.1 Comments: as described grossly Laterality: left Comments: as described clinically Features of Malignancy: Tumor Site: not specified clinically Comments: described as “11 o’clock” in the Clinical History for a previous core biopsy (S*..*****) – likely the same site as the tumor in the specimen here Invasive Carcinoma: present Histologic Type: invasive ductal carcinoma Comments: with prominent lobular differentiation; for instance, the carcinoma spreads as individual cells and small groups of cells at the edge of the main tumor mass Tumor Distribution: single focus only Comments: seen in the area described grossly Size of Invasive Component: Greatest Dimension (cm): 1.1 Comments: exact size difficult to be certain of, because</p>

	<p>of the effect of previous biopsy, but appearing greater than 1.0 cm in largest dimension, from the microscopic slides</p> <p>Histologic Grade: Tubule Formation: 3/3 Nuclear Pleomorphism: 2/3 Mitotic Count (40x): 1/3 Modified Nottingham Grade: Grade II/III – moderately differentiated Skin Involvement: absent Chest Wall Involvement: not applicable – none included with the specimen Venous/Lymphatic Invasion: absent Block(s) for Receptor Studies: being sent to: LHO Blocks Submitted: G In Situ Carcinoma: absent Comments: except in some very minute foci in and around the invasive tumor</p> <p>Lymph Nodes: Lymph Nodes Present: yes Number Examined: 1 Number Involved: 0</p> <p>AJCC Staging: Additional pTNM Descriptors: not applicable Primary Tumor (pT): pT1c – tumor more than 1.0 cm but not more than 2.0 cm in greatest dimension Distant Metastasis (pM): pMx – cannot be assessed Resection Margin(s): Involvement by Invasive Carcinoma: absent Closest Margin(s): deep, in a number of slides – and particularly close in Slide G Distance to Closest Margin (mm): 1 Comments: (0.1 cm)</p> <p>Correlation with IOC: not applicable Additional Pathologic Findings: reactive fibrosis around the carcinoma changes around the carcinoma consistent with the effect of previous biopsy some immunohistochemistry will be ordered to confirm some of the findings above – that will be reported in an Addendum Report to follow fibrocystic change in the background reactive changes in the lymph node</p>
Final Dx	<p>SKIN ELLIPSE AND UNDERLYING BREAST AND ADIPOSE TISSUE (LEFT), LUMPECTOMY: INVASIVE DUCTAL CARCINOMA – ADDENDUM AND CONSULTATION REPORTS WITH RECEPTORSTATUS TO FOLLOW</p>
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1.6.3. Sample Synoptic Pathology Report

The supplemental breast biomarker report example below is a typical simple report with content to be transmitted from a laboratory or hospital to a cancer registry. See [Appendix E](#), for an example of an ORU message that supports sending the data, as illustrated in the sample pathology report below.

Breast Biomarker Report		Patient Information			
Facility ID:	33D1234567	Chart/MRN:	00466144	Address	495 East Overshoot Drive
Requisition ID:	7654098				
Accession ID:	97 810430	SSN/SIN:	123456789		
Specimen ID:	3567829				

Report Date:	2004-07-28	Surname:	CANE	City/Town:	Delmar
Report Type:	Final	Given Name:	CANDY	State/Prov:	NY
Requester ID:	594110NY	Sex:	F	Zip/Post Code:	12054
Requester:	CARING, CAREN M.D. Albany Medical Center, 43 New Scotland Ave. NY, Albany 12208	Date of Birth:	1957-07-06	Country:	
Procedure Date:	2004-07-20	Age:	47 (at procedure date)		
Surgeon ID:	123456	Insurer:	USHC		
Surgeon:	MYELOMUS, JOHN	Insurance No:	3270686987		
Pathologist ID:	109771	Race:	White		
Pathologist:	GLANCE, JUSTIN	Ethnicity:			

	<p>Test(s) Performed</p> <p>Test(s) Performed: Estrogen Receptor (ER) Status (Note A), Progesterone Receptor (PgR) Status (Note A)</p> <p>ER Results: Negative (less than 1%)</p> <p>ER Test Control Status: Internal control cells present and stain as expected</p> <p>Test Type: Laboratory-developed test</p> <p>Primary Antibody: SP1</p> <p>PgR Results: Negative (less than 1%)</p> <p>PgR Test Control Status: Internal control cells present and stain as expected</p> <p>Test Type: Laboratory-developed test</p> <p>Primary Antibody: 312</p> <p>Cold Ischemia and Fixation Times: Do not meet requirements specified in latest version of the ASCO/CAP Guidelines</p> <p>Fixative: Formalin</p> <p>Comment(s): These results apply to both the invasive component and DCIS (both components are negative).</p> <p>CAP eCC August 2019 Preview</p>
Clinical Dx/ Comment	
Clinical History	
Tissue Submitted	
Gross Pathology	
Microscopic	
Final Dx	
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17. SPECIMEN WORKFLOW AND IDENTIFIER ASSIGNMENT

Specimens are usually pieces of tissue. Each of these has one or more identifiers associated with it. This is due to workflow and IT-system requirements/limitations. Each facility that handles a specimen may assign its own identifier to the specimen. The points below provide details about this process.

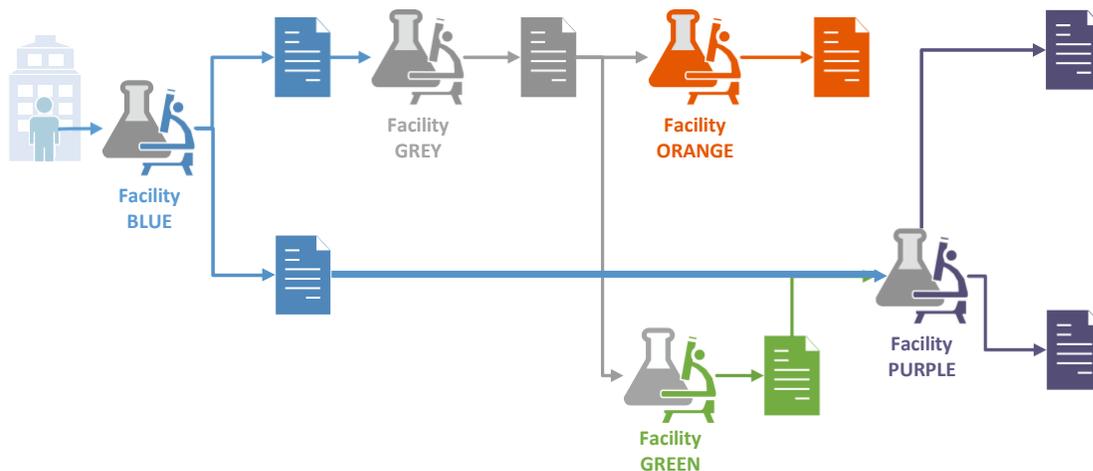
Specimen Identifiers:

- During a surgical procedure, multiple specimen containers may be used and sent to the pathology lab or labs. In general, a surgical facility assigns a unique identifier to each container that holds patient tissue. This identifier will be called the **originally assigned identifier**. The tissue inside the container may be a single specimen, or the container may hold multiple specimens – e.g., multiple lymph nodes from a single region/zone.
- When a container bearing the **originally assigned identifier** is received by a pathology lab, the lab often will record this identifier. In many cases, the lab also will assign a new identifier to the tissue in that container.
- In general, most pathology labs will assign a single case identifier, “surg/path id,” to group these specimen containers under a single identifier. In these cases, the “surg/path id” refers to all tissues received during that surgical specimen collection.
- In the pathology lab, each specimen container may contain multiple specimens. In addition, each piece of tissue (“specimen”) may be subdivided and assigned its own identifier.
- Each specimen may be divided into sub-specimens. Each sub-specimen may receive its own identifier. For example, a specimen may be divided into multiple blocks, and a block may be divided into multiple slides. Each block and slide may be assigned its own identifier. The division of tissue for processing purposes is also common to molecular and other types of studies.

18. WORKFLOW BETWEEN MULTIPLE FACILITIES

A specimen sent to other facilities often has new identifiers assigned at that facility. A receiving facility often does not record the identifiers of the sending facility in its system, reports, or data transmissions. This problem is compounded by inconsistent use of terminology for specimens and their identifiers.

Figure 1: Multiple Facility Workflow



2. Implementation Guide for Transmission of Laboratory-Based Reports to Cancer Registries Using Version 2.5.1 of the HL7 Standard Protocol

2.1. REGISTRY MESSAGING USING HL7

Electronic transmission of cancer pathology reports will flow to cancer registries using the Health Level Seven (HL7) standard protocol. This guide remains true to the HL7 Version 2.5.1 Final Standard, accepted as an ANSI standard February 21, 2007

(http://www.hl7.org/implement/standards/product_brief.cfm?product_id=144). The entries below are derived from that Standard for use with electronic laboratory reporting.

2.1.1. Data Types Referred To in this Implementation

All fields that carry data in NAACCR messaging (defined in the Static Model) are associated with an HL7 data type, which defines the internal structure and data layout of the field. Although some fields are simple unformatted strings or numbers, most are complex composites with components that are delimited.

Only a subset of the data types defined in the HL7 Version 2.5.1 Standard is used for NAACCR Cancer Registry Messaging. Data types that are referred to in the Static Model definitions are listed here. For the complete definitions and all of the details of these data types, please see [Appendix C, Detailed HL7 Data Type Specifications](#). Please also note that the data types for elements that are not supported in NAACCR messaging are not included here; for details on those data types, please refer to the HL7 Version 2.5.1 Standard, Chapter 2A.

CE – coded element	MSG – message type
CF – coded element with formatted values	NDL – name with date and location
CNE – coded with no exceptions	NM – numeric
CNN – composite ID number and name	PL – person location
CQ – composite quantity with units	PRL – parent result link
CWE – coded with extensions	PT – processing type
CX – extended composite ID with check digit	SI – sequence ID
DLD – discharge to location and date	SN – structured numeric
DR – date/time range	SPS – specimen source
DT – date	ST – string data
DTM – date/time	TM – time
ED – encapsulated data	TS – time stamp
EI – entity identifier	TX – text data
EIP – entity identifier pair	VID – version identifier
ELD – error location and description	XAD – extended address
ERL – error location	XCN – extended composite ID number and name for persons
FN – family name	XON – extended composite name and identification number for organizations
FT – formatted text data	XPN – extended person name
HD – hierarchic designator	XTN – extended telecommunication number
ID – coded value for HL7-defined tables	
IS – coded value for user-defined tables	

Please note that a number of data types (such as PN) that were used in the Version 2.3.1 specification have been removed from HL7 Version 2.5.1. These obsolete data types are:

CK – composite ID with check digit	PN – person name
CM – composite	TN telephone number

Please refer to HL7 Standard Version 2.3.1 for details on these obsolete data types.

2.1.2. Default Values

A few fields in the message have default values, meaning that senders of messages must populate the field with the default value if they do not have a case-specific value for that field. Non-required fields that are left empty by senders if they do not have data for the field will have the default value applied when the message is processed at the central cancer registry. This applied default value is used for quality control monitoring purposes. Table 3 lists the defined default values for these fields.

Table 3: HL7 Default Values

Fields with NAACCR Default Values			
Field ID	Field Name	Default Value	Comment
MSH-21	Message Profile Identifier	VOL_V_50_ORU_R01^NAACCR_CP	Identifies the profile for the ORU^R01 message in this Specification
PID-3.5	Patient ID.Identifier Type Code	MR	When the repetition contains a Medical Record #
PID-3.5	Patient ID.Identifier Type Code	SS	When the repetition contains a Social Security #
PID-3.5	Patient ID.Identifier Type Code	PI	When the repetition contains a Patient Internal Identifier
PID-3.5	Patient ID.Identifier Type Code	MC	When the repetition contains a Medicare Beneficiary Identifier
PID-10.3	Race.name of coding system	HL7 0005	HL7 Race Table values (see Appendix B for table values)

2.1.3. Identifiers in HL7 Pathology Report Messages

A number of real-world entities are referred to in cancer registry messaging, many of which have persistent unique identifiers. These include clinicians, facilities, instances of reports in laboratory systems, specimens, and patients, among other things.

A large number of different identifiers are in wide use for individual providers and provider organizations. The use of NPI (National Provider ID) is encouraged, if available, to reduce variability in the ways providers are identified to registries. Note that NPIs are assigned at the individual level, as well as the organizational level, and they should be used according to the requirements associated with the HL7 field. Note also that the use of UPIN (unique physician identifier) as the national identifier for physicians was discontinued in June 2007 and has since been replaced by NPI, which is encouraged for cancer registry messaging. UPIN is not recommended for use. Because there are a variety of identifiers, the Identifier Type Code must be included when sending one of these identifiers. In most cases, a national or jurisdiction-wide identifier will be available; it is preferable to use one of these, rather than local identifiers, to identify providers.

Laboratories typically assign an identifier to the information recorded for the analysis requested on a received specimen(s) when the specimen(s) arrive at the laboratory. This identifier is specific to the laboratory; when part or the entire specimen is sent out for additional or supplemental analysis to another laboratory, a new identifier will be assigned by the supplemental laboratory. To maintain the traceability of these identifiers when data from multiple laboratories are sent in a single message, the identifier assigned by the laboratory sending the message should be populated in OBR-3 Filler Order Number (see [Section 2.7.2, Observation Request Segment](#)) of the OBR for the pathology report collection; and the OBR-3 value for each of the contained reports should contain the identifier assigned by the laboratory that created that report.

The identifier contained on the pathology study requisition form, commonly referred to as the requisition number, should be reported in the registry message in the OBR-2 Placer Order Number.

The specimen at a laboratory typically is identified with the same number as the overall report record in the Anatomic Pathology Laboratory Information System (APLIS), and the case itself—the accession number—generated when the requisition and specimen arrive and are accepted at the laboratory. However, in some circumstances, there will be multiple specimens, and the different specimens may end up generating different reports (see the complex use cases described in [Appendix E](#)). In such circumstances, it is recommended that

identifiers of the different specimens be reported in the SPM-2; the message style includes a SPM segment, with each block of the message starting with an observation request (OBR).

Note that on rare occasions different specimen IDs may be associated with various components of a large multi-specimen case, such as the example in [Appendix E](#) with eight different types of tissue included. If this circumstance occurs and the additional specimen identifiers are to be transmitted in the message, then the field SPM-31 should be used for this purpose; do not send the additional specimen identifiers in Observation/Result (OBX) segments. If multiple accession numbers from the same laboratory are to be sent as part of a single report (with a single OBR segment), then the SPM-30 should be used to carry these extra accession numbers. This implementation guide supports one to many relations, for example in the case of two tumors in a single organ that have different laboratory results.

Table 4 lists the identifier types commonly used in XCN, XON and NDL data types when identifying providers, either individual clinicians or organizations (hospitals and laboratories). The HL7 fields in which the type of identifiers are used most commonly are listed in the first column.

Identifiers: Table 4 lists a number of fields in the message that contain such identifiers and notes the NAACCR item name and numbers for these. The identifier types listed in the third column of the table are directly mapped to specific NAACCR data items; otherwise, the identifier type column contains “Others,” which indicates that all other identifier types not listed in the table below are mapped to a specific NAACCR item.

Note that NAACCR item numbers 7000 and higher in Table 4 (and referenced elsewhere in this Guide) were specifically added to the NAACCR set in support of HL7 messaging as defined in this Volume V. See [Appendix F](#) for a complete list of NAACCR data item names and numbers and their relation to the NAACCR Volume II Data Dictionary. Note also that “N/A” in any of the cells in the table indicates “Not Applicable.”

Table 4: Identifiers in HL7 Pathology Report Messages

HL7 Field	HL7 Field Name	Identifier Type	NAACCR Item Name	NAACCR Item #	Comments
PID-3	Patient identifier list	SS	Social Security Number	2320	Patient SSN
PID-3	Patient identifier list	MR	Medical Record Number	2300	Patient MRN
PID-3	Patient identifier list	Others	Path Patient ID Canadian	7570	Any other types of patient identifiers, including provincial/territorial health card number
PID-3	Patient identifier list	Others	Path Patient ID Other	7578	Other types of Patient identifiers, including a Patient ID local to the laboratory
PV1-7	Attending Doctor	Others	Physician Managing Other	7580	Other types of individual provider IDs
PV1-7	Attending Doctor	NPI	NPI Physician Managing	2465	National Provider ID
PV1-7	Attending Doctor	MD	Physician Managing	2460	State Medical license number
PV1-8	Referring Doctor	MD	Physician Follow-up	2470	State Medical license number
PV1-8	Referring Doctor	NPI	NPI Physician Follow-up	2475	National Provider ID
PV1-8	Referring Doctor	Others	Physician Follow-up Other	7590	Other types of individual provider IDs
PV1-9	Consulting Doctor	MD	Physician 3	2490	State Medical license number
PV1-9	Consulting Doctor	NPI	NPI Physician 3	2495	National Provider ID
PV1-9	Consulting Doctor	Others	Path Physician 3	7600	Other types of individual provider IDs
PV1-17	Admitting Doctor	Others	No NAACCR item	N/A	Other types of individual provider IDs
PV1-17	Admitting Doctor	NPI	No NAACCR item	N/A	National Provider ID
ORC-21	Ordering Facility Name	NPI	Path Ordering Facility Number NPI	7195	National Provider ID (in the U.S.)

HL7 Field	HL7 Field Name	Identifier Type	NAACCR Item Name	NAACCR Item #	Comments
ORC-21	Ordering Facility Name	Others	Path Ordering Facility Number Other	7190	Other types of Facility identifiers (outside the U.S.)
OBR-2	Placer Order Number	N/A	Path Number Hosp	7610	Requisition number or Surgical Pathology Number (from Hospital)
OBR-3	Filler Order Number	N/A	Path Report Number	7090	Laboratory Report Number
OBR-3	Filler Order Number	N/A	No NAACCR item	N/A	Accession Number
OBR-10	Collector identifier	Others	Physician Primary Surg Other	7620	Other types of individual provider IDs
OBR-10	Collector identifier	MD	Physician Primary Surg	2480	State Medical license number
OBR-10	Collector identifier	NPI	NPI Physician Primary Surg	2485	National Provider ID
OBR-16	Ordering Provider	Others	Ordering Client/Phys— Lic No Other	7108	Other types of individual provider IDs
OBR-16	Ordering Provider	MD	Ordering Client/Phys— Lic No	7100	State Medical license number
OBR-16	Ordering Provider	NPI	Ordering Client/Phys— Lic No NPI	7105	National Provider ID
OBR-32	Principal Result Interpreter	Others	Pathologist Lic Number Other	7308	Other types of individual provider IDs
OBR-32	Principal Result Interpreter	MD	Pathologist Lic Number	7300	Medical license number
OBR-32	Principal Result Interpreter	NPI	Pathologist Lic Number NPI	7305	National Provider ID
OBX-15	Producer's Reference	CLIA	Producer ID	7515	Clinical Laboratory Improvement Amendments (CLIA) number
OBX-16	Responsible observer	MD	Path Responsible Observer	7630	Medical license number
OBX-16	Responsible observer	NPI	Path Responsible Observer NPI	7635	National Provider ID
OBX-16	Responsible observer	Others	Path Responsible Observer Other	7638	Other types of individual provider IDs
OBX-23	Performing Organization Name	Others	Path Performing Organization Name	7640	Other types of organizational provider IDs
SPM-2	Specimen ID	N/A	No NAACCR item	N/A	Specimen Identifier or Accession Number
SPM-3	Specimen Parent ID	N/A	No NAACCR item	7091	
SPM-4	Specimen Type	HL7	No NAACCR item	N/A	HL7 Table 0487 Specimen Type
SPM-5	Specimen Type Modifier	Others	No NAACCR item	N/A	Provides the precision required to fully describe the specimen
SPM-30	Accession ID	Others	No NAACCR item	N/A	Accession Number
SPM-31	Other Specimen ID	Others	No NAACCR item	N/A	Other types of specimen identifiers

2.1.4. NAACCR Conformance Usage Rules

The following format is used in this document for listing and defining message segments and fields. First, the message segment's use is defined, and a segment attribute table is shown that lists all fields defined in the segment. In the segment attribute table, the following attributes are given for each field: sequence number within the segment, length of field, data type, and the HL7 Conformance criteria. This defines whether the field, for HL7 Version 2.5.1, is required (R), optional (O), or conditional (C) or uses (B) for backward compatibility. Following this, the applicable table number for values, the field item number, and the field name are shown. The last columns in the table identify the NAACCR conformance specifics for the constrainable conformance type and define NAACCR usage as required (R), required or empty (RE), optional (O), conditional (C), or conditional or empty (CE). Note that the conformance criterion of RE (required or empty) indicates that if a sending system has the data, it must be transmitted, and all receiving systems must be able to process the data. All HL7 backward-compatible fields are constrained as either in or out for this conformance type. The NAACCR cardinality field defines the minimum and maximum number of repetitions that can populate a data field. The conformance usage rules for the "NAACCR Usage" column are interpreted as described in Table 5.

Table 5: Conformance Rules for “NAACCR Usage”

Value	Description	Comment
R	Required	A conforming sending application shall populate all “R” elements with a non-empty value. A conforming receiving application shall process (save/print/archive/etc.) or ignore the information conveyed by required elements. A conforming receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element. Any element designated as required in a standard HL7 message definition shall also be required in all HL7 message profiles of that standard message.
RE	Required but may be empty	The element may be missing from the message, but must be sent by the sending application if there is relevant data. A conforming sending application must be capable of providing all “RE” elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then that element will be omitted. Receiving applications will be expected to process (save/print/archive/etc.) or ignore data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be generated because the element is missing).
C	Conditional	This usage has an associated condition predicate. (See the HL7 Version 2.5.1 Standard Chapter 2 Section 2.12.6.6 <i>Condition Predicate</i> .) If the predicate is satisfied— A conformant sending application must always send the element. A conformant receiving application must process or ignore data in the element. It may raise an error if the element is not present. If the predicate is NOT satisfied— A conformant sending application must NOT send the element. A conformant receiving application must NOT raise an error if the condition predicate is false and the element is not present, although it may raise an error if the element IS present.
CE	Conditional but it may be empty	This usage has an associated condition predicate. (See the HL7 Version 2.5.1 Standard Chapter 2 Section 2.12.6.6 <i>Condition Predicate</i> .) If the predicate is satisfied— If the conformant sending application knows the required values for the element, then the application must send the element. If the conformant sending application does not know the values required for this element, then the element shall be omitted. The conformant sending application must be capable of knowing the element (when the predicate is true) for all “CE” elements. If the element is present, the conformant receiving application shall process (display/print/archive/etc.) or ignore the values of that element. If the element is not present, the conformant receiving application shall not raise an error due to the presence or absence of the element. If the predicate is not satisfied— The conformant sending application shall not populate the element. The conformant receiving application may raise an application error if the element is present.
B	Backward compatible	Left in for backward compatibility with previous versions of HL7. The field definitions following the segment attribute table should denote the optionality of the field for prior versions.
O	Optional	The inclusion of the element is optional. (O is only used in constrainable specifications, and NAACCR Standards Volume V must be further constrained for an operational implementation.)
X	Not supported	For conformant sending applications, the element MAY not be sent. Conformant receiving applications MAY ignore the element if it is sent, and SHALL NOT raise an application error.

The following key words are used in the requirements to specify the level of requirement:

Shall/Required: An absolute requirement of the specification.

Shall Not: An absolute prohibition of the specification.

Should/Recommended: Valid reasons may exist in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.

Should Not/Not Recommended: Valid reasons may exist in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.

May/Optional: An item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product, while another vendor may omit the same item. An implementation that does not include a particular option SHALL be prepared to interoperate with another implementation that does include the option, although perhaps with reduced functionality. Similarly, an implementation that does include a particular option SHALL be prepared to interoperate with another implementation that does not include the option (except, of course, for the feature the option provides).

2.2. CANCER REGISTRY MESSAGE DEFINITION

The transmitted reports sent to cancer registries may be of different kinds, may arrive at different times from different sending facilities and institutions, and may be formatted and/or encoded using different styles of reporting. The message definition in this Guide is designed to support all these permutations in an unambiguous and straightforward manner.

The different kinds of reports that arrive at a registry relating to the same patient and specimen are linked and consolidated at a registry, regardless of whether they arrive together in a single message or arrive at different times in different HL7 messages. There is a report on the primary cancer, but there may also be any number of supplemental reports, or even additional reports. These contain additional information attached to the pathology report, and often are transmitted after the original report has been issued. These reports may address subsequent testing or stains, comparison with previous specimens, second opinions from other pathologists or laboratories, a change in diagnosis resulting from re-examining the specimen(s) or sampling new areas within the specimen, autopsy reports, etc. These reports may be encoded using any of the styles discussed above in [Section 1.5.2](#). For example, an addendum to a primary report in narrative message format style could also be in traditional narrative message format style or could be encoded using synoptic message format style. These supplemental reports may be called Addenda, Consult Notes, Amendments, Supporting Studies, Second Opinion Notes, or by other local vernacular. These concepts are not mutually exclusive.

The overall *logical* structure of the complete package of information, regardless of whether it is transmitted to the registry in one or several messages, can be conceptualized as described in Table 6.

Table 6: Cancer Registry Structure Message Definitions

Pathology Report Collection	This may or may not be present; when present, it functions as a “container” or “collector” of the several separate documents making up the overall reported data collection. This is a similar structure to a laboratory test panel. Each of the contained reports is a report document. This item is reported in OBR-4 of the message with a LOINC code of 60567-5 Comprehensive pathology report panel. This is particularly useful for transmitting the same pathology report in multiple styles in one message, such as both a narrative and a synoptic message format of the same report. It is used only in a message in which more than one document on the same patient for the same analysis is sent in a single message, such as a main report plus addenda and consults, or if the report is transmitted in different styles of reporting.
Primary Report	This type of report would be submitted with OBR-4 of the message identified with a LOINC code of “11529-5 Surgical pathology study.” This report represents the findings generated by the Pathologist for the primary tumor.
Consult Report	The Consult Report is identified in OBR-4 of the message with a LOINC code of “60570-9 Consultation note” when the message style is narrative, and with a LOINC code of “60571-7

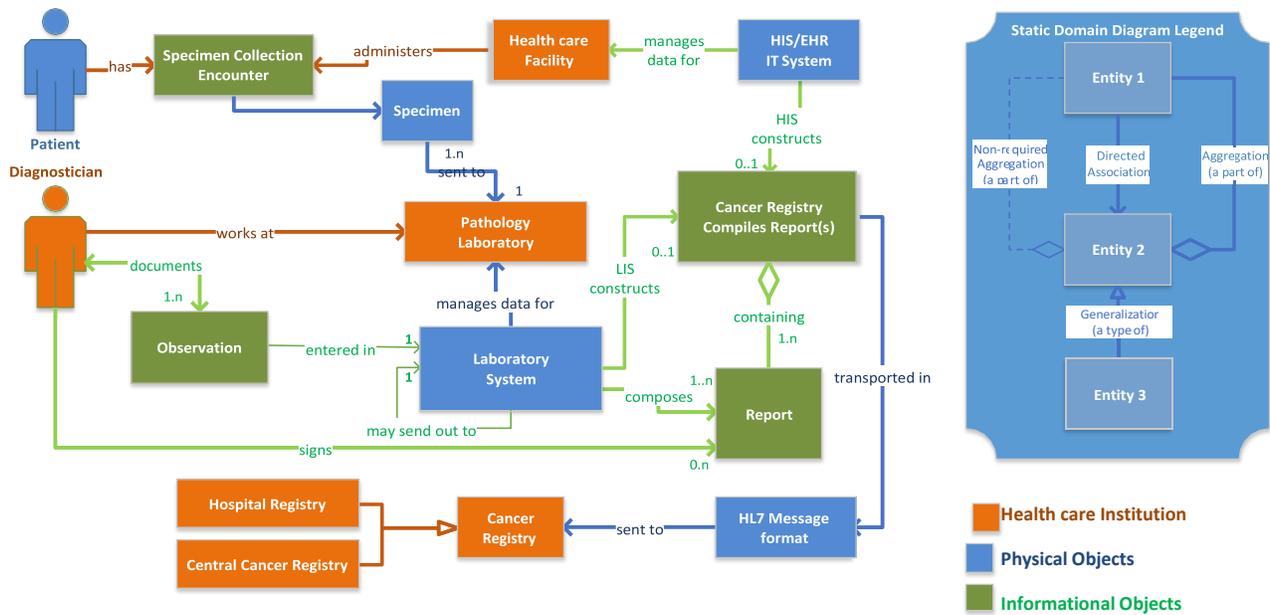
	Consultation note.synoptic” when the report is synoptically structured or encoded.
Addendum	The Addendum is identified in OBR-4 of the message with a LOINC code of “35265-8 Pathology report addendum in Specimen Narrative” when the Addendum is narrative text. The LOINC code “60569-1 Report addendum.synoptic” is used if the addendum is being reported as a synoptically structured message. Additional Supplemental Report(s) include the “18743-5 Autopsy note,” or an additional and essentially duplicate copy of the primary pathology report but encoded at a different reporting level, a pathology report that identifies multiple cancers or secondary tumors, amendments to reports issued at an earlier time, or other kinds of reports.

For a simple example of an HL7 Cancer Registry message, see [Appendix E, Section E.1](#), Simplest Narrative Report Examples.

2.2.1. Registry Reporting Domain Model

The overall high-level model of the collection of reports that may be contained in the registry message is shown in Figure 2. Note that this domain model covers the subset of cancer pathology studies and reporting that involves collection and construction of the information set to be transmitted to registries using HL7 as per this Guide.

Figure 2: Registry Reporting Domain Model



Descriptions of Entities in Domain Model

Patient: A person who requires or has required medical care. The person may be waiting for this care, may be receiving it, or may already have received it. This is the person from whom a specimen is collected and for whom the diagnostic study is being performed.

Specimen Collection Encounter: This is the event in which a clinician interacts with a patient to obtain a specimen for the pathology study.

Health Care Facility: This can also be thought of as the Ordering Facility. This may be a surgical department, or a hospital that manages a patient and collects specimens for pathological analysis for cancer. It also refers to

the Surgical System and/or the Patient Records System at the facility in which a surgical center that collects specimens is housed. The system receives results and, in many cases, also is capable of sending results.

Specimen: A specimen is a sample taken from a patient. A specimen is a portion or quantity of material for use in testing, examination, or study.

Pathologist (Diagnostician): This is the physician specialist/pathologist who examines and analyzes the specimen(s), identifying and recording observations and findings for the prepared specimen. The Diagnostician/Pathologist also records findings for the case overall, which may not be specimen-specific in a multispecimen case.

Pathology Laboratory: This is the pathology laboratory organizational entity (stand-alone, or in-hospital department) that handles the specimen and prepares it for the pathology study. In most cases it also incorporates an AP (Anatomic Pathology System) and/or LIS (Laboratory Information System) that assigns specimen and accession numbers, and may send and receive HL7 messages. This organization physically handles the specimen, treating and preparing it for analysis.

Laboratory System: This is the computer system at a pathology laboratory that is used for workflow, and to capture from the clinicians the information that will be contained in the pathology report(s). The AP or LIS system at a pathology laboratory must be capable of sending results; some also are capable of receiving results.

Observation: This is information that is collected and supplied by the pathologist/diagnostician.

Pathology Report Collection: This is a “container” for various report documents—e.g., primary report, addendum report, supplemental reports—when the different kinds of reports are transmitted together in a single HL7 message. These are grouped together as a comprehensive collection because they often need to be interpreted together as a set.

HL7 Message Format: A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event. It contains the information making up the report(s) and is formatted as specified in this Guide.

Primary Report: This is the principal pathology report that contains all of the pathologic and prognostic information associated with the patient’s surgical case (specimen(s)). Typically, the primary pathology report is broken into general headings: clinical history, final diagnosis, macroscopic or gross description, microscopic description, and comments.

Cancer Registry: This is the organization that receives detailed pathology results in which cancer is identified, as per statutory regulation.

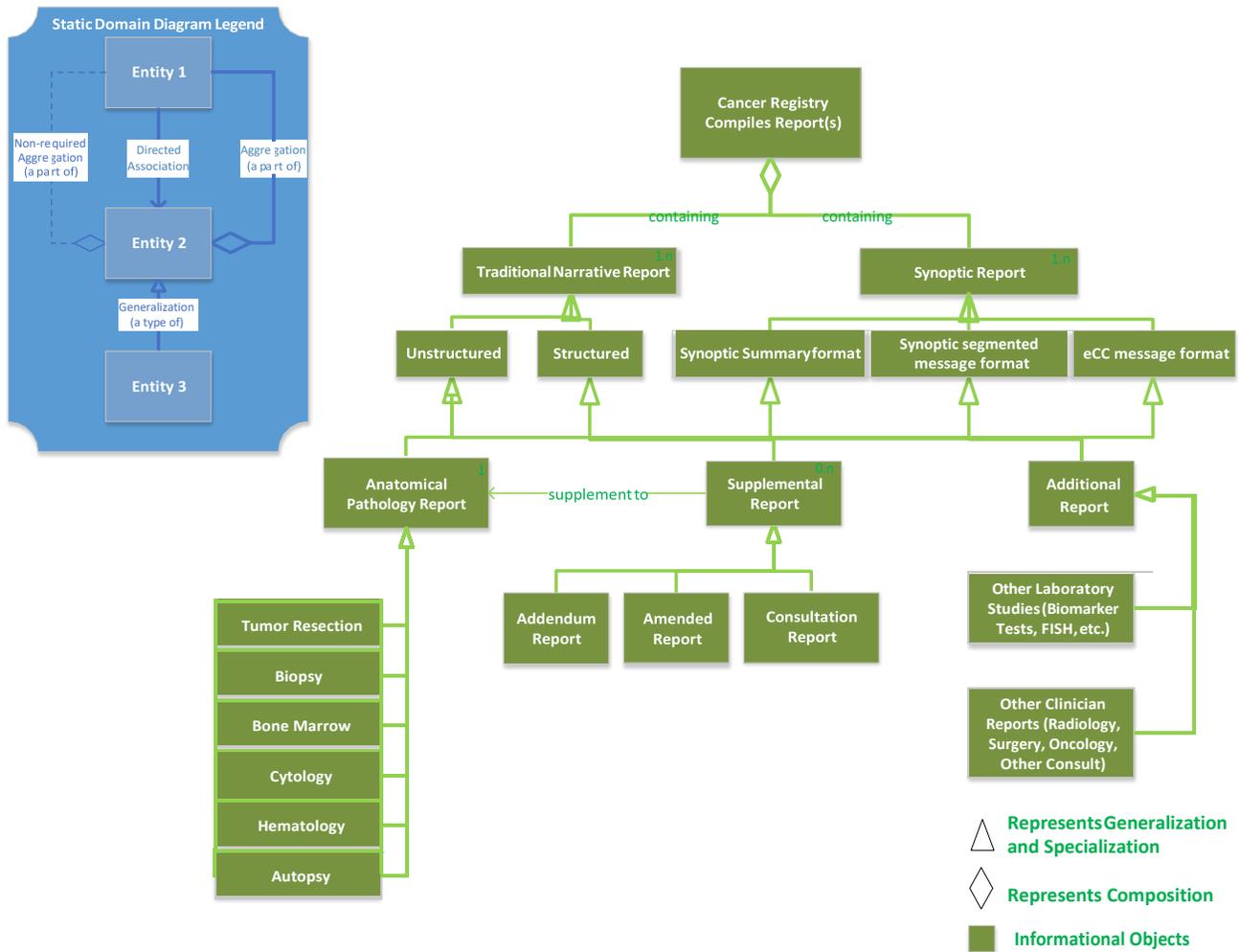
Central Cancer Registry: A type of cancer registry that has all state/provincial/territorial or even national data that can be used for population-based cancer surveillance.

Hospital Cancer Registry: A type of cancer registry that has data specific to that community.

2.2.2. Static Domain Model

The overall high-level model of report types and styles that may be contained in the registry message is shown in Figure 3.

Figure 3: Static Domain Model



Anatomical Pathology Report: This is the report that contains all the pathologic and prognostic information associated with the patient’s surgical case (specimen(s)). Typically, a pathology report is broken into general headings: clinical history, final diagnosis, macroscopic or gross description, microscopic description, and comments.

Supplemental Report: This refers to additional information attached to the pathology report, often after the original report has been issued. These reports may address subsequent testing or stains, comparison with previous specimens, second opinions from other pathologists or laboratories, or a change in diagnosis resulting from re-examining the specimen(s) or sampling new areas within the specimen. These reports may occur within any of the format styles or levels discussed in the prior section, e.g. an addendum could be in a traditional narrative format or a synoptic format. The general LOINC code 22639-9 is deprecated and should not be used in any new or updated interfaces. The LOINC code 35265-8 [Addendum] should be used when a more specific LOINC code is not available. **Note:** A supplemental report is identified by a specific LOINC code in the OBR-4 field, see [Section 1.5.3](#) above for details.

Addendum Report: An addendum report is a type of ancillary report that contains additional information, typically the results of ancillary diagnostic studies completed after the original pathology report has been released. By definition, addendum reports provide additional information that may come from flow

cytometry and immunohistochemistry, as examples. This additional information does not result in a change to the final diagnosis of the original pathology report. If the intent of this ancillary report is to change a previously rendered diagnosis or to change other content, then the report should be titled “Amended Report” (see below). These reports may be appended to the original pathology report and resubmitted to the cancer registry. **Note:** An addendum report is identified by a specific LOINC code in the OBR-4 field, see [Section 1.5.3](#) above for details.

Note: Any type of report may be amended. Corrections are flagged in the OBR-25 and OBX-25 fields (C=Corrected; F=Final).

Amended Report: Amended reports are created to correct errors or discrepancies in the original final report. Typical reasons to create an amended report include correction of typographical errors, modification of the final diagnosis, or documentation of the resolution of a specimen-labeling discrepancy. Any identified type of report may be amended, no special LOINC code is available for Amended Reports. The LOINC code selected is the code for the report that is being amended. **Note: Any type of report may be amended, corrections are flagged in the OBR-25 and OBX-25 fields (C=Corrected; F=Final).**

Consultation Report: A consultation report is a report that provides advice or guidance by a second or additional expert; or a deliberation by pathologists on a diagnosis and/or interpretation of diagnostic test results. This may be a second opinion on the specimen diagnosis. **Note:** A consultation report is identified by a specific LOINC code in the OBR-4 field, see [Section 1.5.3](#) above for details.

Unstructured Narrative Report (also known as a **Text Blob**): The laboratory is not able to separate the pathology report text into sections using LOINC codes (or other codes), such as Clinical History, Gross Observation, Microscopic Observation, Final Dx, Final Dx Text/Path Report Text.

Structured Narrative Report: A cancer pathology report message text in which LOINC codes are used to submit (any or all) of the following pathology report sections: Clinical History, Nature of Specimen, Gross Observation, Microscopic Observation, Final Dx, Comments, Supplemental Reports, etc.

Synoptic Report: A synoptic report includes CAP case summaries and/or biomarker templates. The LOINC code should be Synoptic Report (60568-3) in OBR-4.

Synoptic Summary Message: A synoptic summary message is all question-and-answer pairs reported on separate lines sent in one single OBX Report Template Source=Synoptic Summary. If a template version is available, then report OBX using LOINC 60574-1 (template version).

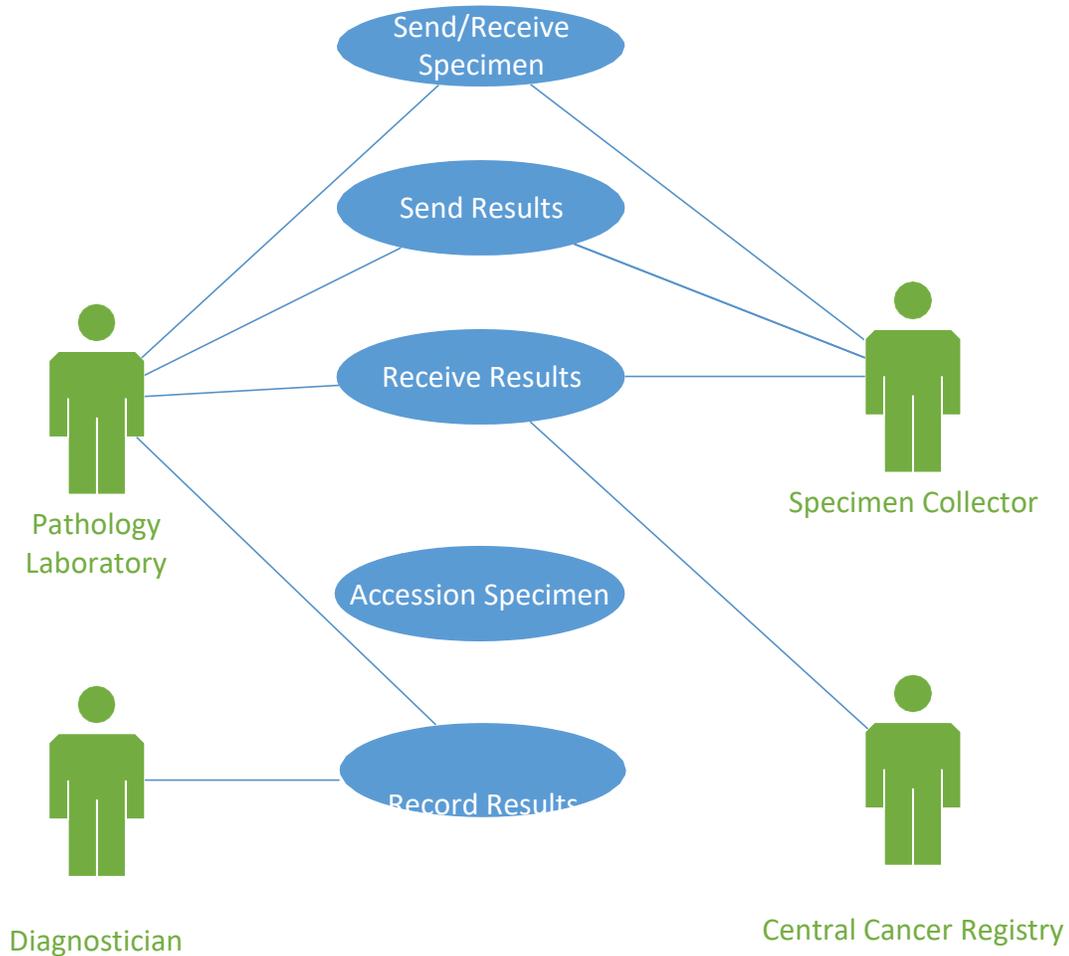
Synoptic Segmented Message Format: The synoptic segmented message format is question-and-answer pairs sent in a separate OBX Report Template Source=Synoptic Segmented Message. If a template version is available, then report OBX using LOINC 60574-1 (template version).

eCC message Format: eCC message format is fully encoded question-and-answer pairs in separate OBX. See [Chapter 3](#) for rules for reporting eCC templates.

2.2.3. Use Case Model

The overall high-level model of actors and processes involved in cancer data reporting is shown in Figure 4.

Figure 4: Use Case Model



2.2.3.1. Actors

Specimen Collector: This may be a surgeon, technician, surgical department, or hospital that manages a patient and collects specimens for pathological analysis for cancer. It also refers to the surgical system and/or the patient records system at a facility that houses a surgical center that collects specimens. The system receives results and in many cases also is capable of sending results.

Pathology Laboratory: This is the pathology laboratory organizational entity (stand-alone, or in-hospital department) that handles the specimen and prepares it for the pathology study. In most cases, it also incorporates an AP and/or LIS that assigns specimen and accession numbers and may send and receive HL7 messages. This organization physically handles the specimen, treating and preparing it for analysis. The AP or LIS system at a pathology laboratory must be capable of sending results; some also are capable of receiving results.

Diagnostician: This is the physician, specialist, or team that examines and analyzes the specimen(s), identifying and recording observations and findings for the prepared specimen. The diagnostician (pathologist) also records findings for the case overall, which may not be specimen-specific in a multispecimen case.

Central Cancer Registry: This is the organization that receives detailed pathology results when cancer is identified, as per statutory regulation.

2.2.3.2. Processes

Send/Receive Specimen: The collected specimen, or specimens, are sent by surgery or other collectors, and received by the pathology lab for a pathology study, along with various identification and labeling information. This process also includes the processing and physical preparation of the specimen blocks and slides.

Accession Specimen: The collected specimen(s) are received for the pathology study, and the identification and labeling information is recorded for later use when sending the results. This process also includes processing the specimen to prepare slides to be read by the pathologist.

Record Results: The observations and findings made by the pathologist and other specialists who participate in the pathology study are captured so they can be incorporated into messages to be generated. This involves both the origination of new results and the revision of existing results.

Send Results: The observations and findings that result from the pathology study are sent and received by the pathology laboratory, the cancer registry, and the originating surgery (hospital and/or clinicians), using the format and encoding rules for the HL7 ORU_R01 message specified in this document.

Receive Results: The HL7 message containing the results is received by a system and optionally acknowledged. It then is processed and stored in the local data store.

2.2.3.3. Use Case Storyboard

Within the health care setting, various business rules are in place that outline the requirements for the sending of clinical information to central cancer registries when cancers are discovered. In general, one or more specimens are collected from a patient and sent to one or more laboratories to be analyzed; the findings are returned to the setting where the study was initiated before the finalized results are reported to the cancer registry. Two use cases are detailed in this section to illustrate different workflows implementing this basic process and the handling of identifiers and reporting for these workflows.

2.2.3.3.1. Single Hospital Specimen Processing and Reporting

A surgical center collects one or more specimens from a patient and sends the specimen(s) to a pathology laboratory, where they are accessioned (labeled with identifiers) and prepared for analysis by the pathologist and other clinicians. The findings from the clinicians are recorded and sent electronically to the cancer registry and back to the surgical center using the message format described in [Section 1.5.2](#). The messages have sufficient (if not complete) labeling information such that both the surgical center and the cancer registry can understand all the pertinent details of the pathology study.

2.2.3.3.2. Multiple Hospital Processing and Reporting with Consults

A surgical center collects one or more specimens from a patient and sends the specimen(s) to a pathology laboratory, where they are accessioned (labeled with identifiers) and prepared for analysis by the pathologist and other clinicians. The findings from the clinicians are recorded and sent electronically to the cancer registry and back to the surgical center using the message format described in [Section 1.5.2](#). In addition, some or all of the specimen(s), along with the results, are forwarded to another pathology laboratory with a consultation request, which asks the second laboratory to perform additional (or repeat) analyses of the specimen(s). The specimen(s) are accessioned again at the consulting laboratory, additional analysis is performed, and new/additional results are recorded. These new results are returned to the requesting laboratory, which may append them to the original report (or append or otherwise reference the new findings) and then sends the combined results back to the requesting facility. Any of these facilities may send the results to the cancer registry. Alternatively, the consulting laboratory may send only its own results directly to the cancer registry, and sufficient identifying information

must be present in such a message to permit the registry to merge the reports from the separate sources. These alternate flows tend to be messaging facility and/or jurisdiction specific, and they may be driven by the messaging capabilities of the participants. See [Appendix E](#) for an example of this.

2.2.4. Dynamic Interaction Model

This section describes in detail two different scenarios for specimen processing and reporting involving different numbers of facilities and different ways of assigning specimen identifiers and accession numbers to the specimens. Each scenario is documented with a process flow diagram, followed by an interaction diagram showing specific sequences of interactions making up the dynamic definition for the scenario. Each of the scenarios is described in a section below. In the interaction diagrams, the interactions that are implemented as HL7 messages are indicated with a dashed line; all other interactions are shown with solid lines.

2.2.4.1. Single Hospital Specimen Processing and Reporting

The case of a flow of information from a single hospital involves the communication between a specimen collector (generally the surgical department of a hospital or ambulatory surgery center), the pathology laboratory, and the cancer registry. The source of the gross observations and findings about the specimen are generated by the pathologist and surgeon for the case and may include observations made by other participants in the process who work in the laboratory. Similarly, the source of the microscopic observations and findings about the specimen are generated by the pathologist for the case and may include observations made by other participants in the process who work in the laboratory.

The following process flow diagram illustrates this simple case, and the sequence of processes and functions that occur, from the collection of the specimen to the transmission of the cancer report, both to the cancer registry and back to the original collecting facility.

In this common case, one or more specimens are removed from a patient at a surgical center, marked “surgery” in the diagram. This is generally, but not always, in a hospital. The specimen(s) are placed in containers with the appropriate fixative and labeled. The appropriate documentation is completed, and the entire package is physically transported to a pathology laboratory, which may or may not be in the same facility. In the laboratory, the case is created in the laboratory’s computer system, and an accession number identifying the received specimen(s) is created and entered. The specimen is processed through a sequence of operations, and slides are created. Observations may be recorded during these processes and saved with the case in the laboratory system.

The slides are then passed to a pathologist, who microscopically examines them and generates a collection of observations and findings. The results of the examination may be in different forms, depending on the technical capabilities and setup of the workflow in the laboratory, and also may involve other staff, such as a transcriptionist who enters dictated observations from the pathologist into the case record on the laboratory system. On completion of the gathering and entering of the observations and findings, this set of case results is sent to the system at the facility where the surgical center is located, employing the HL7 ORU_R01 message that is defined in this specification. By institutional policy, the message also may be sent to the cancer registry.

The system at the facility that houses the surgical center receives the results message, extracts the case results, and stores the information in its own patient record. In some cases, institutional or statutory requirements trigger an additional transmission of the case results to the cancer registry from the system at the surgical center; these policies generally are set so that if the laboratory system sends the results to the cancer registry, the system at the surgical center does not; whereas if the laboratory does not send the results to the cancer registry, they must be sent from the hospital system. This message may or may not have additional case information unavailable to the laboratory and relevant to the documented cancer, from the Patient Record system. On receipt of either one of these messages, the cancer registry maps and processes the information and stores it into the registry’s system databases.

Appendix E provides an example of an HL7 message that is generated from this flow and is sent to the cancer registry.

Figure 5: Process Flow, Single Hospital Specimen Processing and Reporting

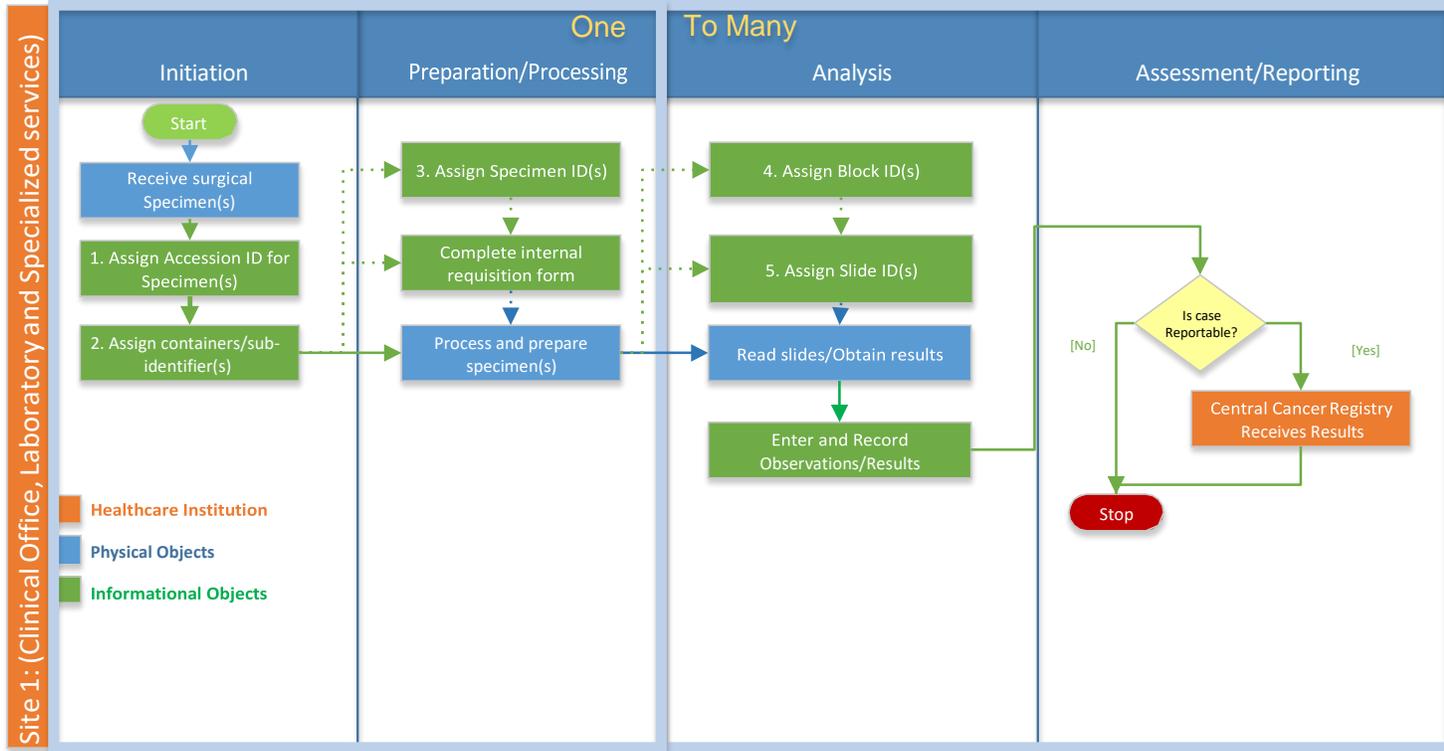
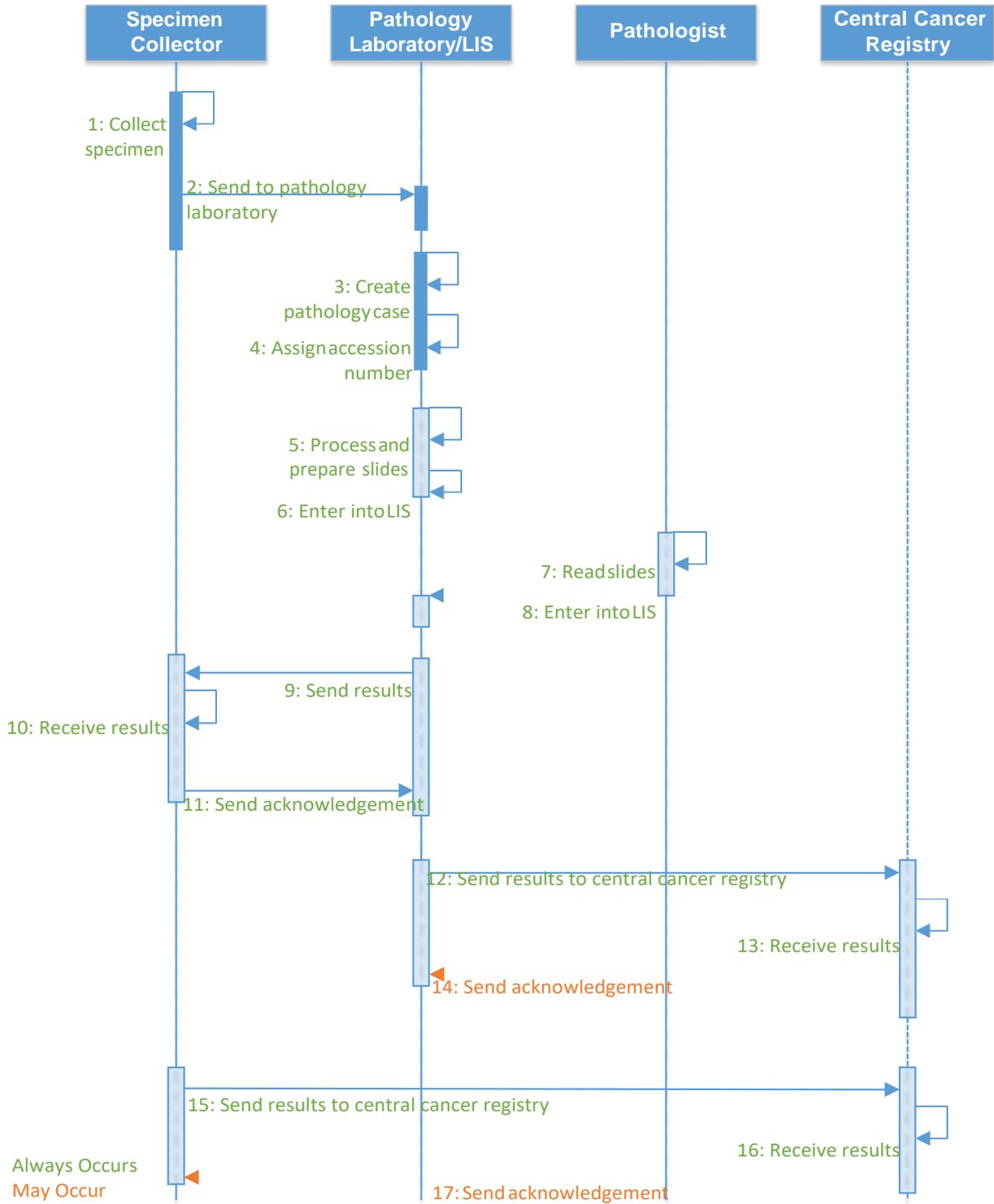


Figure 6: Interactions for Single Hospital Specimen Reporting



Interaction Descriptions

1. **Collect specimen:** A specimen is a piece of tissue or other material collected from a patient that is uniquely identified and delivered to a pathology department or facility for examination. If a specimen is separated into parts, each of those parts that is uniquely identified is also a specimen that has a relationship to the piece from which it was separated. The specimen also may be a collection of several specimens with a single identifier that is uniquely associated with the collection. The material is considered to be “a specimen” if it is a single, discrete, uniquely identified unit that is the subject of one or more steps in the laboratory workflow. A specimen may be a tissue item, tissue section, tissue core, tissue spot, smear sample, touch preparation, dispersion, or similar subject of study. Each of the assigned identifiers is created and tracked by LIS systems and laboratory procedures. The tissue specimen is collected during the surgical procedure and placed into a specimen container with the appropriate fixative. The container is labeled with the patient identifier and a hospital requisition number. A second surgical pathology requisition containing additional details about the patient’s specimen and clinical history also may be sent with the specimen and hospital requisition form. (See the examples in the [E-Path Guidelines](#) document). The information on both requisitions typically is filled out by the surgery department.

2. **Send to pathology laboratory:** The tissue samples, along with the patient identifier and the requisition information, are sent to the pathology laboratory. The information usually is sent non-electronically, but there may be an evolution in the future to integrate electronic ordering systems and synoptic surgical reporting solutions with APLIS systems.

3. **Create pathology case:** The patient identifier and requisition information are entered into the pathology LIS at the pathology laboratory, and the case record is created in the system.

4. **Assign accession number:** An accession ID is assigned to the specimen collection and associated with the case in the LIS. One or more specimen IDs also may be assigned at this point, depending on whether or not the case comprises multiple specimens.

5. **Process and prepare slides:** The staff at the pathology laboratory will process the specimen, create the blocks, and prepare and label the slides to be read by the pathologist. Typically, institutions have standard protocols for the stains and other processing based on the tissue types. In the most common case, a laboratory professional, either a pathology assistant or the pathologist, examines the specimen or the collection and dictates their gross observations. Further observations are dictated as the specimen is sliced or otherwise divided into portions to be processed for slide preparation. This usually is paraffin blocking, but also may involve cryogenic or other operations. These dictated observations usually are referred to as “gross findings” or “gross observations.” After the “grossing” process is complete, the prepared portions of the specimen(s) are transferred to other laboratory personnel, who perform the slicing, mounting, and staining of the tissue and finalize the slides. The slides are almost always labeled with individual identifying information. Generally no dictated observations are entered into the result record that documents the operation of staining and slide preparation. Occasionally, additional iterations of processing and preparing slides for additional studies may be triggered at this time.

6. **Enter into LIS:** The gross observations are entered into the case record in the pathology LIS. This may be done at the time of gross observation with the use of voice recognition software or may be dictated by either the pathologists or pathologist’s assistant and later transcribed into the LIS by a transcriptionist. Either way, these observations are made available to the pathologist when the slides are read.

7. **Read slides:** The slides are made available to the pathologist, together with the identification information needed to access the gross observations and any patient or surgical information that was received from surgery with the specimen. The pathologist examines the slides and records their

observations and findings. Additional iterations of processing and preparing slides for additional studies may be triggered at this time.

8. Enter into LIS: The observations and findings are entered into the pathology LIS as results for the report, and the system groups and assembles the separate observations into the final report. This may be done by separate staff using dictation from the pathologist, or may be entered directly into the system by the pathologist or other staff. Regardless of where the reading is done, the results are entered into the system at the pathology laboratory. The report then goes through various stages of error checking, validation, and final signing to advance to a complete status, and then it is made available for subsequent operations. The details and timing of these operations are not within the scope of the cancer registry reporting described in this document.

9. Send results: The case information that has been recorded in the laboratory system is converted into an HL7 ORU_R01 message, as specified in this Guide, and sent to the surgeon and other care providers, such as the primary care physician or members of a cancer care team.

10. Receive results: The results sent by the pathology laboratory are received in the system at surgery, unbundled, and processed into the system there.

11. Send acknowledgment: On successful receipt of the HL7 message, the system that receives the HL7 message at surgery sends an acknowledgment to the pathology laboratory messaging system. Note that in every case that HL7 messages are transmitted, a simple General Acknowledgment (ACK) message is used to acknowledge receipt of the message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this is always performed.

12. Send results to central cancer registry: The case information that has been recorded in the system at the laboratory is converted into an HL7 ORU_R01 message, as specified in this Guide, and sent to the central cancer registry. Although the clinical information contained in this report is the same as that sent to surgery, the layout or formatting may be different. Note that this is optional, and is per local policy.

13. Receive results: The results are unbundled from the message and stored at the central cancer registry.

14. Send acknowledgment: The system that receives the HL7 message at the central cancer registry sends an ACK message back to the pathology laboratory messaging system on successful receipt of the HL7 message. Note that in every case that HL7 messages are transmitted, the ACK message is used to acknowledge receipt of the message; however, not all central cancer registries have implemented this at the current time. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this is always performed. Note that this acknowledges the communication of the message; using standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.

15. Send results to central cancer registry: The case results information that was received from the laboratory and saved in the local system at surgery is converted into an HL7 ORU_R01 message, as specified in this Guide. It may have additional information that was not available to the laboratory. This message is sent if the policy indicates that the system at the facility where the surgical center is located should send the results to the cancer registry rather than the laboratory.

16. Receive results: The central cancer registry receives the HL7 message containing the results via the HL7 interface, subjecting the message to any normal processing for that facility. The results are then stored in the central cancer registry database. Alternatively, the central cancer registry may have received results from the pathology laboratory (see interaction #11 above). Policy usually establishes that the

results are received either from the laboratory or the hospital information system, but not both. The results set from the hospital may or may not have additional information that the laboratory did not generate.

17. Send acknowledgment: On successful receipt of the HL7 message, the system that receives the HL7 message at the central cancer registry sends an ACK message to the messaging system at the facility where the surgical center is located.

2.2.4.2. Multiple Hospital Specimen Processing and Reporting with Consults

Specimen processing cases often are more complex than what was described in the section above and involve multiple facilities and institutions. In this scenario, multiple facilities are involved in the analysis of the specimens, and each generates a portion of the final report. More than one of these institutions might report to the central cancer registry. Generally, not all information is forwarded to the downstream systems. Thus, linking the portions of the report that are received at the central cancer registry may be challenging.

Figure 7 illustrates a typical scenario such as this, in which an additional pathologist analyzes the case and generates a second report on the same case, at a different time, and often from a different facility. This involves a set of issues around the identifiers of the specimen and the report, as each system involved accessioned the specimen prior to beginning work on the case. These identifiers must be appropriately handled so that confusion in complex cases with multiple different specimens from the same patient can be unambiguously interpreted.

The resulting information sent must incorporate the information for one patient and one specimen, and contain one patient identifier, one or two specimen identifiers, and different accession numbers, and two reports. Note that the second laboratory sends only its single report, but the first laboratory may or may not send the annotated report, the consult report, or the original report without the consult section.

Site 1 (Clinical Office) has a surgical center, where the specimen is collected in a surgical resection procedure, and a laboratory. The specimen is sent to the laboratory for an anatomical study, where it is accessioned and assigned one or more identifiers. Site 1 (Clinical Office) does not have molecular analysis capability, so the specimen is transported to Site 2 (Laboratory), which receives and accessioned the specimen in its pathology laboratory. Site 2 (Laboratory) has inconclusive results and sends the specimen to Site 3 (Laboratory) for further testing. The specimen is again accessioned in the Site 3 (Laboratory) system, which then captures any additional results. The system at Site 3 (Laboratory) assembles the HL7 registry report message and sends it to both the registry and to the system at Site 2 (Laboratory). Site 2 (Laboratory) forwards the report back to Site 1 (Clinical Office), where the specimen was collected and where the patient records system links the reports to the original report and the remainder of the patient record. One key challenge for tracking and linking all the information in such a scenario is that the end result has one patient with one patient identifier and one specimen, but that specimen may have three or more specimen identifiers because its journey can continue indefinitely.

Interactions for Multiple Site Specimen Processing and Reporting

Some institutions participate in networks of facilities that collaborate to produce a final cancer report. These often have very complex flows of specimens and reports (both paper and electronic), collected and sent by independent laboratory systems. To illustrate a typical case, Figure 8 shows some of this complexity, and the flows that require the SPM-30 and SPM-31 so that reassigned accession numbers and specimen IDs can be linked properly when received by the central registry.

Figure 7: Process Flow, Multiple Hospital Specimen Processing and Reporting with Consults

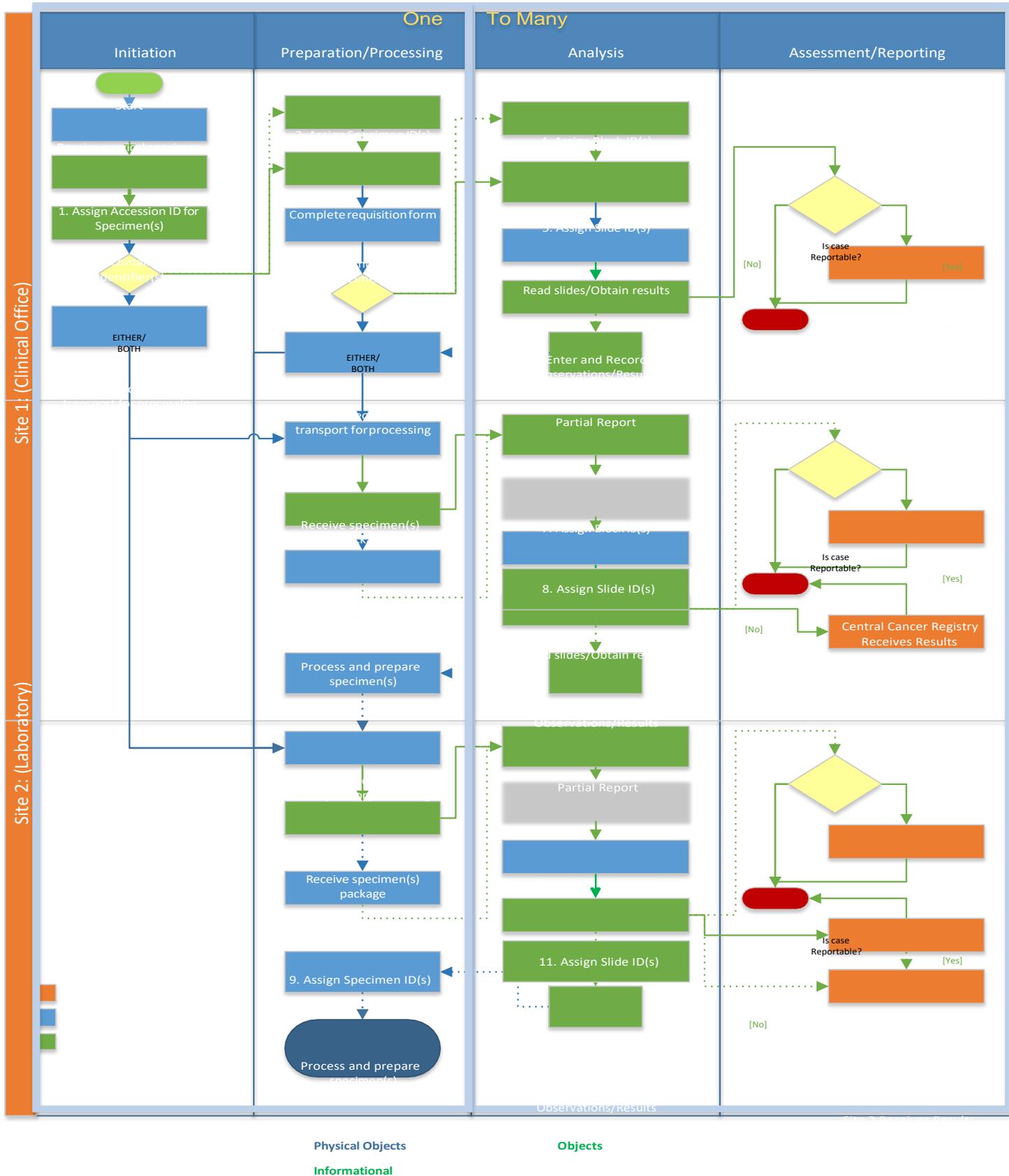
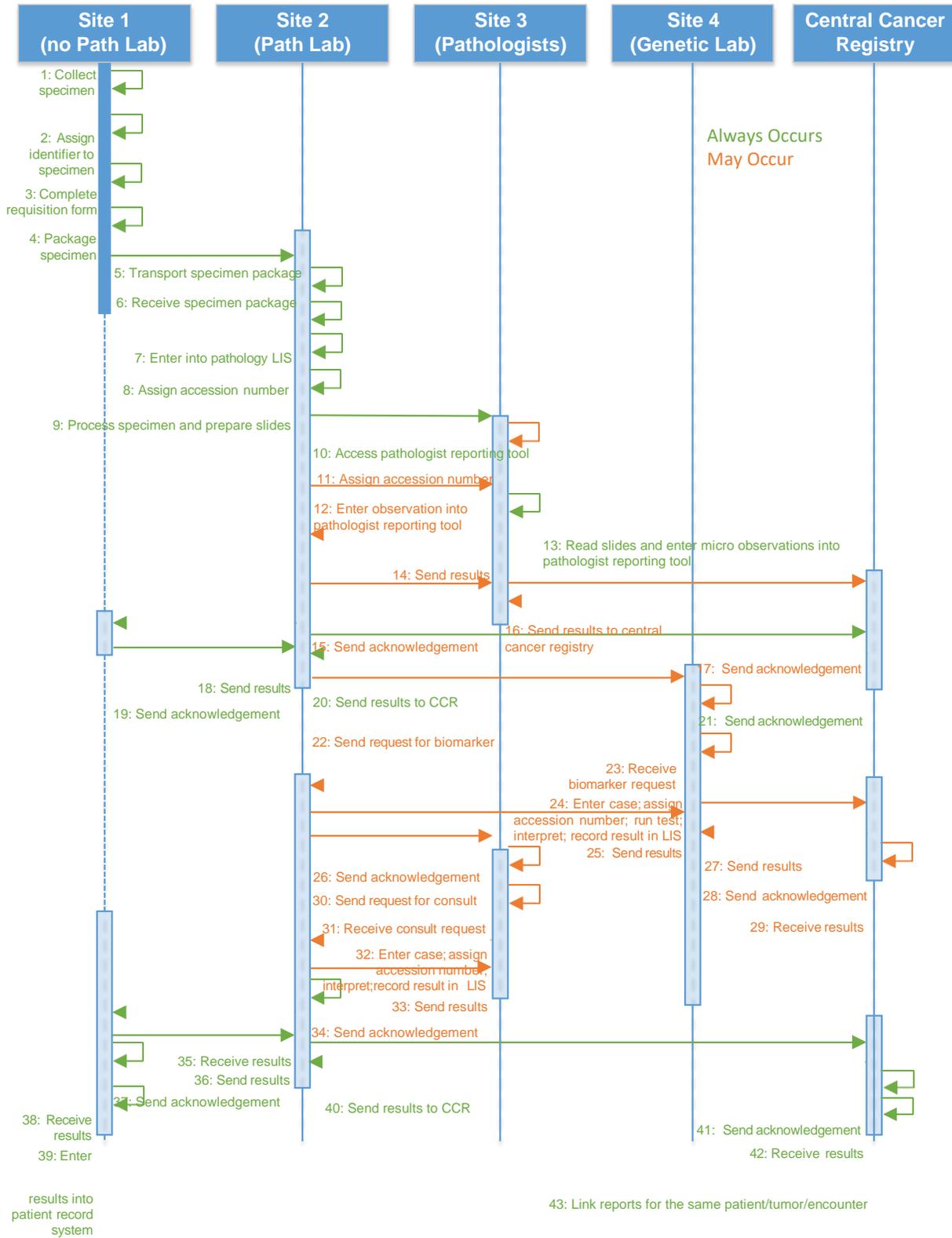


Figure 8: Interactions for Multiple Hospital Specimen Reporting



Interaction Descriptions

1. **Collect specimen**: During a procedure, tissue is collected and labeled with both the patient identifier and a requisition number. The requisition information is typically filled out in surgery at Site 1 (no Path Lab).
2. **Assign identifier to specimen**: In some cases that have multiple specimens, an identifier with related clinical information about each individual specimen may be assigned as a specimen identifier by the collecting facility. This identifier is often used for laterality or location information relevant to the specimen collection.
3. **Complete requisition form**: This set of documentation that includes the patient identifier and any specimen identifiers also may include other relevant clinical information about the case (such as diagnosis or history); this is completed by the staff at the collecting facility.
4. **Package specimen**: The specimen container(s) is physically packaged with the requisition forms and documentation for transport to the pathology laboratory.
5. **Transport specimen package**: The specimen package is physically transported from Site 1 (no Path Lab) to Site 2 (Path Lab).
6. **Receive specimen package**: The specimen is examined for damage and completeness upon arrival at Site 2 (Path Lab), and necessary transport acknowledgment is performed.
7. **Enter into Pathology LIS**: The patient identifier, requisition number, associated received clinical information, and other tracking information is entered into the pathology LIS at Site 2 (Path Lab) to create the new case.
8. **Assign accession number**: A unique number associated with this specimen receipt and this case is created by Site 2 (Path Lab) and entered into the system with the other information.
9. **Process specimen and prepare slides**: The staff at Site 2 (Path Lab) processes the specimen, creates the blocks, and prepares and labels the slides to be read by the pathologist. Note that the “gross” observations may be recorded at this time as well by the staff performing the gross analysis. Typically, institutions have standard protocols for the stains and other processing based on the tissue types. In the most common case, a laboratory professional, perhaps a pathology assistant, examines the specimen or the collection and dictates observations about it. Further observations are dictated as the specimen is sliced or otherwise divided into portions to be processed for slide preparation. This usually is paraffin blocking, but may also involve cryogenic or other operations. On completion of this preparation and examination step, there is a set of dictated observations that are referred to as “gross findings” or “gross observations”; in many cases, this information is entered into the LIS by a transcriptionist, and these observations are made available to the pathologist when the slides are read. After the “grossing” operation is complete, the prepared portions of the specimens are transferred to other laboratory personnel who perform the slicing, mounting, and staining of the tissue, and finalization of the slides. The slides are almost always labeled with individual identifying information. Generally, no dictated observations are entered into the result record during this operation. On completion, the slides are sent to the pathologist to be read, together with the necessary identification information for the pathologist to access the gross observations and any patient or surgical information that was received from surgery with the specimen.
10. **Access Pathologist Reporting Tool**: Site 2 (Path Lab) accesses the pathologist reporting tool. The pathology information capture and reporting mechanism at a different facility is accessed for use. This

may be because the laboratory does not have its own pathology reporting system and is using a system shared among several laboratories, or it may be using one with capabilities that the local facility does not have. Several technical mechanisms—including remote login and web access—may be used for this purpose. In this scenario, the computer system hosting the pathology documentation tooling is in a different facility managed by a different organizational entity than the pathology laboratory processing the specimen. Note that although Site 2 (Path Lab) has an LIS computer system, in this scenario Site 2 does not have the software to document pathology cases locally. This interaction creates the new case in the remote system.

11. Assign accession number: As the case is being entered into the system at Site 3 (Pathologists), a new accession number is assigned. Note that the physical specimens, and the staff generating the information, remain at Site 2 (Path Lab).

12. Enter observation(s) into Pathologist Reporting Tool: Making use of the pathology documenting and reporting tools at Site 3 (Pathologists), the staff at Site 2 (Path Lab) enters the gross observations for the case into the pathologist reporting tool running on the computer system at Site 3 (Pathologists). These observations will be available for the pathologist later, when the slides are read.

13. Read slides and enter micro observations into Pathologist Reporting Tool: The slides are made available to Site 3 (Pathologists), where staff examine them and create the observations and findings. Note that additional iterations of processing and preparing slides for additional studies may be triggered at this time. Using the reporting software at Site 3 (Pathologists) accessed over the network remotely, staff enter the observations and findings from reading the slides into the case record. At this time Site 3 (Pathologists) can also review the gross observations that were entered into the tool earlier on this case.

14. Send results: The case information that has been recorded at Site 3 (Pathologists) is bundled into an HL7 message and sent to Site 2 (Path Lab), where the information is stored in the LIS. Note that in this scenario, the LIS at Site 2 (Path Lab) is able to both send and receive HL7 result messages.

15. Send acknowledgment: The Site 2 (Path Lab) system that receives the HL7 message may or may not send an ACK message back to the pathology laboratory messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; under standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.

16. Send results to Central Cancer Registry: Site 3 (Pathologists) sends results to the Central Cancer Registry. The case results information that was received from the laboratory and saved in the local system at surgery is converted into an HL7 ORU_R01 message, as specified in this Guide. It may have additional information that was not available to the laboratory. This message is sent if the policy indicates that the system at the facility where the surgical center is located should send the results to the cancer registry rather than the laboratory.

17. Send acknowledgment: The Central Cancer Registry sends an ACK message to Site 3 (Pathologists). The system that receives the HL7 message may or may not send an ACK message back to the pathology laboratory messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; under standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.

18. Send results: The case information that has been recorded at Site 3 (Pathologists) is bundled into an HL7 message or forwarded and sent to the LIS at Site 1 (no Path Lab) from Site 2 (Path Lab), where the information is stored in the LIS. Note that in this scenario, the LIS at Site 1 (no Path Lab) is able to both send and receive HL7 result messages.

19. Send acknowledgment: The Site 1 (no Path Lab) system that receives the HL7 message sends an ACK message back to the Site 2 (Path Lab) messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; under standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.

20. Send results to central cancer registry: The case results information that was received from the Site 3 (Pathologists) and saved in the local system at Site 2 (Path Lab) is converted into an HL7 ORU_R01 message, as specified in this Guide, and sent to the Central Cancer Registry. It may have additional information that was not available to the laboratory.

21. Send acknowledgment: The Central Cancer Registry system that receives the HL7 message may or may not send an ACK message back to the Site 2 (Path Lab) messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; under standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.

22. Send request for biomarker: The pathologist at Site 2 (Path Lab), upon review of the case, requests molecular analysis from a pathologist at Site 4 (Genetic Lab). The case information that was stored in the LIS in Site 2 (Path Lab) is bundled into an HL7 message and transmitted to Site 4 (Genetic Lab), where the information is stored for later access. Note that, in many circumstances, this information is transmitted to Site 4 (Genetic Lab) manually (non-electronically), rather than in an HL7 message. The slides for the case are packaged with the request and tracking paperwork and transported to Site 4 (Genetic Lab). At the current time, these requests are not handled by HL7 messaging, which is outside the scope of this specification. This scenario assumes that the request is sent by other mechanisms.

23. Receive biomarker request: The biomarker request and the blocks that have been transmitted from Site 2 (Path Lab) to Site 4 (Genetic Lab) for the case are received, and any necessary acknowledgments for both the paperwork and the set of slides are sent.

24. Enter case; assign accession number; run test; interpret; record result in LIS: The request is entered into the LIS at Site 4 (Genetic Lab), where a new case is created. The results previously received by Site 4 (Genetic Lab) from Site 2 (Path Lab) for this case are retrieved and linked to the new case. Generally, either the linking is performed manually or the linkage between the pathology report previously received and the newly created case is verified as valid. As part of the institutional workflow at Site 4 (Genetic Lab), a new accession number is assigned to the case and specimen(s) for the newly created case. The pathologist interprets the results of the analysis, and the results for the case are entered into the LIS at Site 4 (Genetic Lab).

25. Send results: The combined report from Site 4 (Genetic Lab) includes the original results from Site 2 (Path Lab) processing and is entered on the documentation system at Site 3 (Pathologists), along with the molecular results from Site 4 (Genetic Lab), and is bundled into an HL7 message and sent back to Site 2 (Path Lab).

26. Send acknowledgment: The Site 2 (Path Lab) system that receives the HL7 message may or may not send an ACK message back to the Site 4 (Genetic Lab) messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; under standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.
27. Send results: The information for the case at Site 4 (Genetic Lab) is bundled into an HL7 message and transmitted to the Central Cancer Registry, along with the received patient identifier and any specimen IDs and accession numbers that were received. The new accession number from Site 4 (Genetic Lab) also is transmitted with this message. Note that this consultation report may consist of only the information generated at Site 4 (Genetic Lab), or it may be appended to the full report that was originally received from Site 2 (Path Lab) in step 17, above.
28. Send acknowledgment: The Central Cancer Registry system that receives the HL7 message may or may not send an ACK message back to the Site 4 (Genetic Lab) messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; under standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.
29. Receive results: The Central Cancer Registry receives the results of the molecular study from Site 4 (Genetic Lab) and links the report to any original case information.
30. Send request for consult: The pathologist at Site 2 (Path Lab), upon review of the case, requests a consult from Site 3 (Pathologist). The case information that was stored in the LIS in Site 2 (Path Lab) is bundled into an HL7 message and transmitted to Site 3 (Pathologist), where the information is stored for later access. Note that, in many circumstances, this information is transmitted to Site 3 (Pathologist) manually (non-electronically), rather than in an HL7 message. The slides for the case are packaged with the request and tracking paperwork and transported to Site 3 (Pathologist). At the current time, these requests are not handled by HL7 messaging, which is outside the scope of this specification. This scenario assumes that the request is sent by other mechanisms.
31. Receive consult request: The consult request and the slides that have been transmitted from Site 2 (Path Lab) to Site 3 (Pathologist) for the case are received, and any necessary acknowledgments for both the paperwork and the set of slides are sent.
32. Enter case; assign accession number; interpret; record result in LIS: The request is entered into the LIS at Site 3 (Pathologist), where a new case is created. The results previously received by Site 3 (Pathologist) from Site 2 (Path Lab) for this case are retrieved and linked to the new case. Generally, either the linking is performed manually or the linkage between the pathology report previously received and the newly created case is verified as valid. As part of the institutional workflow at Site 3 (Pathologist), a new accession number is assigned to the case and specimen(s) for the newly created case. The pathologist interprets the observations, and results for the case are entered into the LIS at Site 3 (Pathologist).
33. Send results: The combined report—including the original results from Site 2 (Path Lab), the molecular results from Site 4 (Genetic Lab), and the consult from Site 3 (Pathologist)—is bundled into an HL7 message and sent from Site 3 (Pathologist) to Site 2 (Path Lab).

34. Send acknowledgment: The Site 2 (Path Lab) system that receives the HL7 message may or may not send an ACK message back to the Site 3 (Path Lab) messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; under standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.

35. Receive results: Site 2 (Path Lab) receives the results of the consultation from Site 3 (Pathologist) and links the report to any original case information.

36. Send results: The combined report—including the original results from Site 2 (Path Lab), the molecular results from Site 4 (Genetic Lab), and the consult from Site 3 (Pathologist)—is bundled into an HL7 message and sent back to Site 1 (no Path Lab).

37. Send acknowledgment: The Site 1 (no Path Lab) system that receives the HL7 message sends an ACK message back to the pathology laboratory messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; using standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.

38. Receive results: The patient medical record system at Site 1 (no Path Lab) receives the results of the combined consultation study from Site 3 (Pathologist), the molecular analysis from Site 4 (Genetic Lab), and the pathology study from Site 2 (Path Lab).

39. Enter results into Patient Record System: The results received from Site 2 (Path Lab) are entered into the patient medical record system at Site 1 (no Path Lab).

40. Send results to the Central Cancer Registry: Site 2 (Path Lab) transmits the consultation report, along with any other information to be sent according to institutional policies, to the Central Cancer Registry. This report must contain all identifiers, such as the specimen IDs and accession numbers assigned by the various facilities that participated in generating portions of the result information. Note that under some certain circumstances, part or all of the combined results might be in a physical form, such as a letter (non-electronic).

41. Send acknowledgment: The Central Cancer Registry system that receives the HL7 message sends an ACK message back to the Site 2 (Path Lab) messaging system on successful receipt of the HL7 message. In the other interaction diagrams in this chapter, this interaction is not shown explicitly to simplify the diagrams, but this acknowledgment is always performed. Note that this acknowledges the communication of the message; under standard HL7 acknowledgment protocol, the data received may not yet have been committed to the destination database.

42. Receive results: The Central Cancer Registry receives the results of the combined reports from Site 2 (Path Lab) and links the report to any original case information.

43. Link reports for the same patient/tumor/encounter: On receipt of the full report from Site 2 (Path Lab), the Central Cancer Registry must be able to link all the result reports on this case and specimen(s) that have been received from the various facilities.

2.2.5. Registry Use Case

For the Central Cancer Registry and Site 1 to link all of these reports together, certain business rules for when and how patient identifiers and specimen identifiers must be populated, and by whom, must be followed.

The SPM-30 field SHOULD hold the original specimen identifier across every laboratory record transmitted downstream, so that the registries can link independently received reports to the original surgical specimen. If the original specimen identifier is received with the specimen, then the receiving laboratory MUST save this original identifier and communicate it to any downstream laboratory. At a minimum, the reporting laboratory's assigned identifier and the original specimen identifier across ALL laboratories must be included in a report to a registry.

The diagrammed use case in Figure 9 shows the recommended use of specimen identifiers (OBR-2, OBR-3, SPM-2, SPM-3, SPM-4, SPM-5, SPM-30, and SPM-31), date/time stamps (OBR-7, OBR-14, OBR-22, OBX-14, and SPM-17), and provider identifiers (MSH-4, MSH-6, OBR-16, OBR-32, ORC-21, PV1-7, and PV1-8) for each of the information flows between the facilities in this scenario.

A surgical facility removes tissue from a patient, places the tissue into a specimen container, labels the specimen container (OBR-2), and sends it to facility **BLUE** for anatomical pathology analysis.

Facility **BLUE** sends a block to facility **GREY** for Estrogen Receptor (ER) Status/Progesterone Receptor (PgR) Status and any subsequent biomarker testing if applicable.

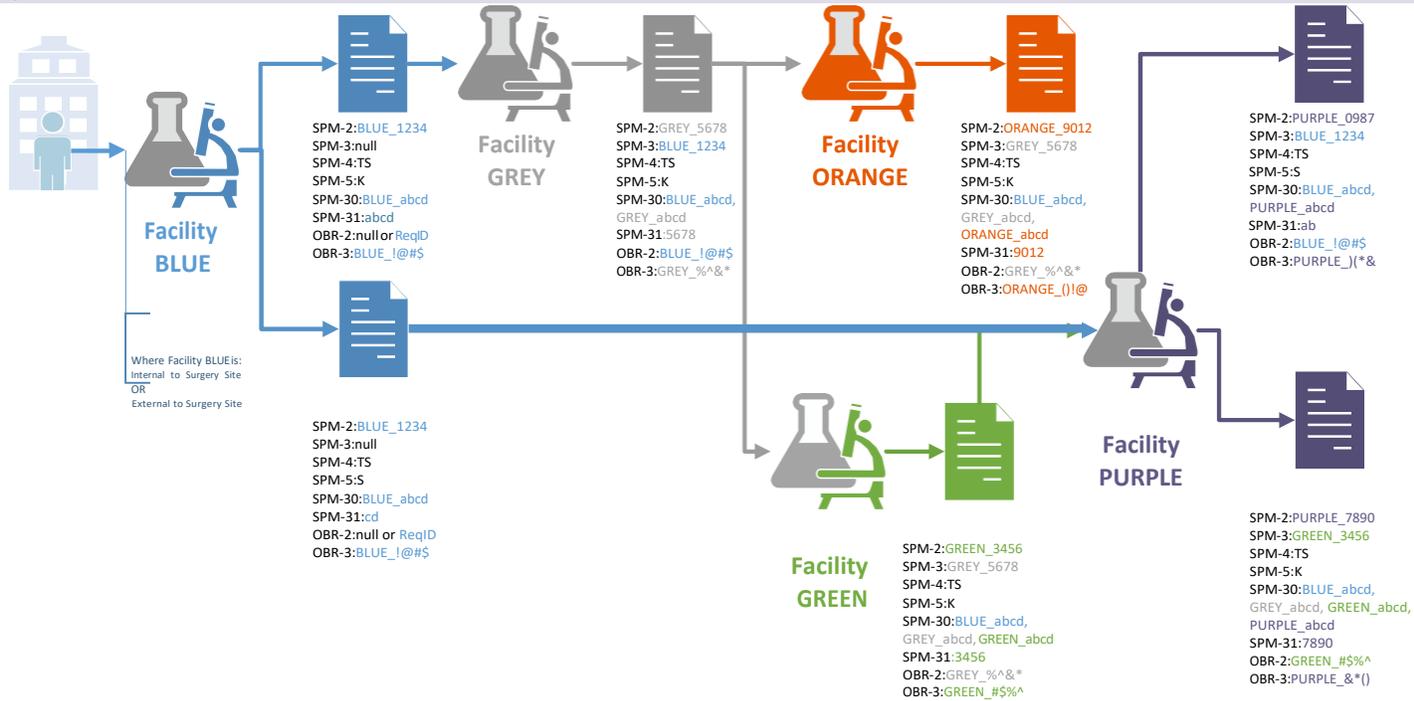
Facility **BLUE** also sends a slide to facility **PURPLE** for a consult on diagnosis.

Facility **GREY** then sends blocks to facility **ORANGE** for HER2 by immunohistochemistry (IHC) testing and to facility **GREEN** for HER2 (ERBB2) by in situ hybridization (ISH) testing

Facility **GREEN** has equivocal results for HER2 (ERBB2) by in situ hybridization (ISH), so they send the block to facility **PURPLE** for a secondary/confirmation HER2 (ERBB2) by in situ hybridization (ISH) test.

Figure 9: Registry Use Case Specimen Identifiers

Specimen Identifiers



Message 1a: (Anatomical Pathology Report – Breast, NOS)

```
MSH||AWESOME LABS^BLUE^CLIA||<null or GREY>
ORC|||||||||||||||||BLUE

OBR|1|<null or Reqid>|BLUE_!@#|$60568-3^Synoptic Report^LN||Jan 1||||Jan 2||Dr.B||||Jan 3|||||||Dr.BLUE
SPM|1|BLUE_1234|TS|K|||||||Jan 1|||||||BLUE_abcd|abcd
OBX|1|ST|60573-3^Report template source^LN|CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F||Jan 3
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing mastectomy)^CAPECC|||||F||Jan 3
Etc.

PV1|||||Dr.A|Dr.C
```

Message 1b: (Anatomical Pathology Report – Breast, NOS)

```
MSH||AWESOME LABS^BLUE^CLIA||<null or PURPLE>
ORC|||||||||||||||||BLUE

OBR|1|<null or Reqid>|BLUE_!@#|$60568-3^Synoptic Report^LN||Jan 1||||Jan 2||Dr.B||||Jan 3|||||||Dr.BLUE
SPM|1|BLUE_1234|TS|S|||||||Jan 1|||||||BLUE_abcd|cd
OBX|1|ST|60573-3^Report template source^LN|CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F||Jan 3
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing mastectomy)^CAPECC|||||F||Jan 3
Etc.

PV1|||||Dr.A|Dr.C
```

Message 2a: (Biomarker – ER/PR)

```
MSH|||BETTER THAN AWESOME LABS^GREY^CLIA||<null or ORANGE>
ORC|||||BLUE

OBR|1|BLUE !@#$GREY %^&*|60569-1^Addendum Report.Synoptic^LN||Jan 1||||Jan 4||Dr.B||||Jan 5|||||Dr.GREY
SPM|1|GREY_5678|BLUE_1234|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd|5678
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^ BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F||Jan 3
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC||31160.1000043^Estrogen Receptor (ER) Status (Note
A)^CAPECC|||||F||Jan 5

Etc.

PV1|||||Dr.A|Dr.C
```

Message 2b: (Consult on Anatomical Pathology Report)

```
MSH|||ON PAR WITH BETTER THAN AWESOME LABS^PURPLE^CLIA||<null>
ORC|||||BLUE

OBR|1|BLUE !@#$PURPLE )(*&|60571-7^Consultation Note Synoptic^LN||Jan 1||||Jan 4||Dr.B||||Jan 5|||||Dr.PURPLE
SPM|1|PURPLE_0987|BLUE_1234|TS|S|||||Jan 1|||||BLUE_abcd, PURPLE_abcd|ab
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F||Jan 5
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing
mastectomy)^CAPECC|||||F||Jan 5

Etc.

PV1|||||Dr.A|Dr.C
```

Message 3a: (Biomarker ISH Testing – Indeterminate Results)

```
MSH|||OK LABS^GREEN^CLIA||<null or PURPLE>
ORC|||||BLUE, GREY

OBR|1|GREY %^&*|GREEN #$$^|60569-1^Report Addendum.Synoptic^LN||Jan 1||||Jan 6||Dr.B,Dr.GREY||||Jan 7|||||Dr.GREEN
SPM|1|GREEN_3456|GREY_5678|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, GREEN_abcd|3456
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^ BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F||Jan 7
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC||31166.1000043^HER2 (ERBB2) by In Situ Hybridization
(ISH)^CAPECC|||||F||Jan 7

Etc.

PV1|||||Dr.A|Dr.C
```

Message 3b: (Biomarker IHC Testing)

```

MSH|||JUST A LAB^ORANGE^CLIA||<null>
ORC|||||BLUE, GREY

OBR|1|GREY_%^&^ORANGE_(!@|60569-1^Report Addendum.Synoptic^LN||Jan 1||||Jan 6||Dr.B,Dr.GREY||||Jan
7|||||Dr.ORANGE
SPM|1|ORANGE_9012|GREY_5678|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, ORANGE_abcd|9012
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^ BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F||Jan 7
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC ||31163.1000043^HER2 by Immunohistochemistry
(IHC)^CAPECC|||||F||Jan 7

                                Etc.

PV1|||||Dr.A|Dr.C

```

Message 4: (Biomarker ISH Testing – Positive Results)

```

MSH|||ON PAR WITH BETTER THAN AWESOME LABS^PURPLE ^CLIA||<null>
ORC|||||BLUE, GREY, GREEN

OBR|1|GREEN_#%$^PURPLE_&^(!|60569-1^Report Addendum.Synoptic^LN||Jan 1||||Jan 8||Dr.B,Dr.GREY,Dr.GREEN||||Jan
9|||||Dr.TAUPE
SPM|1|PURPLE_7890|GREEN_3456|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, GREEN_abcd, PURPLE_abcd|7890
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^ BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F||Jan 9
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC ||31166.1000043^HER2 (ERBB2) by In Situ Hybridization (ISH)^CAPECC
|||||F||Jan 9

                                Etc.

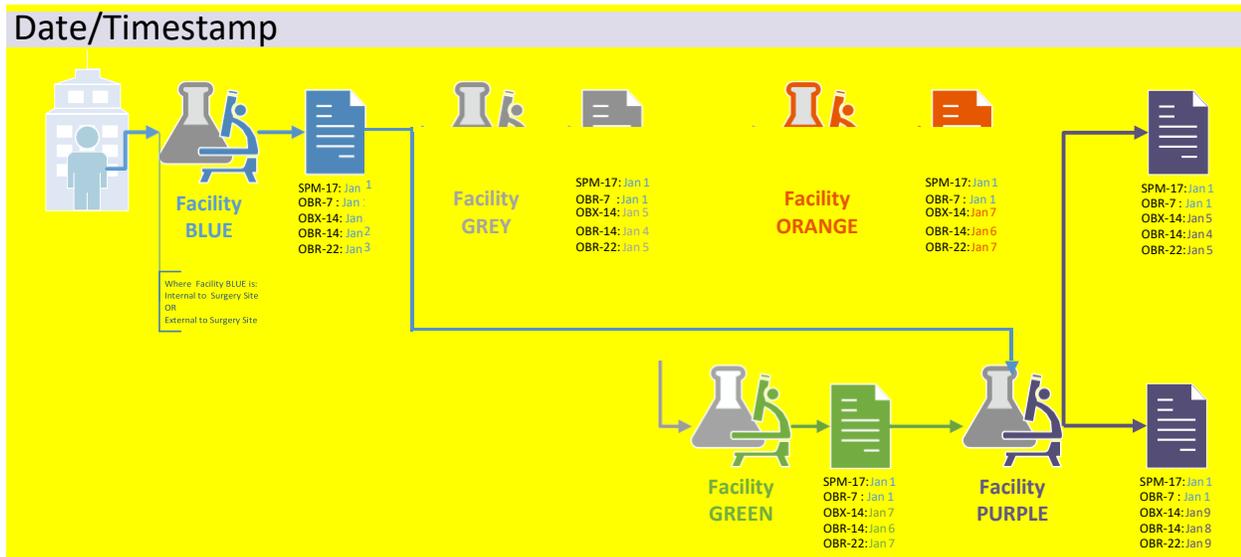
PV1|||||Dr.A|Dr.C

```

Patient-derived specimens may be divided into multiple parts before or after arriving at the primary receiving facility (Blue). The primary facility (Blue) may send one or more of these specimen parts to downstream facilities (e.g., Grey). The left-to-right arrows in the figure indicate upstream facilities sending specimen parts to downstream receiving facilities. Downstream facilities may send specimens to even more downstream facilities (e.g., Orange, Green, and Purple).

Each receiving facility may assign its own values (date/times) to the received specimen and/or the parts that it generates. As shown by the color-coded diagram in Figure 10, the HL7 fields containing those identifiers are color-coded according to the facility that created those values. For example, facility Orange assigned new values for OBR-14 and it preserved the values from facility Blue for OBR-7 and SPM-17. Note that facility Orange did not preserve the values from facility Grey (OBX-14, OBR-14, and OBR-22, which are relevant only to the local facility generating the report).

Figure 10: Registry Use Case Date/Timestamp



Date/Time fields are of vital importance to cancer registries, especially in deriving the diagnosis date. In the example above, facility Blue will populate SPM-17 (Specimen Collection Date/Time), and SPM-17 will remain unchanged throughout the chain of transmissions. Specimen collection time is the earliest time in the medical record that documents show when the specimen was removed. This value will be the same value populated in OBR-7. Facility Blue MAY also populate OBR-14 (Specimen Received Date/Time) and SPM-18 (Specimen Received Date/Time). Each downstream facility in the process will populate this field with the earliest Date/Time it received the specimen from the upstream facility. OBR-22 (Results rpt/status change date/time) is the date/time of the diagnostic pathology report sign off (final or corrected), as indicated in OBR-25 and/or OBX-11.

Each facility generally sends a report for the analysis that it conducted directly to the registry.

Message 1a: (Anatomical Pathology Report – Breast, NOS)

```
MSH|||AWESOME LABS^BLUE^CLIA||<null or GREY>
ORC|||||||||||||BLUE

OBR|1|<null or Reqid>|BLUE_1|@#|60568-3^Synoptic Report^LN|||Jan 1|||Jan 2||Dr.B|||Jan 3|||Dr.BLUE
SPM|1|BLUE_1234|TS|K|||||Jan 1|||||BLUE_abcd|abcd
OBX|1|ST|60573-3^Report template source^LN|CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F|||Jan 3
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing
mastectomy)^CAPECC|||||F|||Jan 3
Etc.

PV1|||||Dr.A|Dr.C
```

Message 1b: (Anatomical Pathology Report – Breast, NOS)

```

MSH||AWESOME LABS^BLUE^CLIA||<null or PURPLE>
ORC|||||BLUE

OBR|1|<null or ReqId>|BLUE_!@#|$|60568-3^Synoptic Report^LN||Jan 1||||Jan 2||Dr.B||||Jan 3|||||Dr.BLUE
SPM|1|BLUE_1234|TS|K|||||Jan 1|||||BLUE_abcd|cd
OBX|1|ST|60573-3^Report template source^LN|CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F||Jan 3
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing
mastectomy)^CAPECC|||||F||Jan 3
Etc.

PV1|||||Dr.A|Dr.C

```

Message 2a: (Biomarker – ER/PR)

```

MSH||BETTER THAN AWESOME LABS^GREY^CLIA||<null or ORANGE>
ORC|||||BLUE

OBR|1|BLUE_!@#|$|GREY_%&|^60569-1^Addendum Report.Synoptic^LN||Jan 1||||Jan 4||Dr.B||||Jan 5|||||Dr.GREY
SPM|1|GREY_5678|BLUE_1234|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd|5678
OBX|1|ST|60573-3^Report template source^LN|CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F||Jan 5
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC||31160.1000043^Estrogen Receptor (ER) Status (Note
A)^CAPECC|||||F||Jan 5
Etc.

PV1|||||Dr.A|Dr.C

```

Message 2b: (Consult on Anatomical Pathology Report)

```

MSH||ON PAR WITH BETTER THAN AWESOME LABS^PURPLE^CLIA||<null>
ORC|||||BLUE

OBR|1|BLUE_!@#|$|PURPLE_)>(*&|^60571-7^Consultation Note Synoptic^LN||Jan 1||||Jan 4||Dr.B||||Jan 5|||||Dr.PURPLE
SPM|1|PURPLE_0987|BLUE_1234|TS|S|||||Jan 1|||||BLUE_abcd, PURPLE_abcd|ab
OBX|1|ST|60573-3^Report template source^LN|CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F||Jan 5
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing
mastectomy)^CAPECC|||||F||Jan 5
Etc.

PV1|||||Dr.A|Dr.C

```

Message 3a: (Biomarker ISH Testing – Indeterminate Results)

```

MSH||OK LABS^GREEN^CLIA||<null or PURPLE>
ORC|||||BLUE, GREY

OBR|1|GREY_%&|^GREEN_#%|^60569-1^Report Addendum.Synoptic^LN||Jan 1||||Jan 6||Dr.B,Dr.GREY||||Jan 7|||||Dr.GREEN
SPM|1|GREEN_3456|GREY_5678|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, GREEN_abcd|3456
OBX|1|ST|60573-3^Report template source^LN|CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F||Jan 7
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC||31166.1000043^HER2 (ERBB2) by In Situ Hybridization
(ISH)^CAPECC|||||F||Jan 7
Etc.

PV1|||||Dr.A|Dr.C

```

Message 3b: (Biomarker IHC Testing)

```

MSH|||JUST A LAB^ORANGE^CLIA||<null>
ORC|||||BLUE, GREY

OBR|1|GREY_%^&^*|ORANGE_()!@|60569-1^Report Addendum.Synoptic^LN|||Jan 1|||||Jan 6||Dr.B,Dr.GREY|||||Jan 7|||||Dr.ORANGE
SPM|1|ORANGE_9012|GREY_5678|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, ORANGE_abcd|9012
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F|||||Jan 7
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC ||31163.1000043^HER2 by Immunohistochemistry
(IHC)^CAPECC|||||F|||||Jan 7

Etc.

PV1|||||Dr.A|Dr.C

```

Message 4: (Biomarker ISH Testing – Positive Results)

```

MSH|||ON PAR WITH BETTER THAN AWESOME LABS^PURPLE ^CLIA||<null>
ORC|||||BLUE, GREY, GREEN

OBR|1|GREEN_#$$%^|PURPLE_&^*()|60569-1^Report Addendum.Synoptic^LN |||Jan 1|||||Jan 8||Dr.B,Dr.GREY,Dr.GREEN|||||Jan 9|||||Dr.TAUPE
SPM|1|PURPLE_7890|GREEN_3456|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, GREEN_abcd, PURPLE_abcd|7890
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F|||||Jan 9
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC||31166.1000043^HER2 (ERBB2) by In Situ Hybridization (ISH)^CAPECC
|||||F|||||Jan 9

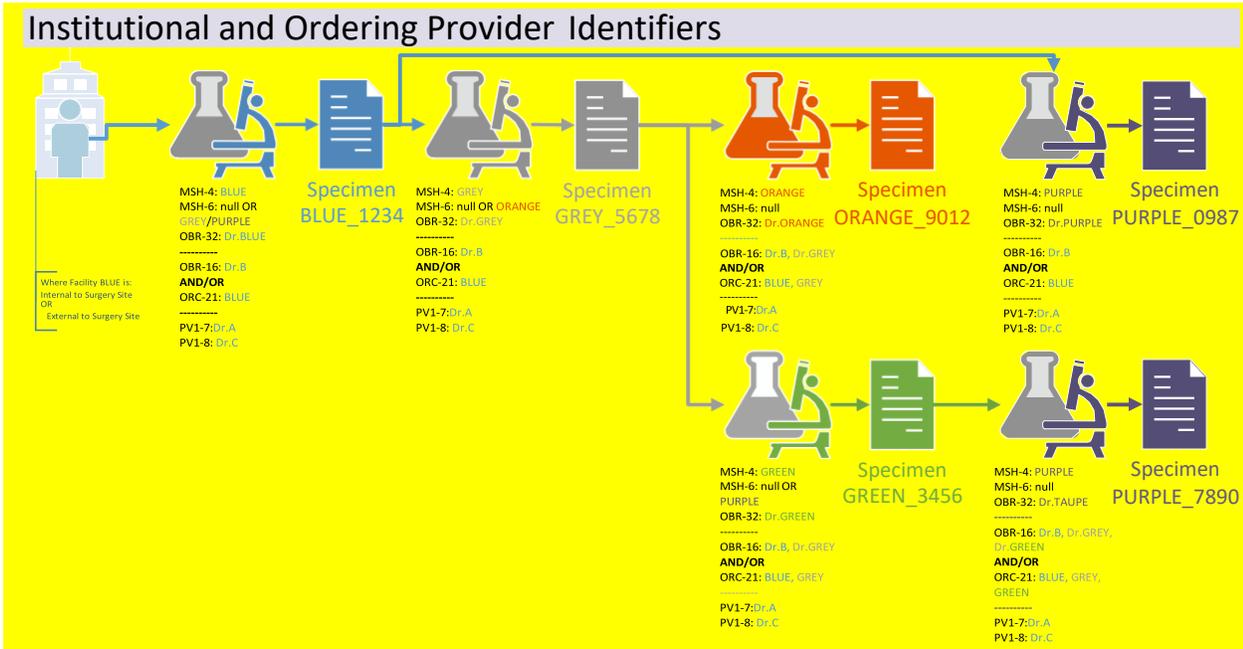
Etc.

PV1|||||Dr.A|Dr.C

```

Multiple providers and institutions are involved in the specimen journey. Capturing this information is needed for registry follow-up. Providers also can work at multiple institutions. In Figure 11, the Sending Facility (MSH-4) is the laboratory name and Clinical Laboratory Improvement Amendments (CLIA) number of the organization (e.g., Blue, Grey, Orange, Green, and Purple) transmitting the HL7 ORU report. The Receiving Facility (MSH-6) is the name of the organization (e.g., State Cancer Registry, Grey, Orange, Green, or Purple) receiving the HL7 ORU report. The report must provide the Ordering Provider (OBR-16) and the Ordering Facility Name (ORC-21) to allow the cancer registry to request additional demographic, diagnostic, and treatment data needed for public health surveillance and epidemiological research. The Ordering Provider (OBR-16) refers to the name and National Provider Identifier (NPI) number of the surgeon/physician (e.g., provider name) who submitted the order requisition and specimen to the laboratory for testing and interpretation. The Ordering Facility Name (ORC-21) includes the organization name (e.g., hospital, clinic, physician office/group, Blue, or Grey) and physician/organization identifier (e.g., NPI or CLIA) for the physician/entity that submitted the order requisition and specimen for testing and interpretation. The Ordering Facility Name and identifier should correspond to the facility that the Ordering Provider is either employed by or practicing within. The Principal Result Interpreter (OBR-32) is the name of the physician (e.g., Blue pathologist name, Grey pathologist name, Orange pathologist name, Green pathologist name, Purple pathologist name, or external group pathologist name) and NPI number for the provider who made the final interpretation included on the specimen pathology report. The Attending Doctor (PV1-7) could include any other physician name and NPI number (e.g., surgeon, surgical oncologist, or oncologist) involved in the patient's cancer diagnosis and care. The Referring Doctor (PV1-8) is the physician name and NPI number (e.g., primary care physician or specialty physician) for the provider who manages the overall care for the patient's health and will follow the diagnosis and treatment received.

Figure 11: Registry Use Case Ordering Provider Identifiers



Message 1a: (Anatomical Pathology Report – Breast, NOS)

```
MSH|||AWESOME LABS^BLUE^CLIA||<null or GREY>
ORC|||||||||||||BLUE

OBR|1|<null or Reqid>|BLUE_!@#|60568-3^Synoptic Report^LN||Jan 1||||Jan 2||Dr.B||||Jan 3|||||Dr.BLUE
SPM|1|BLUE_1234||TS|K|||||Jan 1|||||BLUE_abcd|abcd
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F||Jan 3
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing mastectomy)^CAPECC|||||F||Jan 3
Etc.
PV1|||||Dr.A|Dr.C
```

Message 1b: (Anatomical Pathology Report – Breast, NOS)

```
MSH|||AWESOME LABS^BLUE^CLIA||<null or PURPLE>
ORC|||||||||||||BLUE

OBR|1|<null or Reqid>|BLUE_!@#|60568-3^Synoptic Report^LN||Jan 1||||Jan 2||Dr.B||||Jan 3|||||Dr.BLUE
SPM|1|BLUE_1234||TS|S|||||Jan 1|||||BLUE_abcd|cd
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F||Jan 3
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing mastectomy)^CAPECC|||||F||Jan 3
Etc.
PV1|||||Dr.A|Dr.C
```

Message 2a: (Biomarker – ER/PR)

```
MSH|||BETTER THAN AWESOME LABS^GREY^CLIA||<null or ORANGE>
ORC|||||BLUE

OBR|1|BLUE_!@#|$|GREY_%^&|60569-1^Addendum Report.Synoptic^LN||Jan 1||||Jan 4||Dr.B||||Jan 5|||||Dr.GREY
SPM|1|GREY_5678|BLUE_1234|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd|5678
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F||Jan 5
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC||31160.1000043^Estrogen Receptor (ER) Status (Note
A)^CAPECC|||||F||Jan 5

PV1|||||Dr.A|Dr.C
```

Etc.

Message 2b: (Consult on Anatomical Pathology Report)

```
MSH|||ON PAR WITH BETTER THAN AWESOME LABS^PURPLE^CLIA||<null>
ORC|||||BLUE

OBR|1|BLUE_!@#|$|PURPLE_)(*&|60571-7^Consultation Note Synoptic^LN||Jan 1||||Jan 4||Dr.B||||Jan 5|||||Dr.PURPLE
SPM|1|PURPLE_0987|BLUE_1234|TS|S|||||Jan 1|||||BLUE_abcd, PURPLE_abcd|ab
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||189.1000043^INVASIVE CARCINOMA OF THE BREAST^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||3.000.001.REL|||||F||Jan 5
OBX|4|CWE|58807.1000043^Procedure^CAPECC||39079.1000043^Total mastectomy (including nipple-sparing and skin-sparing
mastectomy)^CAPECC|||||F||Jan 5

PV1|||||Dr.A|Dr.C
```

Etc.

Message 3a: (Biomarker ISH Testing – Indeterminate Results)

```
MSH|||OK LABS^GREEN^CLIA||<null or PURPLE>
ORC|||||BLUE, GREY

OBR|1|GREY_%^&|GREEN_#$$%^|60569-1^Report Addendum.Synoptic^LN||Jan 1||||Jan 6||Dr.B,Dr.GREY||||Jan 7|||||Dr.GREEN
SPM|1|GREEN_3456|GREY_5678|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, GREEN_abcd|3456
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^BREAST: Biomarker Reporting Template^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL|||||F||Jan 7
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC||31166.1000043^HER2 (ERBB2) by In Situ Hybridization
(ISH)^CAPECC|||||F||Jan 7

PV1|||||Dr.A|Dr.C
```

Etc.

Message 3b: (Biomarker IHC Testing)

```
MSH|||JUST A LAB^ORANGE^CLIA||<null>
ORC|||||BLUE|GREY

OBR|1|GREY_%^&^*|ORANGE_(!)|@|60569-1^Report Addendum.Synoptic^LN||Jan 1||||Jan 6||Dr.B|Dr.GREY||||Jan
7|||||Dr.ORANGE
SPM|1|ORANGE_9012|GREY_5678|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, ORANGE_abcd|9012
OBX|1|ST|60573-3^Report template source^LN||CAP eCC||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^BREAST: Biomarker Reporting Template^CAPECC||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL||||F||Jan 7
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC ||31163.1000043^HER2 by Immunohistochemistry
(IHC)^CAPECC||||F||Jan 7
Etc.
PV1|||||Dr.A|Dr.C
```

Message 4: (Biomarker ISH Testing – Positive Results)

```
MSH|||ON PAR WITH BETTER THAN AWESOME LABS^PURPLE ^CLIA||<null>
ORC|||||BLUE|GREY|GREEN

OBR|1|GREEN_#$$%^|PURPLE_&^*|60569-1^Report Addendum.Synoptic^LN||Jan 1||||Jan 8||Dr.B|Dr.GREY|Dr.GREEN||||Jan
9|||||Dr.TAUPE
SPM|1|PURPLE_7890|GREEN_3456|TS|K|||||Jan 1|||||BLUE_abcd, GREY_abcd, GREEN_abcd, PURPLE_abcd|7890
OBX|1|ST|60573-3^Report template source^LN||CAP eCC||||F
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^BREAST: Biomarker Reporting Template^CAPECC||||F
OBX|3|ST|60574-1^Report template version ID^LN^VERSION^Template Version Identifier^L||1.000.001.REL||||F||Jan 9
OBX|4|CWE|31159.1000043^Test(s) Performed^CAPECC||31166.1000043^HER2 (ERBB2) by In Situ Hybridization (ISH)^CAPECC
||||F||Jan 9
Etc.
PV1|||||Dr.A|Dr.C
```

2.3. STATIC MODEL – MESSAGES

The static model of messaging describes the data layouts and formats used in the various interactions in the dynamic model. This section contains the two messages used in cancer registry messaging, the Unsolicited Observation message, which carries the pathology report; and the General Acknowledgment (ACK) message, used to confirm receipt of a message and/or report communications errors. All of the segments and data fields used in both of these messages are described below. A separate section discusses the HL7 batch protocol, which uses special message formats.

2.3.1. Unsolicited Observation Message (ORU)/Event R01

Laboratory result information is reported to cancer registries through the Unsolicited Observation ORU^R01 message. The supported segments in ORU message style are described in Table 7.

Table 7: ORU Unsolicited Observation Message (event R01)

<u>ORU^R01</u>	<u>Observational Results (Unsolicited)</u>	<u>Cardinality</u>	<u>HL7 Standard Section</u>
<u>MSH</u>	Message Header segment		2.6.1
[<u>{SFT}</u>]	Software segment	0..n	2.15.12
{	- PATIENT_RESULT begin	1..1	
[-- PATIENT begin	0..n	
<u>PID</u>	Patient Identification segment	1..n	2.6.2
<u>{NK1}</u>	Next Of Kin segment	0..n	2.6.2
<u>PV1</u>	Patient Visit segment	0..1	2.6.2
]	-- PATIENT end		
{	-- ORDER RESULT begin	1..n	
<u>ORC</u>	Common Order segment	0..1	2.6.3

OBR	Observations Report ID segment	1..n	2.6.3
{ [NTE] }	Notes and Comments segment	0..n	2.6.4
{	--- RESULT begin	1..n	
OBX	Observation/Result segment	1..1	2.6.4
{ [NTE] }	Notes and Comments segment	0..n	2.6.4
}	--- RESULT end		
{	--- SPECIMEN INFORMATION begin	1..n	
SPM	Specimen	1..1	7.4.3
{ [OBX] }	Observation Related to Specimen	0..n	7.4.2
}	--- SPECIMEN INFORMATION end		
}	-- ORDER RESULT end		
}	- PATIENT RESULT end		
[DSC]	Continuation Pointer		2

Using the basic “building blocks” of MSH, PID, OBR, and OBX segments (in Table 7), a clinical report can be constructed as a three-level hierarchy with the patient information (PID) segment at the upper level, an order record (OBR) at the next level, and one or more observation records (OBX) at the bottom. The Message Header (MSH) segment is required for all HL7 messages. Next-of-Kin (NK1) segments can provide information about parties associated with the patient.

The PV1 segment is used by registration/patient administration applications to communicate information on an account or visit-specific basis. For NAACCR usage, as specified in this Guide, the PV1 segment is considered “RE”, i.e., required or empty, and not just optional. The PV1 segment carries information on the Attending Physician (PV1-7), the Referring Physician (PV1-8), and the Consulting Physician (PV1-9). Whenever possible, laboratories are strongly encouraged to populate those fields, in addition to OBR-16 (Ordering Provider ID and Name) and ORC-24 (Ordering Provider Address). Central cancer registries need provider information in order to contact providers and request additional information on the patient, patient’s tumor, and/or treatment.

The common order (ORC) segment transmits fields common to all types of requested services; the Notes and Comments (NTE) segment is a common note format, but only supported at the result level.

The SPM segment contains detailed information about the samples that were examined. For NAACCR usage, as specified in this Volume V, Version 5.0, the SPM segment is required to correctly track identifiers in modern laboratory analyses.

Typically, an anatomical pathology report is associated with a surgical specimen and results in a single message or transmission. In a single transmission, one MSH segment, one ORC segment, and one OBR segment will be required. For cases in which multiple tests are performed on the same tumor, the message can include separate OBRs for each test. For cancer registry reporting, there could be multiple OBR segments for a single MSH segment if the text-based pathology report describes each of the multiple primaries in separate sections. In such a circumstance, it is recommended that there be a single OBR for each of the primary cancers being reported. Another example of using a single MSH segment and multiple OBR segments would be transmitting an encoded checklist and raw text, plus a synoptic report with all data encoded.

Although certain elements of the message are required for laboratory-based reporting, data in non-required fields will not be rejected. The standard ORU message allows the optional use of a number of additional segments (e.g., PD1, PV2, CTI), but these segments are not defined or used in the laboratory-based cancer reporting message. For this reason, there is no discussion of these segments in this implementation guide. Messages containing these segments, however, will not be rejected. For electronic laboratory reporting purposes, acknowledgment messages are not yet implemented in most locations in North America. Therefore, although they are defined in this Guide, interfaces that have not implemented these messages will still be compliant.

2.3.1.1 How to construct a message using the SPM segment

Cancer report results to be encoded may be placed in OBX segments in either of the two locations in the message (one following the OBR and one following the SPM). The newer format for the message includes the required SPM segment and its associated OBX segments immediately following it to hold results associated with a particular specimen; this may be referred to as the SPM-style. Including all results in the first set of OBX segments in the message following the OBR may be referred to as the old style, because it is similar to earlier releases of Volume V messaging. It is recommended that the following guidelines be followed:

- If the SPM segment is not implemented and all results are textual (old style), they should be encoded in the first set of OBX segments in the message, immediately following the OBR;
- If all the specimen information is textual only, then all result information should be encoded in the first set of OBX segments in the message, immediately following the OBR (old style);
- If the SPM is implemented, then results that are associated explicitly with the specimen, rather than the overall case findings, should be encoded in the second set of OBX segments in the message—those that immediately follow the SPM segment (enclosed within the {[SPECIMEN INFORMATION begin]} and the {[SPECIMEN INFORMATION end]} markers in the message layout above). Typically, this would include at least the gross observations on the specimen. The overall findings for the case, along with observations not associated with a specimen (such as Clinical History), still should be encoded in the initial set of OBX segments as shown enclosed by the { RESULT begin } and { RESULT end } markers in the message layout above (SPM-style).
- If the case has multiple specimens, then a SPECIMEN INFORMATION set of segments (having an SPM plus one or more associated OBX segments) should be used to identify each of the specimens. Observations that are associated with a particular specimen should be encoded in OBX segments following the appropriate SPM segment in the repeating SPECIMEN INFORMATION segments. Note that overall case findings still should be encoded in the set of OBX segments immediately following the OBR, identified in the message layout as the RESULT. NAACCR recommends that this SPM-style be used for messaging any case that has multiple specimens.
- If the result is a synoptic report, then the specimen-specific information may be encoded in the OBX segments in the SPECIMEN INFORMATION set if using the SPM-style of message construction, but alternatively may be sent wholly in the OBX segments in the RESULT set of segments (old style). Note that for fully encoded synoptic reports, all of the specimen information that may be carried in the SPM segment generally is carried in the OBX. See [Chapter 3](#) for more information on messaging and synoptic reporting.

Some fields that are required in segments are optional in the message, such as the PV1. The interpretation should be that the segment does not have to be in a message, but if it is present, then the fields that are required within it must be populated. In the same way, components of data types that are required should be interpreted to mean that if a field of that data type is populated, then any required data type components must be populated.

The file header segment (FHS), file trailer segment (FTS), batch header segment (BHS), and batch trailer segment (BTS) are required for batch submissions only (see [Section 2.8](#), HL7 Batch Protocol).

What follows is an example of a message that uses one OBR and one SPM segment:

```
MSH|^~\&|SuperLink|SuperLab^01D1012357^CLIA|Cancer
Registry|CR|20190307121736||ORU^R01^ORU_R01|20190307121736_81778|D|2.5.1
PID|1||A001223/B2345676^^^^MR^St. Best Hospital~^^^^SS~3344556^^^^PI^01D1012357&SuperLab
SuperState&CLIA||Doe^Jane||19420222|F
PV1|1|N||||^Welby^Marcus
ORC|RE|||||||||||||St. Best Hospital|11 Super Street^^Supercity^NY^122286^United States
```

|^WPN^FX^^123^4567891~^WPN^PH^^123^3456788
 OBR|1||112224|26435-8^Molecular Pathology Studies^LN^^EGFR Mutation
 Analysis^L||2019021900000|||||20190226105600|^Lung,
 Left^Howser^Doogie|||||20190306121401||F|||||MALIGNANT NEOPLASM OF UNSPECIFIED PART OF
 BRONCHUS OR LUNG, EGFR repeat|&Ben&Casey
 SPM|1|SN19-123-A|SN19-123-A|TISS^Tissue^HL70487^^Paraffin
 Tissue^L|||||2019021900000|20190226105600|||||112224|SN19-123-A
 OBX|1|TX|22637-3^Path Report Final Diagnosis^LN||EGFR Mutation: Detected|||||F||||01D1012357^SuperLab
 SuperState^CLIA
 OBX|2|TX|22637-3^Path Report Final Diagnosis^LN||EGFR Exon 18: Detected|||||F||||01D1012357^SuperLab
 SuperState^CLIA
 OBX|3|TX|22637-3^Path Report Final Diagnosis^LN||EGFR Exon 19: Not
 Detected|||||F||||01D1012357^SuperLab SuperState^CLIA
 OBX|4|TX|22637-3^Path Report Final Diagnosis^LN||EGFR Exon 20 T790M: Not
 Detected|||||F||||01D1012357^SuperLab SuperState^CLIA
 OBX|5|TX|22637-3^Path Report Final Diagnosis^LN||EGFR Exon 20 Other Mutations: Not
 Detected|||||F||||01D1012357^SuperLab SuperState^CLIA
 OBX|6|TX|22637-3^Path Report Final Diagnosis^LN||EGFR Exon 21: Not
 Detected|||||F||||01D1012357^SuperLab SuperState^CLIA
 OBX|7|TX|22638-1^Path Report Comments^LN||Clinical Significance: Patients with non-small cell lung cancer
 (NSCLC) and mutations in EGFR exons 18, 19, 20, or 21 usually respond to anti-EGFR tyrosine kinase
 inhibitors (TKIs) and have longer survival when compared to EGFR mutation-negative patients. However,
 patients being treated with TKIs may develop acquired resistance with secondary mutations in exon 20, such as
 T790M or, less commonly, L747S, D761Y and T854A.\x0A\x0A\NSCLCs with exon 20 mutations, such as
 T790M mutation, are usually resistant to first-generation (erlotinib, gefitinib) and second-generation (afatinib,
 dacomitinib, neratinib) anti-EGFR TKIs, but may respond to third-generation TKIs, such as osimertinib. The less
 common resistance mutations (e.g. L747S, D761Y and T854A) may respond to second- or third-generation
 irreversible TKIs based on early studies. Most EGFR exon 20 insertions are resistant to EGFR TKIs with the
 exception of p.A763_Y764insFQEA, which is associated with increased sensitivity to EGFR TKIs.
 |||||F||||05D1021650^NeoGenomics California^CLIA
 OBX|8|TX|22638-1^Path Report Comments^LN||Methodology: DNA was isolated from cells or microdissection-
 enriched FFPE tissue. Formalin-fixed, paraffin-embedded tumor tissue sections were deparaffinized and DNA
 was isolated. EGFR tyrosine kinase domain mutations were evaluated in the entirety of exons 18 to 21. The
 patient's sequence is compared to the EGFR sequence database NM_005228. This assay is by Sanger sequencing
 method with Locked Nucleic Acid (LNA) for T790M. The sensitivity for detecting the T790M mutation in exon
 20 is at least 3% with the remaining mutations having a sensitivity of 10 to 15% for detecting mutated EGFR
 DNA in a wild-type background. Various factors including quantity and quality of nucleic acid, sample
 preparation and sample age can affect assay performance.|||||F||||05D1021650^NeoGenomics
 California^CLIAOBX|9|TX|22638-1^Path Report Comments^LN||References: 1. Jänne PA, et al. Epidermal
 growth factor receptor mutations in non-small-cell lung cancer: implications for treatment and tumor biology. J
 Clin Oncol. 2005; 23:3227-34.\X0A\2. Lynch TJ, et al. Activating mutations in the epidermal growth factor
 receptor underlying responsiveness of non-small-cell lung cancer to gefitinib. N Engl J Med. 2004; 350:2129-
 39.\X0A\3. Sequist LV, et al. Response to treatment and survival of patients with non-small cell lung cancer
 undergoing somatic EGFR mutation testing. Oncologist. 2007;12:90-8.\X0A\4. Paez JG, et al. EGFR mutations
 in lung cancer: correlation with clinical response to gefitinib therapy. Science. 2004; 304:1497-1500.\X0A\5.
 Costa DB, et al. Differential responses to erlotinib in epidermal growth factor receptor (EGFR)-mutated lung
 cancers with acquired resistance to gefitinib carrying the L747S and T790M secondary mutations. J Clin Oncol.
 2008; 26:1182-4.\X0A\6. Felip E, Barlesi F, Besse B, et al. Phase 2 Study of the HSP-90 Inhibitor AUY922 in
 Previously Treated and Molecularly Defined Patients with Advanced Non-Small Cell Lung Cancer. J Thorac
 Oncol. 2018;13(4):576-584.|||||F||||05D1021650^NeoGenomics California^CLIA

2.3.2. General Acknowledgment Message – ACK

Acknowledgment messages may be defined on an application basis. However the simple general acknowledgment message (ACK), like the one shown in Table 8, may be used where the application does not define a special message (application level acknowledgment) and in other cases in the HL7 Standard where the details are described.

The simple ACK can be used where there has been an error that precludes application processing and also is used for accept level acknowledgments. Here it is defined as the acknowledgment to the ORU_R01 message defined in the preceding section.

At the current time, registries may only be starting to implement this message; many are not sending acknowledgment messages back to the sending laboratories.

Table 8: General Acknowledgment Message – ACK

General Acknowledgment Message – ACK		
<u>ACK^ORU R01^ACK</u>	<u>General Acknowledgment</u>	<u>Section</u>
<u>MSH</u>	Message Header	2
[{ SFT }]	Software Segment	2
<u>MSA</u>	Message Acknowledgment	2
[{ ERR }]	Error	2

Note: For the ACK message, the value of MSH-9-2-Trigger event is equal to the value of MSH-9-2-Trigger event in the message being acknowledged. The value of MSH-9-3-Message style for the general acknowledgment message is always ACK.

2.4. STATIC MODEL – SEGMENT OVERVIEW

2.4.1. HL7 Standard Segments

Each message is composed of a series of segments. Each segment is identified by its unique three-letter code. The segments used in this HL7 implementation guide are defined in [Section 2.5](#). The segment definitions are given in the most logical order for cancer pathology report messages and do not strictly adhere to the order in which they are presented in the HL7 Standard. The header rows for the segment attribute tables look like this:

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item #	NAACCR Usage	NAACCR Cardlnty
-----	-----	----	-----	-----	------	-------	--------------	---------------	--------------	-----------------

Following the table, each field is listed and defined. For each field, the HL7 segment code and reference number are listed, followed by the field name. Items in parentheses after the field name show, respectively, data type and length of field, whether the field is required or optional, and list “repeating” if the field is allowed to repeat. Note that these conformance criteria are the constrainable conformance set, defined by NAACCR for cancer pathology report messaging. The HL7 item number follows the parenthesis and is given for reference convenience. As part of the definitions, usage notes for NAACCR reporting are provided, a description of the data type is given in small font, and a statement about how the fields are valued in the example is given.

Fields that NAACCR does not anticipate cancer registries using have a NAACCR Usage of “X” for Not Supported. These fields are listed in the Segment Tables. Users interested in learning more about the fields not discussed here should refer to the full text of HL7 Standard, Version 2.5.1.

The terms used in the header rows of the segment attribute tables and their definitions are as follows:

ABBREVIATION	DEFINITION
Seq	The sequence of the elements as they are numbered in the segment.
Len	The standard HL7 length of the element.
DT	The standard HL7 data type of the element. See Appendix C .
Opt	Whether the field is required, optional, or conditional in a segment. Required fields are defined by HL7 2.5.1 and do not refer to requirements for reporting laboratory findings to cancer registries. The designations are: (R) Required. (RE) Required or empty. The element may be missing from the message, but it must be sent by the sending application if there is relevant data. A conforming sending application must be capable of providing all “RE” elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then that element will be omitted. Receiving applications will be expected to process (save/print/archive/etc.) or ignore data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be generated because the element is missing). (O) Optional. (C) Conditional on the trigger event or on some other field(s). The field definitions following the segment attribute table should specify the algorithm that defines the conditionality for the field. (X) Not supported. (B) Left in for backward compatibility with previous versions of HL7. The field definitions following the segment attribute table should denote the optionality of the field for prior versions.
RP #	Indicates if element may repeat per HL7 Standard. If the number of repetitions is limited, the number of allowed repetitions is given.
Tbl #	HL7 specific table reference. Tables used in public health messages are listed in Appendix B .
Item #	HL7 unique item number for each element.
Element Name	HL7 descriptive name of element in the segment.
NAACCR Item #	NAACCR data item number for each element that corresponds to a NAACCR data item.
NAACCR Usage	Indicates the conformance usage of specific elements, which determines whether or not the element is required per NAACCR implementation, according to HL7 Conformance Rules for implementable specifications and profiles. Uses the same codes as the HL7 optionality codes described above, with the exception of “O – Optional” and “B – Backward Compatibility,” which are not used in implementation conformance.
NAACCR Cardnly	Indicates the conformance cardinality for NAACCR messaging. This is used to determine if element may repeat per NAACCR implementation and, if the number of repetitions is limited, the number of allowed repetitions.

2.4.2. Code Tables Identified in Segment Fields

The columns labeled “Tbl#” in the Segment Tables contain the numeric identifier of the code tables associated with that field (see [Appendix B](#)). Fields that do not contain coded data from the tables do not have any value in this field. Fields that are of data types that refer to more than one table may have more than one table number listed in this column.

The tables for all fields and field components that are supported for cancer registry messaging are listed in [Appendix B](#), Code Tables. Code tables that are associated with fields and components that are not supported in this specification are not listed; for the full definition and listing of their suggested content, refer to the HL7 Standard Version 2.5.1.

Code tables that are referred to in the descriptions of the segment fields are hyperlinked to their content definition in [Appendix B](#) for convenience.

2.5. MESSAGE CONTROL SEGMENT DEFINITIONS

These segments are necessary to support the functionality described in the Control/Query chapter of the HL7 Standard.

2.5.1. Message Header (MSH) Segment

The Message Header (MSH) Segment is used to define the intent, source, destination, and some specifics of the syntax of a message.

MSH Attributes

Seq	Len	DT	Opt	RP #	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
1	1	ST	R			00001	Field separator		R	[1..1]
2	4	ST	R			00002	Encoding characters		R	[1..1]
3	227	HD	O			00003	Sending application		RE	[0..1]
4	227	HD	O			00004	Sending facility	7010, 7020	R	[1..1]
5	227	HD	O			00005	Receiving application		RE	[0..1]
6	227	HD	O			00006	Receiving facility		RE	[0..1]
7	26	TS	O			00007	Date/time of message	7490	R	[1..1]
8	40	ST	O			00008	Security		X	[0..0]
9	15	MSG	R		0076 0003 0354	00009	Message type		R	[1..1]
10	20	ST	R			00010	Message control ID	7500	R	[1..1]
11	3	PT	R			00011	Processing ID	7510	R	[1..1]
12	60	VID	R		0104	00012	Version ID		R	[1..1]
13	15	NM	O			00013	Sequence number		RE	[0..1]
14	180	ST	O			00014	Continuation pointer		CE	[0..1]
15	2	ID	O		0155	00015	Accept acknowledgment type		X	[0..0]
16	2	ID	O		0155	00016	Application acknowledgment type		X	[0..0]
17	3	ID	O		0399	00017	Country code		RE	[0..1]
18	16	ID	O	Y	0211	00692	Character set		X	[0..0]
19	250	CE	O			00693	Principal language of message		RE	[0..1]
20	20	ID	O		0356	01317	Alternate character set handling scheme		X	[0..0]
21	427	EI	O	Y		01598	Message profile identifier		RE	[0..3]

Example:

```
MSH|^~\&|HLS|HITECK PATH LAB-
ATL^3D9328409^CLIA||GCCR|20081124122230||ORU^R01^ORU_R01|200811241222300023|P|2.5.
1|||||||VOL_V_50_ORU_R01^NAACCR_CP
```

This example segment shows a Version 2.5.1 ORU (result) message being sent from a pathology laboratory in Atlanta to the Georgia Comprehensive Cancer Registry on November 24, 2008, at 12:22 p.m. The message control ID indicates that this is the 23rd message of the day from this laboratory.

MSH Field Definitions

Usage Notes: It is not anticipated that several MSH fields (MSH-17 through MSH-20) will be used for electronic laboratory reporting purposes.

MSH-1 Field separator (ST-1, Required) 00001

Definition: 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 the MSH segment and is used to separate adjacent data fields within a segment. The recommended value is |, ASCII (124), as shown in the examples.

MSH-2 Encoding characters (ST-4, Required) 00002

Definition: Four characters in the following order:

Component separator	“^”	ASCII (94)
Repetition separator	“~”	ASCII (126)
Escape character	“\”	ASCII (92)
Subcomponent separator	“&”	ASCII (38)

Note that the characters in MSH-2 appear as—

```
| ^ ~ \ & |
```

The component separator (^) separates adjacent components of a data field, and the subcomponent separator (&) separates the adjacent subcomponents of a data field. An example of a compound element using components and subcomponents from PID-2, described in [Section 2.6.1](#), would appear as—

```
|10543^^^^^Columbia Valley Memorial Hospital&01D0355944&CLIA|
```

and not as—

```
|10543^^^^^Columbia Valley Memorial Hospital~01D0355944~CLIA|
```

The tilde (~) should not be used as a separator, but rather should be used to identify when a repeating field or component occurs.

MSH-3 Sending application (HD-180, Required or Empty) 00003

Definition: This field uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. The field is entirely site-defined. For Cancer Registry messaging, this table cannot realistically be pre-populated or effectively maintained, so it is not required for conformance of this field. By site agreement however, implementers may use [User-Defined Table 0361 – Sending/Receiving Application](#) for the first component.

MSH-4 Sending facility (HD-180, Required) 00004

Definition: This is the facility that is transmitting the HL7 message. The originator of the HL7 message will place the text name of the sending laboratory or reporting site, followed by the unique Clinical Laboratory Improvement Amendments (CLIA) identifier of the originating institution (in the United States; in Canada, please see the jurisdictional authority for regulations on which identifier to be used). Information about CLIA can be found at <https://www.cms.gov/clia>.

Example:

|HITECK PATH LAB-ATL^3D9328409^CLIA|

HD data type components: <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

namespace ID	Text name of the sending laboratory
universal ID	Universal identifier for the sending facility, such as a CLIA number for a commercial laboratory or other identifier, such as an AHA (American Hospital Association) number
universal ID type	Name of the type of universal identifier, such as “CLIA” or “AHA,” indicating that the universal ID is a nationally assigned unique identifier and of which type

Note for cancer registries: If the facility sending the message is the same facility that generated the Pathology Report, then this will correspond to the NAACCR data items Reporting Facility ID No [7010] and Path Lab Name [7020]. See OBX-23 for other sources for these NAACCR data items.

Although the HL7 Standard identifies [User-Defined Table 0361 – Sending/Receiving Application](#) for the first component, this table will not be used for conformance for Cancer Registry Messaging.

MSH-5 Receiving application (HD-180, Required or Empty) 00005

Definition: Uniquely identifies the receiving application among all other applications within the network enterprise. The network enterprise consists of all the applications that participate in the exchange of HL7 messages within the enterprise. The field is entirely site-defined. For Cancer Registry messaging, this table cannot realistically be pre-populated or effectively maintained, so it is not required for conformance of this field. By site agreement, however, implementers may use [User-Defined Table 0361 – Sending/Receiving Application](#) for the first component.

If this field is known to the sending system, it should be valued.

MSH-6 Receiving facility (HD-180, Required or Empty) 00006

Definition: This field identifies the receiving application among multiple identical applications running on behalf of different organizations. This may be used to identify the receiving state health department or cancer registry systems. Certain state health departments may request that a unique identifier for the cancer registry or other specific program appear here.

Note: This field may be blank, but for the example it is valued as |STJ|, indicating that the receiver of the result message is Saint Joseph’s Hospital.

Although the HL7 Standard identifies [User-Defined Table 0361 – Sending/Receiving Application](#) for the first component, this table will not be used for conformance for Cancer Registry Messaging. But if the value is known to the sending system, it should be valued.

MSH-7 Date/time of message (TS-26, Required) 00007

Definition: Date/time the sending system created the message.

Example: 6:30 p.m., February 17, 2001, would appear as—

```
|200102171830|
```

Note for cancer registries: Corresponds to NAACCR data item E-Path Date/Time Stamp [7490].

MSH-9 Message type (MSG-15, Required) 00009

Definition: The receiving system uses this field to identify the data segments to recognize and, possibly, the application to which to route this message.

The unsolicited transmission of an observation message would appear as—

```
|ORU^R01^ORU_R01|
```

MSH-10 Message control ID (ST-20, Required) 00010

Definition: 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, NAACCR recommends using the date/time stamp followed by the sequence number as—

YYYYMMDDHHMMSS#### (# = counter number).

The example below shows that the date of this message is February 17, 2001, and the sequence number is 0042.

```
|200102170042|
```

Note: This field must be unique within transmission.

Note for cancer registries: Corresponds to NAACCR data item Message Control ID [7500].

MSH-11 Processing ID (PT-3, Required) 00011

Definition: Used to decide how to process the message as defined in HL7 processing rules. The field appears as P for production, T for training, or D for debugging.

For example—

```
|P|
```

In the example, the use is production. The second component is not specified, indicating current processing as the default.

Note for cancer registries: Corresponds to NAACCR data item Processing ID [7510].

MSH-12 Version ID (VID-60, Required) 00012

Definition: Matched by the receiving system to its own HL7 version to be sure the message will be interpreted correctly.

MSH-13 Sequence number (NM-15, Required or Empty) 00013

Definition: A non-null value in this field implies that the sequence number protocol is in use. This numeric field is incremented by one for each subsequent value.

In the example, the field is not valued or expected to be used.

MSH-14 Continuation pointer (ST-180, Conditional or Empty) 00014

Definition: Used to define continuations in application-specific ways. For cancer messaging, if a message exceeds the maximum length supported by the interface and must be broken up, this field is used to indicate a message containing the continuation from the previous message.

In the example, the field is not valued or expected to be used.

MSH-17 Country code (ID-3, Required or Empty) 00017

Definition: This field contains the country of origin for the message. It will be used primarily to specify default elements, such as currency denominations. The values to be used are those of International Standards Organization (ISO) 3166-1.⁸ The ISO 3166 table has three separate forms of the country code: HL7 specifies that the 3-character (alphabetic) form be used for the country code.

Note: In earlier versions of the NAACCR Volume V specifications, the 2-character (alphabetic) form of the country codes was specified, but the 3-character ISO 3166-1 set is to be used for Cancer Pathology Report Messaging using HL7 Version 2.5.1, as described in this implementation guide. If this value is present in a system that may use more than one language, then it must be sent.

Refer to [HL7-Defined Table 0399 – Country Code](#) for the 3-character codes as defined by ISO 3166-1.

In the example, this field is not valued.

MSH-19 Principal language of message (CE-60, Required or Empty) 00693

Definition: This field contains the principal language of the message. Codes come from ISO 639. Note that in Canada, both English and French are supported for HL7 messaging.

In the example, this field is not valued.

MSH-21 Message Profile Identifier (EI-427, Required or Empty, repeating maximum 3) 01598

Definition: Sites may use this field to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages. For a full description of the use of this field, see the version 2.5.1 HL7 standard section 2.12 “Conformance Using Message Profiles.”

Repetition of this field allows more flexibility in creating and naming message profiles. Using repetition, this field can identify a set of message profiles that the message conforms to. For example, the first repetition could reference a vendor’s message profile. The second could reference another compatible provider’s profile or a later version of the first vendor profile.

As of version 2.5, the HL7 message profile identifiers might be used for conformance claims and/or publish/subscribe systems. Refer to the HL7 published standard version 2.5.1, sections 2.12.1.1 “Message Profile

⁸ Available from ISO 1 Rue de Varembe, Case Postale 56, CH 1211, Geneve, Switzerland.

Identifier” and 2.12.1.2 “Message profile publish/subscribe topics,” for details of the message profile identifiers. Refer to sections 2.12.4.1 “Static definition identifier” and 2.12.4.1 “Static definition publish/subscribe topics” for details of the static definition identifiers.

Prior to version 2.5, the field was called Conformance Statement ID. For backward compatibility, the Conformance Statement ID can be used here.

Components of EI Data type: <Entity Identifier (ST)> ^ <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Example:

| VOL_V_50_ORU_R01^NAACCR_CP|

This example illustrates the Volume V Conformance Profile and shows the NAACCR ID of “VOL_V_50_ORU_R01” in the NAACCR Conformance Profile library, which is the profile for this version of the Guide. The library itself is identified with a Namespace ID of “NAACCR_CP” in this example, which is the ID of the namespace of NAACCR Conformance Profiles. In the future, if this profile is registered with the HL7 Conformance Profile Registry, an ISO Object Identifier (OID) will be created by the process of registration for the Conformance Profile. In this example, “2.16.840.1.113883.9.9” is shown to illustrate an OID that may be created (but the last number, “9,” is likely to be different, because the updated Profile for this Guide had not been officially registered as of the time of the Guide’s publication). This example shows the MSH-21 value populated with a Universal ID, and a Universal ID Type of “ISO.”

| ^2.16.840.1.113883.9.9^ISO|

A Universal Unique Identifier (UUID) may also be used, as one is created by the software that validates the profile and registers it with HL7. The following example illustrates the use of a generated UUID for the profile:

| ^99426FAA-62CA-4A65-8140-169741AF05A5^UUID|

When deciding how to implement the values in MSH-21, please check with NAACCR for information on the registration of the profile and, if it has been registered, the identifier to be used. Until registration is done, use the value shown in the first example.

2.5.2. Software (SFT) Segment

This segment provides additional information about the software product(s) used as a Sending Application. The primary purpose of this segment is for diagnostic use. There may be additional uses per site-specific agreements.

Implementers are encouraged to use message profile identifiers (as found in the published HL7 Standard Version 2.5.1 section 2.15.9.21, “**Error! Reference source not found.**”; also see above) to control the behavior of the receiving application rather than relying on application or version information in the SFT segment.

For example, if software product A has versions 9 and 10 deployed in different Enterprise locations, the fact that they use different message types, segments, or fields should be reflected in their message profiles (see [Section 2.5.1](#)). If there is an upgrade from version 10 to 10.1, this would be reflected in the SFT segment, but changes to the message contents should be reflected via a new/different conformance profile.

SFT Attributes

Seq	Len	DT	Opt	RP #	Tbl #	Item #	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnlty
1	567	XON	R			01834	Software vendor organization		R	[1..1]
2	15	ST	R			01835	Software certified version or release number		R	[1..1]
3	20	ST	R			01836	Software product name		R	[1..1]
4	20	ST	R			01837	Software binary ID		R	[1..1]
5	1024	TX	O			01838	Software product information		RE	[0..1]
6	26	TS	O			01839	Software install date		RE	[0..1]

Use Case: An external application has been customized to communicate with a centralized patient drug history system. However, due to certain known characteristics of the external software package, the centralized system must modify its behavior to process transactions correctly. In one example, the external application may have multiple versions in production. As such, the centralized application will need to know the name of the **Software Vendor Organization**, the **Software Release Number**, the **Software Product Name**, and the **Software Binary ID** so that it can correctly identify the software submitting the transaction and modify its behavior appropriately.

While preparing a transaction for submission to a centralized system, the sending application specifies its **Software Install Date** and its configuration settings (**Software Product Information**). While processing the transaction, the centralized system encounters an error. Upon examining the error, install date, and configuration of the software that sent the message, helpdesk staff are able to determine that the sending application has not been updated to reflect recent application changes.

Use Case: In circumstances in which a message is manipulated or modified by multiple systems, a repetition of this segment may be appended by each system.

Example:

```
MSH
  [{ SFT }]
```

SFT Field Definitions**SFT-1 Software Vendor Organization (XON-567, Required) 01834**

Definition: Organization identification information for the software vendor that created this transaction. The purpose of this field, along with the remaining fields in this segment, is to provide a more complete picture of applications that are sending HL7 messages. The Software Vendor Organization field would allow the identification of the vendor who is responsible for maintaining the application.

SFT-2 Software Certified Version or Release Number (ST-15, Required) 01835

Definition: The latest software version number of the sending system that has been compliance tested and accepted. The Software Certified Version or Release Number helps to provide a complete picture of the application that is sending/receiving HL7 messages. Versions are important in identifying a specific release of an application. In some situations, the receiving application validates the Software Certified Version or Release Number against a list of certified versions/releases of the particular software to determine if the sending application adheres to specific business rules required by the receiving application.

Alternatively, the software may perform different processing depending on the version of the sending software.

SFT-3 Software Product Name (ST-20, Required) 01836

Definition: The name of the software product that submitted the transaction. A key component in the identification of an application is its Software Product Name.

SFT-4 Software Binary ID (ST-20, Required) 01837

Definition: Issued by a vendor for each unique software version instance to distinguish between like versions of the same software, e.g., a checksum.

Software Binary IDs are issued for each unique software version instance. As such, this information helps to differentiate between differing versions of the same software. Identical Primary IDs indicate that the software is identical at the binary level (configuration settings may differ).

SFT-5 Software Product Information (TX-1024, Required or Empty) 01838

Definition: Software identification information that can be supplied by a software vendor with their transaction; might include configuration settings, etc. This field would contain any additional information an application provides with the transaction it has submitted. This information could be used for diagnostic purposes and provides greater flexibility in identifying a piece of software. Possibilities include setup or configuration parameter information.

This field should not be sent unless performing diagnostics.

SFT-6 Software Install Date (TS-26, Required or Empty) 01839

Definition: Date the submitting software was installed at the sending site.

A Software Install Date on its own often can provide key information about the behavior of the application and is necessary to provide a complete picture of the sending application.

TS data type components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

2.5.3. Continuation Pointer (DSC) Segment

The DSC segment is used in the continuation protocol.

DSC Attributes

Seq	Len	DT	Opt	RP #	Tbl #	Item #	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
1	180	ST	O			00014	Continuation pointer		RE	[0..1]
2	1	ID	O		0398	01354	Continuation style		RE	[0..1]

DSC Field Definitions

DSC-1 Continuation Pointer (ST-180, Required or Empty) 00014

Definition: This field contains the continuation pointer. In an initial query, this field is not present. If the responder returns a value of null or not present, then there is no more data to fulfill any future continuation requests. For use with continuations of unsolicited messages, see the published HL7 Standard Version 2.5.1 Chapter 5 and Section 2.10.2, “Continuation messages and segments.” Note that continuation protocols work with both display- and record-oriented messages.

DSC-2 Continuation Style (ID-1, Required or Empty) 01354

Definition: Indicates whether this is a fragmented message (see Section 2.10.2, “Continuation messages and segments” in the published HL7 Standard Version 2.5.1), or if it is part of an interactive continuation message (see Section 5.6.3, “Interactive continuation of response messages” in the published HL7 standard).

2.5.4. Message Acknowledgment (MSA) Segment

The MSA segment contains information sent while acknowledging another message.

MSA Attributes

Seq	Len	DT	Opt	RP #	Tbl #	Item #	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
1	2	ID	R		0008	00018	Acknowledgment code		R	[1..1]
2	20	ST	R			00010	Message control ID		R	[1..1]
3	80	ST	B			00020	Text message		CE	[0..1]
4	15	NM	O			00021	Expected sequence number		RE	[0..1]
5			W			00022	Delayed acknowledgment type		X	[0..0]
6	250	CE	B		0357	00023	Error condition		CE	[0..1]

MSA Field Definitions**MSA-1 Acknowledgment Code (ID-2, Required) 00018**

Definition: This field contains an acknowledgment code; see message processing rules. Refer to [HL7-Defined Table 0008 – Acknowledgment Code](#) for valid values.

MSA-2 Message Control ID (ST-20, Required) 00010

Definition: This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended.

MSA-3 Text Message (ST-80, Conditional or Empty) 00020

Definition: This optional field further describes an error condition. This text may be printed in error logs or presented to an end user.

The MSA-3 was deprecated as of Version 2.4. The reader is referred to the ERR segment. The ERR segment allows for richer descriptions of the erroneous conditions. However, for systems unable to populate the ERR segment, this field may be used to pass the error text message. Conditionality predicate: The error text must be populated here if the ERR is not used and an error occurs.

MSA-4 Expected Sequence Number (NM-15, Required or Empty) 00021

Definition: This optional numeric field is used in the sequence number protocol.

MSA-6 Error Condition (CE-250, Conditional or Empty) 00023

Definition: This field allows the acknowledging system to use a user-defined error code to further specify AR or AE type acknowledgments.

The MSA-6 was deprecated as of version 2.4. The reader is referred to the ERR segment. The ERR segment allows for richer descriptions of the erroneous conditions. This may be used if the sending system is unable to populate an ERR segment. Conditionality predicate: The error code must be populated here if the ERR is not used and an error occurs.

Refer to [HL7-Defined Table 0357 – Message Error Condition Codes](#) for valid values.

2.5.5. Error (ERR) Segment

The ERR segment is used to add error comments to acknowledgment (ACK) messages.

Use Cases:

Severity: A receiving application generates two messages, one an error and the other a warning, and sends each of them. The application displays them both, prefixing the messages appropriately with the severity.

Application Error Code: A receiving application generates an error that reports an application error code and returns this information in its response. This code in turn is used by helpdesk staff to pinpoint the exact cause of the error, or by the application to prompt an appropriate response from the user. (Example: Deceased date must be greater than or equal to birth date.)

Application Error Parameter: A receiving application encounters an error while processing a transaction. In addition to an error code, the application provides an error parameter that gives greater detail about the exact nature of the error. The receiving application looks up the message corresponding to the error code, substitutes in the parameter, and displays the resulting message to the user.

Diagnostic Information: While processing a transaction, a receiving application encounters an exception. When the exception is thrown, it provides a volume of detailed information relating to the error encountered. The receiving application captures the information and sends it in its response. The user reports the error to the help desk and, on request, faxes a copy of the diagnostic information to assist in analyzing the problem.

User Message: A user executes an application function that generates a transaction that is sent to another application for further processing. During this processing, the receiving application encounters an error and, as part of the error-handling routine, retrieves a User Message that it returns in its response. The originating application receives the error and displays it to the end user with the intent that the error condition can be resolved and the user can re-execute the function without error.

Inform Person Code: After submitting a dispense transaction, a response is returned to the user indicating that the patient may be abusing drugs. Given the sensitivity of this warning, the error is returned with an indicator stating that the patient should not be informed of the error, with the implication that steps should be taken to rule out or confirm the warning.

Override Type: If a business rule states that a prescription on hold cannot be dispensed, an override type might be “Dispense Held Prescription” to allow the prescription to be dispensed in exception to the rule.

Override Reason Codes: A patient is given a prescription. Before the patient can take all of the pills, however, some of the pills are spoiled. The patient returns to the pharmacy and explains the situation to the pharmacist. The pharmacist decides to replace the spoiled drugs. When attempting to record the event, however, a message is returned indicating that the dispense would exceed the maximum amount prescribed. The pharmacist overrides the rule and specifies an Override Reason Code to indicate a replacement of lost product.

Help Desk Contact: Help desk contact information is stored in a database. When an application error is encountered, the database is queried and the most current help desk contact information is returned in the error message. This is displayed to the user by the receiving application.

Better Error Location Information: The receiving system detects an error with the third repetition of the ROL.4 (Role Person – XCN).16 (Name Context – CE).4(Alternate Identifier – IS). The application identifies the specific repetition and component when raising the error, simplifying diagnosis of the problem.

Support for Multiple Error Locations: Two fields are marked as conditional, with the condition that one of the two must be specified. The sending application leaves both blank. The receiving application detects the problem and sends back a single error indicating that one of the fields must be filled in. The ERR segment identifies both positions within the message that relate to the error.

ERR Attributes

Seq	Len	DT	Opt	RP #	Tbl #	Item #	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnltly
1	493	ELD	B	Y		00024	Error code and location		X	[0..0]
2	18	ERL	O	Y		01812	Error location		RE	[0..5]
3	705	CWE	R		0357	01813	HL7 error code		R	[1..1]
4	2	ID	R		0516	01814	Severity		R	[1..1]
5	705	CWE	O		0533	01815	Application error code		X	[0..0]
6	80	ST	O	Y/10		01816	Application error parameter		X	[0..0]
7	2048	TX	O			01817	Diagnostic information		RE	[0..1]
8	250	TX	O			01818	User message		RE	
9	20	IS	O	Y	0517	01819	Inform person indicator		X	[0..0]
10	705	CWE	O		0518	01820	Override type		X	[0..0]
11	705	CWE	O	Y	0519	01821	Override reason code		X	[0..0]
12	652	XTN	O	Y		01822	Help desk contact point		RE	[0..3]

ERR-2 Error Location (ERL-18, Required or Empty, Repeating maximum 5) 01812

Definition: Identifies the location in a message related to the identified error, warning, or message. If multiple repetitions are present, the error results from the values in a combination of places.

ERR-3 HL7 Error Code (CWE-705, Required) 01813

Definition: Identifies the HL7 (communications) error code. Refer to [HL7-Defined Table 0357 – Message Error Condition Codes](#) for valid values.

ERR-4 Severity (ID-2, Required) 01814

Definition: Identifies the severity of an application error. Knowing if something is an error, a warning, or information is intrinsic to how an application handles the content. Refer to [HL7-Defined Table 0516 – Error Severity](#) for valid values. If ERR-3 has a value of “0”, ERR-4 will have a value of “I”.

Example: A warning could be used to indicate that notes were present but ignored because they could not be automatically processed, and therefore information could have been missed.

Example of information: When submitting a claim, a payer might indicate remaining coverage under limit.

ERR-7 Diagnostic Information (TX-2048, Required or Empty) 01817

Definition: Non-coded information that may be used by help desk or other support personnel to diagnose a problem.

ERR-8 User Message (TX-250, Required or Empty) 01818

Definition: The text message to be displayed to the application user. This differs from the actual error code and may provide more diagnostic information.

Example: [This program is having trouble communicating with another system. Please contact the help desk.]

ERR-12 Help Desk Contact Point (XTN-652, Required or Empty, Repeating maximum 3) 01822

Definition: Lists telephone, email, fax, and other relevant numbers for helpdesk support related to the specified error.

2.6. PATIENT ADMINISTRATION MESSAGE SEGMENTS

2.6.1. Patient Identification (PID) Segment

Used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

PID Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
1	4	SI	O			00104	Set ID – PID		R	[1..1]
2	20	CX	B			00105	Patient ID (External)		RE	[0..1]
3	250	CX	R	Y		00106	Patient identifier list	2300, 2320	R	[1..8]
4	20	CX	B	Y		00107	Alternate patient ID – PID		X	[0..0]
5	250	XPN	R	Y		00108	Patient name	2230, 2240, 2250	R	[1..8]
6	250	XPN	O			00109	Mother’s maiden name		X	[0..0]
7	26	TS	O			00110	Date/time of birth	240	RE	[0..1]
8	1	IS	O		0001	00111	Sex	220	RE	[0..1]
9	250	XPN	B	Y		00112	Patient alias	2280	RE	[0..8]
10	250	CE	O	Y	0005	00113	Race	160	RE	[0..6]
11	250	XAD	O	Y		00114	Patient address	70, 80, 100, 2330, 7520	RE	[0..4]
12	4	IS	B		0289	00115	County code		X	[0..0]
13	250	XTN	O	Y		00116	Phone number – home	2360	RE	[0..8]
14	250	XTN	O	Y		00117	Phone number – business		RE	[0..4]
15	250	CE	O		0296	00118	Primary language		RE	[0..1]
16	250	CE	O		0002	00119	Marital status	150	RE	[0..1]
17	250	CE	O		0006	00120	Religion	260	RE	[0..1]

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnity
18	250	CX	O			00121	Patient account number		CE	[0..1]
19	16	ST	B			00122	SSN number – patient		CE	[0..1]
20	25	DLN	B			00123	Driver’s license number – patient		X	[0..0]
21	250	CX	O	Y		00124	Mother’s identifier		X	[0..0]
22	250	CE	O	Y	0189	00125	Ethnic group	190	RE	[0..4]
23	250	ST	O			00126	Birthplace		RE	[0..1]
24	1	ID	O		0136	00127	Multiple birth indicator		X	[0..0]
25	2	NM	O			00128	Birth order		X	[0..0]
26	250	CE	O	Y	0171	00129	Citizenship		X	[0..0]
27	250	CE	O		0172	00130	Veterans military status		X	[0..0]
28	250	CE	B		0212	00739	Nationality		X	[0..0]
29	26	TS	O			00740	Patient death date and time		RE	[0..1]
30	1	ID	O		0136	00741	Patient death indicator	1760	RE	[0..1]
31	1	ID	O		0136	01535	Identity unknown indicator		RE	[0..1]
32	20	IS	O	Y	0445	01536	Identity reliability code		RE	[0..3]
33	26	TS	O			01537	Last update date/time		X	[0..0]
34	241	HD	O			01538	Last update facility		X	[0..0]
35	250	CE	C		0446	01539	Species code		X	[0..0]
36	250	CE	C		0447	01540	Breed code		X	[0..0]
37	80	ST	O			01541	Strain		X	[0..0]
38	250	CE	O	Y/2	0429	01542	Production class code		X	[0..0]
39	250	CWE	O	Y	0171	01840	Tribal citizenship		RE	[0..5]

Example:

```
PID|1||97 810430^^^HITECK PATH LAB-ATL&3D9328409&CLIA^PI~00466144^^^UNIVERSITY
HOSPITAL&470381&AHA^MR~3270686987^^^USHC^PN||SAMPLE30^ALLAN||19530621|M|||112
BROAD STREET^APT 10^ATLANTA^GA^30301^^H
```

This example segment shows that the patient named Allan Sample30 is a male born on June 21, 1953. A laboratory and a hospital patient identifier are included, along with the patient’s address.

PID Field Definitions

Usage Notes: It is not anticipated that several PID fields (PID-23 through PID-28) will be used for electronic laboratory reporting purposes.

PID-1 Set ID – PID (SI-4, Required) 00104

Definition: 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 1; for the second occurrence, the sequence number shall be 2; etc.

For laboratory-based reporting, it is required that information for only one patient be sent per message; in other words, one PID per MSH. Thus PID-1 must be—

Note: NAACCR standard reports have only one Patient per report, so this field should never contain anything other than “1.”

PID-2 Patient ID (CX-20, Required or Empty) 00105

Definition: This field has been retained for backward compatibility only. Since HL7 Version 2.3.1, the arbitrary term of “external ID” has been removed from the name of this field. The repetition, assigning authority, facility, and identifier type code attributes of the PID-3 Patient Identifier List allow distinctive identifier representation. PID-3 is preferred for all patient identifiers but if an identifier has historically been sent in PID-2 and the sender has been unable to move it to PID-3, it may be continued to be populated here.

Note: NAACCR recommends the use of PID-3 Patient Identifier List instead of PID-2 Patient ID. This field should only be used for the patient identifier if the sending system is unable to populate PID-3.

In the example, this field is not valued, but the “external ID” from the hospital is passed as a component in PID-3 Patient Identifier List.

PID-3 Patient Identifier List (CX-250, Required, Repeating maximum 8) 00106

Definition: This field contains the list of identifiers (one or more) used by the facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry). For cancer reporting, the patient identifiers must be in the specified order (Medical Record Number [MR]; Social Security Number [SS]; then any other patient identification number); and, at least one of the patient identifiers must contain information other than “unknown.”

Note for cancer registries: Corresponds to NAACCR items Medical Record Number [2300] and Social Security Number [2320].

HL7 Version 2.3 provided a field to record the patient’s Social Security number in PID-19 SSN – Patient. Since Version 2.3.1, HL7 has recommended using PID-3 Patient Identifier List for all patient identifiers along with the appropriate identifier type code ([User-Defined Table 0203 – Identifier Type](#)).

Cancer reporting will use PID-3 for multiple patient identifiers. For example, the first instance below is the Medical Record Number (MR) from St. Joseph’s Hospital (STJ) as assigning authority, with the AHA identifier for St. Joseph’s; the second is the patient’s Social Security number (SS); and the third is the Laboratory’s unique Patient Internal Identifier (PI), with the laboratory’s CLIA number.

```
|010203040^^^^MR^STJ&03D1234567&AHA~111223333^^^^SS^~97 810430^^^^PI^HITECK PATH LAB-ATL&3D9328409&CLIA|
```

Sometimes, however, laboratories use other labs as reference labs. For example, an anatomic pathology specimen from the Columbia Valley Memorial Hospital laboratory is sent to a reference laboratory named MediLab Co., and the result is reported to a cancer registry by MediLab Co. In the scenario described, the unique patient identifier from MediLab Co. would always appear first with the type code PI, along with the name and CLIA number for MediLab Co. as the assigning authority. Repetitions of the field also allow a reporting laboratory (MediLab Co.) to provide the medical record number and/or other patient identifiers assigned at the original institution that submitted a specimen for testing (i.e., Columbia Valley Memorial Hospital). The type code for the Columbia Valley Hospital identifier will be PT for Patient external identifier. In the example below, only the PT is included, and the MR from Columbia Valley Hospital is omitted.

Example:

```
|111223333^^^SS~95101100001^^^PI^MediLabCo-
  Seattle&45D0470381&CLIA~10543^^^PT^Columbia Valley Memorial
  Hospital&01D0355944&CLIA|
```

Because HL7 allows users to define the values for the subcomponents of the HD data type, the <assigning facility> has the following definition for the laboratory-based reporting message:

namespace ID	Name of originating laboratory
universal ID	Unique CLIA number of originating laboratory
universal ID type	“CLIA”

If a hospital laboratory will be reporting the result (and thus there will be only one hospital involved in collecting and processing the specimen), then the hospital laboratory’s patient identifier and the hospital CLIA ID will appear with typecode PI; no information will appear as an external ID. Likewise, if a reference laboratory receives a specimen from a doctor’s office and no preceding originating laboratory is used, then the reference laboratory’s patient identifier and reference laboratory CLIA ID will appear with the typecode PI; no information will appear as an external ID.

```
|010678509^^^MR^Columbia Valley Memorial Hospital&01D0355944&AHA~10543^^^PI^Columbia
  Valley Memorial Hospital&01D0355944&CLIA|
```

Please note that in Canada, identifier types may be determined by the local jurisdictional authority. Many of the common types have been added to User Defined Table 0203 (see [Appendix B](#)). An example of a Quebec health card number—

```
|AETU 7452 0315^^^Quebec Ministry of Health^JHN^^^QC&Québec&ISO3166_2|
```

Also illustrated in this example is the Assigning Jurisdiction component, which in this case is Provence de Québec (Canada), identified with the code from the ISO 3166-2 coding system (QC).

PID-5 Patient Name (XPN-250, Required, Repeating maximum 8) 00108

Definition: This field contains the names of the patient; the primary or legal name of the patient is reported first. Therefore, the name type code in this field should be “L – Legal.” Refer to [HL7-Defined Table 0200 – Name Type](#) for valid values. Repetition of this field is allowed for representing the same name in different character sets. Note that “last name prefix” is synonymous with “own family name prefix” in previous versions of HL7, as is “second and further given names or initials thereof” to “middle initial or name.” Multiple given names and/or initials are separated by spaces.

Example:

```
|SAMPLE30^ALLAN^^^L|
```

This field is listed as a required field by HL7 2.5.1. Although uncommon, some laboratories may not currently collect patient name information that may be used for either PID-3 or PID-5. It is strongly recommended that either a personal identifier unique to the testing laboratory (PID-3) or the patient name (PID-5) be provided. When the patient name is not available, the string “UNKNOWN” should be transmitted in this field.

```
|UNKNOWN|
```

Note for cancer registries: The first repeat of this field, with name type “L--Legal,” corresponds to NAACCR items Name--Last [2230], Name--First [2240], and Name--Middle [2250]. If the name type is “A--Alias” for an additional repeat, then this corresponds to NAACCR item Name--Alias [2280].

PID-7 Date/Time of Birth (TS-26, Required or empty) 00110

Definition: This field contains the patient's date and time of birth.

Example: June 21, 1953, would appear as—

|19530621|

Note for cancer registries: Corresponds to NAACCR item Birth Date [240].

PID-8 Sex (IS-1, Required or empty) 00111

Definition: This field contains the patient’s sex. Refer to [User-Defined Table 0001 – Sex](#) for valid values.

Example: Female would appear as—

|F|

Map defined value from Table 0001 “Other” to NAACCR value “Other (hermaphrodite).”

Note for cancer registries: Corresponds to NAACCR item Sex [220]. Requires conversion to NAACCR codes (see NAACCR Standards Volume II).

PID-9 Patient Alias (XPN-250, Required or Empty, Repeating maximum 8) 00112

Definition: This field contains names by which the patient has been known at some time. It is recommended that data be sent if available.

From version 2.4, this field has been retained for backward compatibility only. It is recommended to use [PID-5 – Patient Name](#) for all patient names. This field contained the name(s) by which the patient has been known at some time. Refer to [HL7-Defined Table 0200 – Name Type](#) for valid values.

In the example, this field is not valued.

Note for cancer registries: Corresponds to NAACCR item Name--Alias [2280]. If an alias is collected for the patient and it cannot be populated as a repeat of PID-5, then this field should be populated.

PID-10 Race (CE-250, Required or empty, Repeating maximum 6) 00113

Definition: This field identifies the patient’s race and coding system used to code race. Refer to [User-Defined Table 0005 – Race](#) for required values. For a more detailed table of race values, see CDC’s Race/Ethnicity Code Set at: http://www.cdc.gov/nchs/data/dvs/Race_Ethnicity_CodeSet.pdf.

Example:

|2054-5^Black or African American^HL70005^^^|

Note for cancer registries: Corresponds to NAACCR item Race 1 [160], Race 2 [161], Race 3 [162], Race 4 [163], and Race 5 [164]. Requires conversion to NAACCR codes (see NAACCR Standards Volume II).

PID-11 Patient Address (XAD-250, Required or empty, Repeating maximum 4) 00114

Definition: This field lists the mailing address of the patient (residence at diagnosis). Multiple addresses for the same person may be sent in the following sequence: The primary mailing address must be sent first in the sequence; if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence.

Example:

|2166Wells Dr^Apt B^Seattle^WA^98109^USA^M^^King^^A|

Note for cancer registries: Corresponds to NAACCR items Addr at DX--City [70], Addr at DX--State [80], Addr at DX--Postal Code [100], Addr at DX--No & Street [2330] and Address Type Code [7520].

PID-13 Phone Number – Home (XTN-250, Required or Empty, Repeating maximum 8) 00116

Definition: The patient’s personal telephone numbers. All personal telephone numbers for the patient are sent in this sequence. The first sequence is considered the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence. For laboratory-based reporting, telephone numbers provided in the first component of PID-13 will be accepted as well.

Refer to [HL7-Defined Table 0201 – Telecommunication Use Code](#) and [HL7-Defined Table 0202 – Telecommunication Equipment Type](#) for valid values.

Example:

|^PRN^PH^^^206^6793240^^after 5:00 pm~^VHN^PH^^^206^6795772|

or

|^^^206^6793240|

Note for cancer registries: Corresponds to NAACCR item Telephone [2360]. This field should be sent if the value is known.

Note: The legacy method of sending a formatted telephone number in the first component of the telephone number is discouraged. It is preferable to send the area code as component 6 and the telephone number as component 7 to prevent problems with parsing and displaying of telephone numbers received.

In the example, this field is not valued.

PID-14 Phone Number – Business (XTN-250, Required or Empty, Repeating maximum 4) 00117

Definition: Patient’s business telephone number. Repetitions are permitted, with the first one being the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

Refer to [HL7-Defined Table 0201 – Telecommunication Use Code](#) and [HL7-Defined Table 0202 – Telecommunication Equipment Type](#) for valid values.

Note for cancer registries: Corresponds to NAACCR item Telephone [2360]. This telephone number may be used if the Home Phone number is not known.

This field should be sent if the value is known.

PID-15 Primary Language (CE-250, Required or Empty) 00118

Definition: Patient's primary language. Refer to [User-Defined Table 0296 – Primary Language](#) (ISO 639) for suggested values.

This field should be sent if the value is known. The default value if this is not populated may vary from jurisdiction to jurisdiction

PID-16 Marital Status (CE-250, Required or empty) 00119

Definition: This field contains the patient's marital status. Refer to [User-Defined Table 0002 – Marital Status](#) for suggested values.

Example:

|S^single^HL70002|

Note for cancer registries: Corresponds to NAACCR item Marital Status at DX [150]. Requires conversion to NAACCR codes (see NAACCR Standards Volume II).

PID-17 Religion (CE-250, Required or Empty) 00120

Definition: This field contains the patient's religion, for example, Baptist, Catholic, Methodist, etc. [User-Defined Table 0006 – Religion](#) from HL7 Standard Version 2.5 is used as the HL7 identifier for the user-defined table of values for this field.

PID-18 Patient Account Number (CX-250, Conditional or Empty) 00121

Definition: This field contains the patient account number assigned by accounting to which all charges, payments, etc., are recorded. It is used to identify the patient's account. Refer to [HL7-Defined Table 0061 – Check Digit Scheme](#) in Appendix B.

In the example, this field is not valued.

Patient Account number should be populated in the PID-3 Patient Identifier List. If the value is known and the system is unable to populate the PID-3, then the value should be populated here.

PID-19 SSN Number – Patient (ST-16, Conditional or Empty) 00122

Definition: This field has been retained for backward compatibility only. It is recommended to use the e for all patient identifiers. However, to maintain backward compatibility, this field should also be populated. When used for backward compatibility, this field contains the patient's Social Security number. This number may also be an Railroad Retirement number.

Example:

|423523049|

Note: NAACCR Recommends use of PID-3 Patient Identifier List instead of PID-19 SSN Number. Patient Social Security Number should be populated in the PID-3 Patient Identifier List. If the value is known, and the system is unable to populate the PID-3, then the value should be populated here.

PID-22 Ethnic Group (CE-250, Required or Empty, Repeating maximum 4) 00125

Definition: This field further defines patient ancestry. Suggested values are listed in [User-Defined Table 0189 – Ethnic Group](#). State or locally defined codes may be listed in the first triplet. For a more detailed table, see

CDC's Race/Ethnicity Code Set at: <https://phinvads.cdc.gov/vads/SearchVocab.action>. According to HL7, the second triplet of the CE data type for Ethnic Group (alternate identifier, alternate text, and name of alternate coding system) is reserved for codes consistent with the categories established by the U.S. Office of Management and Budget (OMB). When both triplets are used, the second triplet codes must map to the OMB-compliant codes.

Note for cancer registries: Corresponds to NAACCR data item Spanish/Hispanic Origin [190].

PID-23 Birthplace (ST-250, Required or Empty) 00126

Definition: This field indicates the location of the patient's birth, for example "St. Francis Community Hospital of Lower South Side." The actual address is reported in PID-11 with an identifier of "N."

This field does not use NAACCR birthplace codes.

PID-29 Patient Death Date and Time (TS-26, Required or empty) 00740

Definition: This field contains the date and time at which the patient's death occurred. This field should be valued only if PID-30 is valued "yes."

In the example, this field is not valued.

Note for cancer registries: Corresponds to NAACCR data item Path-Date of Death [7550].

PID-30 Patient Death Indicator (ID-1, Required or empty) 00741

Definition: This field indicates whether or not the patient is deceased. Refer to [HL7-Defined Table 0136 – Yes/No Indicator](#) for valid values.

The value of an ID data type follows the formatting rules for an ST data type, except it is drawn from a table of HL7 legal values.

In the example, this field is not valued.

Note for cancer registries: Corresponds to NAACCR data item Vital Status [1760]. Requires conversion to NAACCR codes (see NAACCR Standards Volume II).

PID-31 Identity Unknown Indicator (ID-1, Required or Empty) 01535

Definition: This field indicates whether or not the patient's/person's identity is unknown. Refer to [HL7-Defined Table 0136 – Yes/No Indicator](#) for valid values.

- Y – the patient's/person's identity is unknown
- N – the patient's/person's identity is known

PID-32 Identity Reliability Code (IS-20, Required or Empty, Repeating maximum 3) 01536

Definition: This field contains a coded value used to communicate information regarding the reliability of patient/person identifying data transmitted via a transaction. Values could indicate that certain fields on a PID segment for a given patient/person are known to be false (e.g., use of default or system-generated values for Date of Birth or Social Security Number. Refer to [User-Defined Table 0445 – Identity Reliability Code](#) for suggested values.

PID-39 Tribal Citizenship (CWE-250, Required or Empty, Repeating maximum 5) 01840

Definition: This field contains the information related to a person's tribal citizenship. For tribal citizenship, in the United States, HL7 recommends using the Bureau of Indian Affairs (BIA) Tribal Identity List. For a local definition, [User-Defined Table 0171 – Citizenship](#) should be used.

This field repeats because persons can have tribal membership(s) and can be members of more than one tribe. The Name of Coding System component(s) of the CWE data type should be used to identify the table from which tribal membership is drawn.

2.6.2. Next of Kin/Associated Parties (NK1) Segment

Contains information about the patient's next of kin and other associated or related parties. This is a repeating segment, allowing multiple related parties. This segment is optional for cancer reporting.

NK1 Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
1	4	SI	R			00190	Set ID – NK1		R	[1..1]
2	250	XPN	O	Y		00191	Name		RE	[0..4]
3	250	CE	O		0063	00192	Relationship		RE	[0..1]
4	250	XAD	O	Y		00193	Address		RE	[0..4]
5	250	XTN	O	Y		00194	Phone number		RE	[0..4]
6	250	XTN	O	Y		00195	Business phone number		X	[0..0]
7	250	CE	O		0131	00196	Contact role		X	[0..0]
8	8	DT	O			00197	Start date		X	[0..0]
9	8	DT	O			00198	End date		X	[0..0]
10	60	ST	O			00199	Next of kin/AP job title		X	[0..0]
11	20	JCC	O		0327/ 0328	00200	Next of kin/AP job code/class		X	[0..0]
12	250	CX	O			00201	Next of kin/AP employee number		X	[0..0]
13	250	XON	O	Y		00202	Organization name – NK1		X	[0..0]
14	250	CE	O		0002	00119	Marital status		X	[0..0]
15	1	IS	O		0001	00111	Sex		X	[0..0]
16	26	TS	O			00110	Date/time of birth		X	[0..0]
17	2	IS	O	Y	0223	00755	Living dependency		X	[0..0]
18	2	IS	O	Y	0009	00145	Ambulatory status		X	[0..0]
19	250	CE	O	Y	0171	00129	Citizenship		X	[0..0]
20	250	CE	O		0296	00118	Primary language		X	[0..0]
21	2	IS	O		0220	00742	Living arrangement		X	[0..0]
22	250	CE	O		0215	00743	Publicity code		X	[0..0]
23	1	ID	O		0136	00744	Protection indicator		X	[0..0]
24	2	IS	O		0231	00745	Student indicator		X	[0..0]
25	250	CE	O		0006	00120	Religion		X	[0..0]
26	250	XPN	O	Y		00746	Mother's maiden name		X	[0..0]
27	250	CE	O		0212	00739	Nationality		X	[0..0]
28	250	CE	O	Y	0189	00125	Ethnic group		X	[0..0]
29	250	CE	O	Y	0222	00747	Contact reason		X	[0..0]
30	250	XPN	O	Y		00748	Contact person's name		X	[0..0]
31	250	XTN	O	Y		00749	Contact person's telephone number		X	[0..0]

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
32	250	XAD	O	Y		00750	Contact person's address		X	[0..0]
33	250	CX	O	Y		00751	Next of kin/AP's identifiers		X	[0..0]
34	2	IS	O		0311	00752	Job status		X	[0..0]
35	250	CE	O	Y	0005	00113	Race		X	[0..0]
36	2	IS	O		0295	00753	Handicap		X	[0..0]
37	16	ST	O			00754	Contact person social security #		X	[0..0]
38	250	ST	O			01905	Next of kin birthplace		X	[0..0]
39	2	IS	O		0099	00146	VIP indicator		X	[0..0]

Example:

The sample report does not contain next of kin or emergency contact information, so an example is added here.

```
NK1|1|SAMPLE30^JANET^ALICE^^^L|MTH^MOTHER^HL70063|2166 Wells Dr^Apt
B^Seattle^WA^98109|^679^3211320
```

This example segment shows information data for the patient's mother, Janet Alice Sample30, as the next of kin. The mother's contact information, such as home address and telephone number, is shown here.

NK1 Field Definitions

Usage Notes: It is not anticipated that several NK1 fields (NK1-7 through NK1-37) will be used for electronic laboratory reporting purposes.

NK1-1 Set ID – NK1 (SI-4, Required) 00190

Definition: The Set ID field numbers the repetitions of the segment within its association with the PID. For the first occurrence of the segment, the sequence number shall be 1, for the second occurrence, the sequence number shall be 2, etc.

A Set ID of 1 indicates that this segment is the first set of next-of-kin data and a Set ID of 2 indicates that this segment is the second set of next-of-kin data.

NK1-2 Name (XPN-250, Required or Empty, Repeating maximum 4) 00191

Definition: This field gives the name of the next of kin or associated party. Multiple names for the same person are allowed, but the legal name must be sent in the first sequence. If the legal name is not sent, then the repeat delimiter must be sent in the first sequence.

Example:

```
|Sample30^Janet^Alice^^^L|
```

where L indicates that the name type is a legal name.

If the value is known, it should be populated in this field.

NK1-3 Relationship (CE-250, Required or Empty) 00192

Definition: This field defines the personal relationship of the next of kin. [User-Defined Table 0063 – Relationship](#) gives suggested values from HL7 Standard, Version 2.5.1.

Example:

|MTH^mother^HL70063|

If the value is known, it should be populated in this field.

NK1-4 Address (XAD-250, Required or Empty, Repeating maximum 4) 00193

Definition: This field lists the mailing address of the next of kin/associated party identified above. Multiple addresses for the same person may be sent in the following sequence: the primary mailing address must be sent first in the sequence; if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence. If there is only one repetition of this field and an address type is not given, it is assumed to be the primary mailing address.

Example:

|2166 Wells Dr^Apt B^Seattle^WA^98109^USA^M^^King^^A|

When sending multiple addresses, the appropriate type code must be indicated. If the value is known, it should be populated in this field.

NK1-5 Phone Number (XTN-250, Required or Empty, Repeating maximum 4) 00194

Definition: The next of kin/associated party’s personal telephone numbers. All personal telephone numbers for the next of kin/associated party are sent in this sequence. The first sequence is considered the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

Refer to [HL7-Defined Table 0201 – Telecommunication Use Code](#) and [HL7-Defined Table 0202 – Telecommunication Equipment Type](#) for valid values.

Example:

|^^^^^206^6793240|

If the value is known, it should be populated in this field.

2.6.3. Patient Visit (PV1) Segment

The PV1 segment is used by cancer reporting applications to communicate associated provider information. Not all vendor software may be able to support this segment; if not supported, this segment is not required. Note change in PV1-3 from not supported (X) to optional (O).

PV1 Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardlnty
1	4	SI	O			00131	Set ID – PV1		RE	[0..1]
2	1	IS	R		0004	00132	Patient class		R	[1..1]
3	80	PL	O			00133	Assigned patient location		O	[0..0]
4	2	IS	O		0007	00134	Admission type		X	[0..0]
5	250	CX	O			00135	Preadmit number		X	[0..0]
6	80	PL	O			00136	Prior patient location		X	[0..0]
7	250	XCN	O	Y	0010	00137	Attending doctor	2460, 2465	RE	[0..2]
8	250	XCN	O	Y	0010	00138	Referring doctor	2470, 2475	RE	[0..2]
9	250	XCN	B	Y	0010	00139	Consulting doctor		RE	[0..2]
10	3	IS	O		0069	00140	Hospital service		X	[0..0]

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnlty
11	80	PL	O			00141	Temporary location		X	[0..0]
12	2	IS	O		0087	00142	Preadmit test indicator		X	[0..0]
13	2	IS	O		0092	00143	Re-admission Indicator		X	[0..0]
14	6	IS	O		0023	00144	Admit source		X	[0..0]
15	2	IS	O	Y	0009	00145	Ambulatory status		X	[0..0]
16	2	IS	O		0099	00146	VIP indicator		X	[0..0]
17	250	XCN	O	Y	0010	00147	Admitting doctor		RE	[0..2]
18	2	IS	O		0018	00148	Patient type		X	[0..0]
19	250	CX	O			00149	Visit number		X	[0..0]
20	50	FC	O	Y	0064	00150	Financial class		X	[0..0]
21	2	IS	O		0032	00151	Charge price indicator		X	[0..0]
22	2	IS	O		0045	00152	Courtesy code		X	[0..0]
23	2	IS	O		0046	00153	Credit rating		X	[0..0]
24	2	IS	O	Y	0044	00154	Contract code		X	[0..0]
25	8	DT	O	Y		00155	Contract effective date		X	[0..0]
26	12	NM	O	Y		00156	Contract amount		X	[0..0]
27	3	NM	O	Y		00157	Contract period		X	[0..0]
28	2	IS	O		0073	00158	Interest code		X	[0..0]
29	4	IS	O		0110	00159	Transfer to bad debt code		X	[0..0]
30	8	DT	O			00160	Transfer to bad debt date		X	[0..0]
31	10	IS	O		0111	00161	Bad debt agency code		X	[0..0]
32	12	NM	O			00162	Bad debt transfer amount		X	[0..0]
33	12	NM	O			00163	Bad debt recovery amount		X	[0..0]
34	1	IS	O		0111	00164	Delete account indicator		X	[0..0]
35	8	DT	O			00165	Delete account date		X	[0..0]
36	3	IS	O		0112	00166	Discharge disposition		X	[0..0]
37	47	DLD	O		0113	00167	Discharged to location		X	[0..0]
38	250	CE	O		0114	00168	Diet type		X	[0..0]
39	2	IS	O		0115	00169	Servicing facility		X	[0..0]
40	1	IS	B		0116	00170	Bed status		X	[0..0]
41	2	IS	O		0117	00171	Account status		X	[0..0]
42	80	PL	O			00172	Pending location		X	[0..0]
43	80	PL	O			00173	Prior temporary location		X	[0..0]
44	26	TS	O			00174	Admit date/time		X	[0..0]
45	26	TS	O	Y		00175	Discharge date/time		X	[0..0]
46	12	NM	O			00176	Current patient balance		X	[0..0]
47	12	NM	O			00177	Total charges		X	[0..0]
48	12	NM	O			00178	Total adjustments		X	[0..0]
49	12	NM	O			00179	Total payments		X	[0..0]

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
50	250	CX	O		0203	00180	Alternate visit ID		X	[0..0]
51	1	IS	O		0326	01226	Visit indicator		X	[0..0]
52	250	XCN	B	Y	0010	01274	Other health care provider		X	[0..0]

Example:

```
PV1|1|N||||ATTENDINGID^ATTENDINGDR^MANAGING|REFERRINGID^REFERRER^FOLLOWUP^^^DR
```

This example segment portrays the sending of a managing and a referring provider for the example report.

PV1 Field Definitions**PV1-1 Set ID – PV1 (SI-4, Required or Empty) 00131**

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be 1; for the second occurrence, the sequence number shall be 2; etc.

Note: Set ID should be |1| because the PV1 is not expected to repeat.

PV1-2 Patient Class (IS-1, Required) 00132

Definition: This field is used by systems to categorize patients by site. It does not have a consistent industry-wide definition. It is subject to site-specific variations. Refer to [User-Defined Table 0004 – Patient Class](#) for suggested values.

Note: PV1-2 is an HL7 required field—because there is no practical usage for this field in the cancer reporting message, the value “N” for Not Applicable will be sent.

PV1-7 Attending Doctor (XCN-250, Required or empty, Repeating maximum 2) 00137

Definition: This field contains the attending physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple attending doctors. The legal name must be sent in the first sequence. If the legal name is not sent, then a repeat delimiter must be sent in the first sequence. Depending on local agreements, either the ID or the name may be absent in this field.

For the purpose of cancer registries: Corresponds to NAACCR item Physician Managing [2460], defined as “the physician responsible for the overall management of the patient during diagnosis and/or treatment for this cancer,” for state medical license number or NPI Physician Managing [2465] for National Provider Identifier (NPI) or Physician Managing Other [7580] other local number.

PV1-8 Referring Doctor (XCN-250, Required or empty, Repeating maximum 2) 00138

Definition: This field contains the referring physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple referring doctors. The legal name must be sent in the first sequence. If the legal name is not sent, then a repeat delimiter must be sent in the first sequence. Depending on local agreements, either the ID or the name may be absent from this field. Refer to [User-Defined Table 0010 – Physician ID](#) for suggested values.

Note for cancer registries: Corresponds to NAACCR item Physician Follow-up [2470] for state medical license number or NPI Physician Follow-up [2475] for National Provider Identifier (NPI) or Physician Follow-up Other [7590] for other local number.

PV1-9 Consulting Doctor (XCN-250, Required or empty, Repeating maximum 2) 00139

Definition: Although HL7 has recommended that this field be used for backward compatibility only, because it has been replaced with the ROL segment as of version 2.5, this replacement was done only for Patient Administration messages. Results messages have incorporated the ROL segment only in later versions of the HL7 standard; therefore, NAACCR recommends that this field be used to transmit the consulting physician information in this version of cancer reporting messaging. The field sequences are used to indicate multiple consulting doctors. Depending on local agreements, either the ID or the name may be absent from this field. Refer to [User-Defined Table 0010 – Physician ID](#) for suggested values.

Note for cancer registries: Corresponds to NAACCR item Physician 3 [2490] for state medical license number or NPI Physician 3 [2495] for National Provider Identifier (NPI) or Path Physician 3 [7600] for other local number.

PV1-17 Admitting Doctor (XCN-250, Required or empty, Repeating maximum 2) 00147

Definition: This field contains the admitting physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple admitting doctors. The legal name must be sent in the first sequence. If the legal name is not sent, then a repeat delimiter must be sent in the first sequence. By local agreement, the name or ID may be absent in this field. Refer to [User-Defined Table 0010 – Physician ID](#) for suggested values.

2.7. SEGMENTS COMMON TO ORDERS AND OBSERVATIONS**2.7.1. Common Order (ORC) Segment**

Used to transmit fields that are common to all orders (all types of services that are requested).

ORC Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
1	2	ID	R		0119	00215	Order control		R	[1..1]
2	22	EI	C			00216	Placer order number		X	[0..0]
3	22	EI	C			00217	Filler order number		X	[0..0]
4	22	EI	O			00218	Placer group number		X	[0..0]
5	2	ID	O		0038	00219	Order status		X	[0..0]
6	1	ID	O		0121	00220	Response flag		X	[0..0]
7	200	TQ	O			00221	Quantity/timing		X	[0..0]
8	200	EIP	O			00222	Parent		X	[0..0]
9	26	TS	O			00223	Date/time of transaction		X	[0..0]
10	250	XCN	O	Y		00224	Entered by		X	[0..0]
11	250	XCN	O	Y		00225	Verified by		X	[0..0]
12	250	XCN	O	Y		00226	Ordering provider		X	[0..0]
13	80	PL	O			00227	Enterer's location		X	[0..0]
14	250	XTN	O	Y		00228	Call back phone number		X	[0..0]
15	26	TS	O			00229	Order effective date/time		X	[0..0]

16	250	CE	O			00230	Order control code reason		X	[0..0]
----	-----	----	---	--	--	-------	------------------------------	--	---	--------

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnity
17	250	CE	O			00231	Entering organization		X	[0..0]
18	250	CE	O			00232	Entering device		X	[0..0]
19	250	XCN	O	Y		00233	Action by		X	[0..0]
20	250	CE	O		0339	01310	Advanced beneficiary notice code		X	[0..0]
21	250	XON	O	Y		01311	Ordering facility name	7190, 7200	R	[0..4]
22	250	XAD	O	Y		01312	Ordering facility address	7210, 7220, 7230, 7240, 7235	RE	[0..4]
23	250	XTN	O	Y		01313	Ordering facility phone number	7250	RE	[0..4]
24	250	XAD	O	Y		01314	Ordering provider address	7140, 7150, 7160, 7170, 7165	RE	[0..4]
25	250	CWE	O			01473	Order status modifier		X	[0..0]
26	60	CWE	C		0552	01641	Advanced beneficiary notice override reason		X	[0..0]
27	26	TS	O			01642	Filler's expected availability date/time		X	[0..0]
28	250	CWE	O		0177	00615	Confidentiality code		RE	[0..1]
29	250	CWE	O		0482	01643	Order type		X	[0..0]
30	250	CNE	O		0483	01644	Enterer authorization mode		X	[0..0]
31	250	CWE	O			02286	Parent universal service identifier		CE	[0..1]

Example:

```
ORC|RE|||||||||||||||||ATLANTA CANCER SPECIALISTS|STREET ADDRESS 1^SUITE
#^ATLANTA^GA ^30303|^|^|^404^3213000
```

This example segment shows the name, address, and phone number for Atlanta Cancer Specialists, the ordering facility.

ORC Field Definitions

ORC-1 Order Control (ID-2, Required) 00215

Definition: Determines the function of the order segment.

Note: Because ORC-1 is an HL7 required field, the value “RE” (Observations to Follow) will be used for this interface.

ORC-21 Ordering Facility Name (XON-250, Required, Repeating maximum 4) 01311

Definition: This field indicates the medical facility where the specimen was obtained. Examples include inpatient facilities, outpatient surgical facilities, and medical clinics. Knowledge of the ordering facility allows public health officials to follow up on positive tests to obtain further clinical and epidemiologic information. Information on the ordering facility is most relevant to cancer registries. Both the Ordering Facility Name (ORC-21) and the Ordering Provider (OBR-16) must be provided; both fields cannot be blank. Note that both may be valued if both the Ordering Facility and the Ordering Provider are being transmitted.

The facility's identifier shall be placed in the tenth component <Organization Identifier (SD)>.

Example:

|University Hospital^^^^NPI^^^^1234567890|

Note for cancer registries: Corresponds to NAACCR items Path Ordering Facility Number NPI [7195] (for National Provider Identifier) or Path Ordering Facility Number [7190] (for other facility identification number) and Path Ordering Facility Name [7200].

ORC-22 Ordering Facility Address (XAD-250, Required or empty, Repeating maximum 4) 01312

Definition: This field contains the address of the facility placing the order.

For valid values in these components, refer to [User-Defined Table 0212 – Nationality](#) for country codes, [HL7-Defined Table 0190 – Address Type](#) for address type codes, [User-Defined Table 0289 – County/Parish](#) for county/parish codes, [User-Defined Table 0288 – Census Tract](#) for census tract codes, and HL7 Table 0465 – Name/Address Representation for address representation codes.

Example:

|2217 Rainier Way^^Renton^WA^98002^USA^M^^Black Hawk^^A|

Note for cancer registries: Corresponds to NAACCR items Path Ordering Fac Addr--No & St [7210], Path Ordering Fac Addr--City [7220], Path Ordering Fac Addr--State [7230], Path Ordering Fac--Postal Code [7240], and Path Ordering Fac-Country [7235].

ORC-23 Ordering Facility Phone Number (XTN-250, Required or empty, Repeating maximum 4) 01313

Definition: This field contains the telephone number of the facility placing the order. This field further identifies the laboratory identified in ORC-21.

Refer to [HL7-Defined Table 0201 – Telecommunication Use Code](#) and [HL7-Defined Table 0202 – Telecommunication Equipment Type](#) for valid values.

Example:

|^ASN^PH^helpline@medilab.com^^206^5549097|

Note for cancer registries: Corresponds to NAACCR item Path Ordering Fac--Telephone [7250].

ORC-24 Ordering Provider Address (XAD-250, Required or empty, Repeating maximum 4) 01314

Definition: This field contains the address of the care provider requesting the order. This field contains relevant address information for the ordering provider described in OBR-16.

For valid values in these components, refer to [User-Defined Table 0212 – Nationality](#) for country codes, [HL7-Defined Table 0190 – Address Type](#) for address type codes, [User-Defined Table 0289 – County/Parish](#) for

county/parish codes, [User-Defined Table 0288 – Census Tract](#) for census tract codes, and HL7 Table 0465 – Name/Address Representation for address representation codes.

Example:

```
|115 Pike Plaza^Suite 2100^Seattle^WA^98122^USA^^^^^A|
```

Note for cancer registries: Corresponds to NAACCR items Path Ordering Client/Phys Addr--Street [7140], Path Ordering Client/Phys Addr--City [7150], Path Ordering Client/Phys Addr--State [7160], Path Ordering Client/Phys Addr--Postal Code [7170], and Path Order Client/Phys Addr—Country [7165].

ORC-28 Confidentiality Code (CWE-250, Required or Empty) 00615

Definition: This field contains information about the level of security and/or sensitivity surrounding the order (e.g., highly sensitive, not sensitive, sensitive). Refer to [HL7-Defined Table 0177 – Confidentiality Code](#) for allowed values. The specific treatment of data with a particular confidentiality level is subject to site-specific negotiation.

ORC-31 Parent Universal Service Identifier (CWE-250, Conditional or Empty) 02286

Definition: This field contains the identifier code for the parent order, as identified in ORC-8 Parent (Conditionality predicate: may be populated if there is a parent), that caused this observation/test/battery to be performed. This can be based on local and/or “universal” codes. NAACCR recommends the “universal” service identifier. Note that ORC-8, Parent, does not have to be present for ORC-31 to be used.

Due to the CE data type’s having been withdrawn and replaced with the use of the CWE data type in national standards for many years, the cancer registry community has decided only to move forward with adoption of CWE for use in ORC-31. Please note that the HL7 constructs that result from the application of these rules differ from older interfaces, thus sending facilities must ensure that receiving facilities are able to accept and process them before reports formatted this way may be transmitted.

ORC-31 – Parent Universal Service Identifier is the same as OBR-50 – Parent Universal Service Identifier. If both fields are valued, they must contain the same value.

2.7.2. Observation Request Segment (OBR)

The Observation Request (OBR) segment is used to transmit information specific to an order for a diagnostic study or observation, physical exam, or assessment. The OBR defines the attributes of a particular request for diagnostic services or clinical observations. For laboratory-based reporting, the OBR defines the attributes of the original request for laboratory testing. Essentially, the OBR describes a battery or panel of tests that is being requested or reported. The OBR is somewhat analogous to a generic laboratory slip that is filled out when a physician requests a laboratory test. The individual test names and results for the panel of tests performed are reported in OBX segments, which are described below. As defined by the ORU syntax, there can be many OBXs per OBR, and there can be many OBRs per PID.

For cancer reporting, each OBR holds a single report. These reports may be of various types and styles. The identifying LOINC code reported in OBR-4 specifies the type of report, and the LOINC code reported in OBX-3 describes the type of information reported in OBX-5.

OBR Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
1	4	SI	O			00237	Set ID – OBR		R	[1..1]
2	22	EI	C			00216	Placer order number		RE	[0..1]
3	22	EI	C			00217	Filler order number ^a	7090	R	[1..1]
4	250	CE	R			00238	Universal service ID	7480	R	[1..1]
5	2	ID	B			00239	Priority		X	[0..0]
6	26	TS	B			00240	Requested date/time		X	[0..0]
7	26	TS	C			00241	Observation date/time ^b	732	R	[1..1]
8	26	TS	O			00242	Observation end date/time ^b		X	[0..0]
9	20	CQ	O			00243	Collection volume ^c		X	[0..0]
10	250	XCN	O	Y		00244	Collector identifier ^c	2480	RE	[0..4]
11	1	ID	O		0065	00245	Specimen action code		X	[0..0]
12	250	CE	O			00246	Danger code		X	[0..0]
13	300	ST	O			00247	Relevant clinical information		X	[0..0]
14	26	TS	B			00248	Specimen received date/time ^c		RE	[0..1]
15	300	SPS	B		0070	00249	Specimen source ^c		RE	[0..1]
16	250	XCN	O	Y		00226	Ordering provider	7100, 7110, 7120, and 7130	R	[0..4]
17	250	XTN	O	Y		00250	Order callback phone number	7180	RE	[0..4]
18	60	ST	O			00251	Placer field 1		X	[0..0]
19	60	ST	O			00252	Placer field 2		X	[0..0]
20	60	ST	O			00253	Filler field 1 ^a		X	[0..0]
21	60	ST	O			00254	Filler field 2 ^b	7070	RE	[0..1]
22	26	TS	C			00255	Results rpt/status chng-date/time ^a	7530	RE	[0..1]
23	40	MOC	O			00256	Charge to practice ^a		X	[0..0]
24	10	ID	O		0074	00257	Diagnostic serv sect ID		X	[0..0]
25	1	ID	C		0123	00258	Result status ^a	7330	R	[1..1]
26	400	PRL	O			00259	Parent result ^a		CE	[0..1]
27	200	TQ	B	Y		00221	Quantity/timing		X	[0..0]
28	250	XCN	O	Y		00260	Result copies to		X	[0..0]
29	200	EIP	O			00261	Parent ^c		CE	[0..1]
30	20	ID	O		0124	00262	Transportation mode		X	[0..0]
31	250	CE	O	Y		00263	Reason for study		RE	[0..20]
32	200	NDL	O			00264	Principal result interpreter ^a	7260, 7270, 7280, 7290, 7300, 7310	RE	[0..1]
33	200	NDL	O	Y		00265	Assistant result interpreter ^a		X	[0..0]
34	200	NDL	O	Y		00266	Technician ^a		X	[0..0]
35	200	NDL	O	Y		00267	Transcriptionist ^a		X	[0..0]
36	26	TS	O			00268	Scheduled date/ time ^a		X	[0..0]

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnlty
37	4	NM	O			01028	Number of sample containers ^c		X	[0..0]
38	250	CE	O	Y		01029	Transport logistics of collected sample ^c		X	[0..0]
39	250	CE	O	Y		01030	Collector's comment ^c		X	[0..0]
40	250	CE	O			01031	Transport arrangement responsibility		X	[0..0]
41	30	ID	O		0224	01032	Transport arranged		X	[0..0]
42	1	ID	O		0225	01033	Escort required		X	[0..0]
43	250	CE	O	Y		01034	Planned patient transport comment		X	[0..0]
44	250	CWE	O		0088	00393	Procedure code		CE	[0..1]
45	250	CE	O	Y	0340	01316	Procedure code modifier		X	[0..0]
46	250	CE	O	Y	0411	01474	Placer supplemental service information		X	[0..0]
47	250	CE	O	Y	0411	01475	Filler supplemental service information		X	[0..0]
48	250	CWE	C		0476	01646	Medically necessary duplicate procedure reason		X	[0..0]
49	2	IS	O		0507	01647	Result handling		RE	[0..1]
50	250	CWE	O			02286	Parent universal service identifier		CE	[0..1]

^a These items are known to the filler, not the placer. They are valued by the filler as needed when the OBR segment is returned as part of a report.

^b *OBR-7-observation date/time* and *OBR-8-observation end date/time* are the physiologically relevant times. In the case of an observation on a specimen, they represent the start and end of the specimen collection. In the case of an observation obtained directly from a subject (e.g., blood pressure, chest X-ray), they represent the start and end time of the observation.

^c These fields are relevant only when an observation is associated with a specimen. These are completed by the placer when the placer obtains the specimen. They are completed by the filler when the filler obtains the specimen.

Example:

```
OBR|1||97810430|11529-5^SURGICAL PATH REPORT^LN^^PATHOLOGY
REPORT^L|||20030922|||||
164341^ONCOLOGIST^HANNAH^^^DR|||||F|||||109772&PATHOLOGIST&QUINCY
```

This segment shows that a Surgical Pathology report identified by 97810430 was conducted on September 22, 2003. Dr. Hannah Oncologist ordered the report, and the pathologist who read the report was Quincy Pathologist. The “F” in OBR-25 indicates that this is a final result.

OBR Field Definitions

For electronic laboratory purposes, the placer and filler are defined as follows:

The placer is the person or service that requests (places order for) an observation battery (e.g., the physician, practice, clinic, or ward service that orders a laboratory test—X-ray, vital signs, etc.). The meaning is synonymous with, and used interchangeably with, “requestor.” See ORC-2 Placer Order Number, “Placer order number.”

The filler is the person or service that produces the observations (fills the order) requested by the requestor. The word is synonymous with “producer” and includes diagnostic and clinical services and care providers who report observations about their patients. The clinical laboratory is a producer of laboratory test results (filler of a laboratory order), the nursing service is the producer of vital signs observations (the filler of orders to measure vital signs), and so on.

OBR-1 Set ID – OBR (SI-4, Required) 00237

Definition: This field identifies 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 |

OBR-2 Placer Order Number (EI-22, Required or Empty) 00216

Definition: This field identifies an order number uniquely among all orders from a particular ordering application. The identifier contained on the pathology study requisition form, commonly referred to as the requisition number, should be reported in this field. This field should not contain the accession number for a specimen. The first component is a string that identifies an individual order. A limit of 15 characters is suggested but not required. It is assigned by the placer (ordering application). The second through fourth components contain the application ID of the placing application in the same form as the HD data type.

In the example, this field is not valued. The placer order number should be sent with the result if the laboratory has it. If the value is known to the laboratory, then this field should be valued.

OBR-3 Filler Order Number (EI-22, Required) 00217

Definition: This field is the order number associated with the filling application. It is assigned by the order filler (receiving) application. This string must uniquely identify the order (as specified in the order detail segment) from other orders in a particular filling application (e.g., clinical laboratory). This uniqueness must persist over time. For laboratory-based reporting, this field will be used to report the pathology report number, sometimes referred to as the laboratory specimen “accession number.” This is the unique identifier that the laboratory uses to track the specimen and the report record of the examination of the specimen and is assigned by the laboratory on receipt of the specimen(s).

The registry consolidates multiple reports for a case, such as when a reference laboratory or consult report is sent, which may carry a different Accession Number and/or Laboratory ID. When multiple reports from multiple facilities are included in a single HL7 message as components of the Pathology Report Collection, the Filler Order Number (and Laboratory ID) that is identified in the OBR containing the LOINC code for the collection (60567-5 Comprehensive pathology report panel) should be used to identify the overall case.

Example:

| 97 810430 |

In the above example, 97810430 is the number assigned by the pathology laboratory for the surgical specimen. In multi-specimen cases, this number refers to the entire Pathology Study case, with all of its specimens.

The second through fourth components are optional. Components 2 and 3 may be used to record multiple laboratories in situations when the testing laboratory is different than the sending laboratory, but NAACCR recommends using OBX-15 Producer’s Reference for this purpose.

Note for cancer registries: Corresponds to NAACCR item Path Report Number [7090]. The combination of laboratory ID and filler order number will uniquely identify a case. If a filler order number may recycle with a single-year period, a month identifier (01 through 12) should be prepended to it. Note that, generally, each laboratory creates its own Accession Number, so for parts of the report that contain results from other laboratories (reference send-outs), the Accession Numbers will be different. When a report from a reference laboratory is included as a supplemental report in the Pathology Report Collection, the Pathology Report Number is the Accession Number of the laboratory sending the collection. If the reference laboratory sends its report directly to the Registry, the burden is on the Registry to link the reference report to the rest of the reports on the case; at this time there is no standardized solution to this issue.

OBR-4 Universal Service ID (CE-250, Required) 00238

Definition: This field is the identifier code for the ordered observation/test/battery (not the test performed).

An example valuing all of the CE data type components for a surgical pathology report would appear as:

```
|11529-5^SURGICAL PATH REPORT^LN^1000^PATHOLOGY REPORT^L|
```

An example valuing all of the CE data type components for a cytology report would appear as:

```
|33716-2^Study Report: Cytology.non-gyn^LN^1100^CYTOLOGY REPORT^L|
```

An example valuing all of the CE data type components for an immunophenotype report would appear as:

```
|55230-7^Study Report: Immunophenotyping^LN^1200^IMMUNOPHENOTYPE REPORT^L|
```

No coding recommendation for laboratory-based reporting has been made for OBR-4 because the field describes the originally requested order (e.g., a hepatitis panel or antimicrobial susceptibility testing battery). The value of OBR-4 will be continued from the original order because this is a required field, but the information in OBR-4 will not be used routinely. The “informative field” for laboratory-based reporting is OBX-3, which should be used to provide an unambiguous, specific test name, and OBX-5 should provide the result of the test.

An example of the universal service identifier for a report of a hematology panel would appear as:

```
|^^^10002^Complete Blood Count^L|
```

Here, the code is a user-defined “local” code, as indicated by the <L> in the sixth subcomponent. Note that the Universal Service ID is a code that often represents the battery or collection of tests that make up a routine laboratory panel. The individual results of the different components of the CBC are reported in the OBX segments described below. For most laboratory tests that are reportable to public health officials, the description of the test and result is sufficiently given in OBX and does not need repetition here. Information in OBR-4 will not be used routinely in public health reporting.

Note for cancer registries: Corresponds to NAACCR data item Path--Report Type [7480]. See [Section 1.5.3](#) for all report types and styles.

Typical values used in cancer reporting for this code are shown in the following table:

NAACCR Codes	Description	Kind of Report	Style of Reporting	LOINC code	LOINC Component
01	Pathology	Primary Report	Narrative Text/ Synoptically Structured	11529-5	Surgical Pathology Study report
01	Pathology	Supplemental Report	Narrative Text/ Synoptically Structured	*22639-9	Path report.supplemental reports
01	Pathology	Consult Report	Narrative Text/ Synoptically Structured	60570-9 24611-6 (legacy systems)	Consultation note
01	Pathology	Autopsy Report	Narrative Text/ Synoptically Structured	18743-5	Autopsy note
01	Pathology	Addendum	Narrative Text/ Synoptically Structured	35265-8	Path report.addendum
01	Pathology	Primary Report	Synoptic	60568-3	Synoptic report
01	Pathology	Consult Report	Synoptic	60571-7	Consultation note.synoptic
01	Pathology	Addendum	Synoptic	60569-1	Report addendum.synoptic
01	Pathology	Pathology Report Collection	any	60567-5	Comprehensive pathology report panel
02	Cytology			33716-2	Study Report: Cytology.non-gyn
03	Gyn Cytology			33717-0	Study Report: Cytology.Cvx/Vag
04	Bone Marrow (biopsy/aspirate)			48807-2	Bone marrow aspiration report
05	Autopsy			18743-5	Autopsy note
06	Clinical Laboratory Blood Work, NOS			Various	
07	Tumor Marker (p53, CD's Ki, CEA, Her2/Neu, etc.)			Various	
08	Cytogenetics			55228-1	Study Report; Cytogenetics
09	Immunohistochemical Stains			55229-9	Study Report; Immune Stains
10	Molecular Studies			26435-8	Molecular pathology studies
11	Flow Cytometry, Immunophenotype			33719-6 55230-7	Study Report FC Immunophenotype
98	Other			NA	NA
99	Unknown			NA	NA

* This code (#22639-9) was used for supplemental reports, but because there are explicit LOINC codes for consult reports and addenda, the use of this code is deprecated and it should not be used in any new or updated interfaces. LOINC code 35265-8 should be used for narrative supplemental reports, and LOINC code 60569-1 should be used in OBR-4.1 for CAP synoptic checklists that are specific to tumor marker/biomarker tests.

OBR-7 Observation Date/Time (TS-26, Required) 00241

Definition: This field is the clinically relevant date/time of the observation. In the case of observations taken directly from a subject, it is the actual date and time the observation was obtained. In the case of a specimen-associated study, this field shall represent the date and time the specimen was collected or obtained. (This is a results-only field, except when the placer or a third party has already drawn the specimen.) This field is conditionally required. When the OBR is transmitted as part of a report message, the field must be filled in. If it is transmitted as part of a request and a sample has been sent along as part of the request, this field must be filled in because this specimen time is the physiologically relevant date-time of the observation.

Example:

|200011270930|

Note for cancer registries: Corresponds to NAACCR item Path--Date Spec Collection [7320].

OBR-10 Collector Identifier (XCN-250, Required or empty, Repeating maximum 4) 00244

Definition: When a specimen is required for the study, this field will identify the person who collected the specimen. Either name or ID code, or both, may be present. This field may be blank.

Example:

|EMLOYEEID^PHLEBOTOMIST^PAMELA|

(Pamela Phlebotomist is included as having drawn a blood sample.)

Note for cancer registries: When the specimen is collected by the surgeon, this field corresponds to NAACCR item Physician—Primary Surgeon [2480].

OBR-14 Specimen Received Date/Time (TS-26, Required or empty) 00248

Definition: For observations requiring a specimen, the specimen received date/time is the actual login time at the diagnostic service. This field must contain a value when the order is accompanied by a specimen, or when the observation required a specimen and the message is a report. For cancer reporting, generally surgery will collect the specimen; the date and time on the Pathology Study requisition form that accompanies the specimen is the timestamp filled in here.

Example:

|200011270930|

OBR-15 Specimen Source (SPS-300, Conditional or empty) 00249

Definition: *This field has been retained for backward compatibility only.* As of version 2.5, in messages in which the SPM segment is present, the use of SPM Specimen segment is favored over this field. This field identifies the site where the specimen should be obtained or where the service should be performed. Conditionality predicate: If the SPM segment is not present in the message, then this field is required to carry the specimen information. Otherwise, it is left empty. **Note:** This component should be reported in the required SPM segment in SPM-4.

The first component contains the specimen code, specimen source name, and code system (as a CWE data type component). Refer to [HL7-Defined Table 0487 – Specimen Type](#) (replaces HL7 Table 0070 – Specimen Source Codes) for valid entries.

An example using SNOMED CT:

|119359002&Bone Marrow specimen (specimen)&SCT|

Where <119359002> is the code, <Bone marrow specimen (specimen)> (is the text of the code, and <SCT> is the coding system from which the code and text were drawn. Refer to the SNOMED CT (SNOMED International January 2019) web browser tool to identify valid SNOMED CT codes at: <http://browser.ihtsdotools.org/index-ie.html?perspective=full&conceptId1=404684003&edition=us-edition&release=v20180901&server=https://prod-browser-extern.ihtsdotools.org/api/snomed&langRefset=900000000000509007>

An example using HL7 Table 0487:

```
|BNMRW&Bone Marrow&HL70487|
```

When the coding system used is drawn from an HL7 table, the third subcomponent—name of coding system—is valued as HL70487.

An example of a prostate specimen (right lobe) in which the specimen source code is from ICD-O-3 (name of coding system):

```
|C619&Prostate, NOS (C619) Right&ICD03|
```

An example for lymph nodes using the same coding system:

```
|C773&Lymphoma, axilla or arm-(C773) Right&ICD03|
```

It is strongly recommended that actual specimen sources be provided in OBR-15 and not surrogate descriptions such as “lavender-top” or “serum-separator tube.”

Non-Coded Specimen Sources: If coded text is not available, then the information is provided as either—

- The uncoded value in the second subcomponent of the first component of the SPS, as: |&free text uncoded data|
- Use the original text in the CWE, which is the ninth subcomponent, as |&&&&&&&&free text uncoded data|
- Use the HL7 Table 0487 code “TISS” to indicate the specimen type is tissue, and encode OBR-15 as: |TISS&TISSUE&HL70487|

OBR-16 Ordering Provider (XCN-250, Required, Repeating maximum 4) 00226

Definition: This field identifies the provider who ordered the pathology report (e.g., surgeon/physician who ordered the pathology report). The ID code and the name must be present. The Ordering facility name (ORC-21) and the Ordering provider (OBR-16) must be provided.

For example, the NPI number for Dr. Marcus Welby:

```
|1234567^Welby^M^J^Jr^Dr^^^&2.16.840.1.113883.4.6&ISO^L^^NPI|
```

Note on assigning authority: The Namespace ID of the HD datatype for all Assigning Authority fields in XCEN and CX data types is drawn from a local table (0300). Generally this is an obstacle to interoperability, so NAACCR recommends the use of the Universal ID component instead, which is an OID registered with HL7. The OID for the Medicare/CMS NPI namespace is 2.16.840.1.113883.4.6.

Note for cancer registries: Corresponds to NAACCR data items Path Ordering Client/Phys--Lic No [7100] or Path Ordering Client/Phys--Lic No NPI [7105], Path Ordering Client/Phys--LName [7110], Path Ordering Client/Phys--FName [7120], and Path Ordering Client/Phys--MName [7130].

OBR-17 Order Callback Phone Number (XTN-250, Required or Empty, Repeating maximum 4) 00250

Definition: This field is the telephone number for reporting a status or a result using the standard format with extension and/or beeper number when applicable.

Example:

|^WPN^PH^^^206^2770908^^before 5:00 pm~^ASN^PH^^^206^5620767|

or

|^^^^^^^^^^ (206) 277-0908|

Note for cancer registries: Corresponds to NAACCR data item Path Ordering Client/Phys--Phone [7180]. If the value is known, it should be populated in this field.

OBR-21 Filler Field 2 (ST-60, Required or empty) 00254

Definition: This field is similar to filler field #1 and is used for collection of the reporting facility telephone number (i.e., the laboratory telephone number).

Note for cancer registries: Corresponds to NAACCR data item Path Lab Phone Number [7070].

OBR-22 Results Rpt/Status Change – Date/Time (TS-26, Required or empty) 00255

Definition: This field specifies the date/time results are reported or status changed. The field is used to indicate the date and time that the results are composed into a report and released, or that a status, as defined in *ORC-5-order status*, is entered or changed.

The user values the field only as far as needed. The time zone is assumed to be that of the sender.

Note for cancer registries: Corresponds to NAACCR data item Date/Time Results Written as a Report or Report Changed [7530].

OBR-25 Result Status (ID-1, Required) 00258

Definition: This field is the status of results for this order. Refer to [HL7-Defined Table 0123 – Result Status](#) for valid entries.

Codes C (corrected) and F (final) are used for reporting to cancer registries. Note that code P (preliminary) is generally not sent to cancer registries.

Note for cancer registries: Corresponds to NAACCR item Path--Result Status [7330].

OBR-26 Parent Result (PRL-400, Conditional or Empty) 00259

Definition: This field provides linkages to messages describing previously performed tests. This important information, together with the information in *OBR-29-parent* (the identifiers associated with the parent placer and filler), uniquely identifies the OBX segment from the previously performed test that is related to this order (description of OBX segment provided below). The value reported in this OBX segment in the parent result is the organism or chemical species about which this battery reports. For example, if the current battery (as designated in OBR-4) is an antimicrobial susceptibility test, the parent result in OBR-26 contains a result from a previously performed antimicrobial susceptibility test, which identified the organism on which the current susceptibility was run. HL7 specifies here that the OBX-5 data will show only the text, or the second component of the CE data type used in the previous message. However, for electronic laboratory reporting, all the CE data type components of field OBX-5 from the previous parent message appear in this field of the present OBR, using subcomponent delimiters. This indirect linkage is preferred because the name of the organism in the parent result may undergo several preliminary values prior to finalization. This is an exception to the HL7 description for this component.

This field may be valued for cases in which there are multiple primary cancers, or inclusion of multiple reports on the same cancer of different types (such as Coded Synoptic and Text).

OBR-29 Parent (EIP-200, Conditional or Empty) 00261

Definition: This field relates a child to its parent when a parent/child relationship exists. The field is optional; however, it is recommended that the field be sent if available for laboratory-based reporting. This field may be sent when a parent result is provided. Reporting of antimicrobial susceptibility data requires that the parent result be populated with the name of the organism for which testing was performed (OBR-26). See OBR-26 for further description. Conditionality predicate: When the report message contains multiple OBR segments for multiple cancers, this field should be populated to link the different reports to the correct cancer. See [Appendix E](#) for more details.

An example showing a message fragment with an OBR for the overall case report on two cancers; two OBRs with text reports, each one of which is specific to one of the cancers; and two additional OBRs, each one containing a synoptic report for the different cancers. In this example there is a report on bladder and colorectal cancers, with both textual reports and synoptic reports on each, all linked, and in the same message. Note that the numerous OBX segments containing the actual report contents are not shown in this example.

```
OBR|1||58839674|11529-5^SURGICAL PATH REPORT^LN|...|...
OBR|2||58839697|11529-5^SURGICAL PATH REPORT^LN|...|^58839674|...
OBR|3||58839703|11529-5^SURGICAL PATH REPORT^LN|...|^58839674|...
OBR|4||58839775|^^^2567^BLADDER BIOPSY SYNOPTIC PATH REPORT^L|...|^58839697|...
OBR|5||58839775|^^^2567^COLON/RECTUM RESECTION SYNOPTIC PATH REPORT^L|...|^58839703|...
```

For more detailed examples, see [Appendix E](#).

OBR-31 Reason for Study (CWE-250, Required or Empty, Repeating maximum 20) 00263

Definition: For public health reporting, ICD-10-CM codes used to support testing and reimbursement should be used here. This field can repeat to accommodate multiple diagnoses. Refer to the website <https://www.cdc.gov/nchs/icd/icd10cm.htm> for information on ICD-10-CM codes.

The field would appear as:

```
OBR|...||C34.90^Malignant neoplasm of unspecified part of unspecified bronchus or
lung^I10C|...
```

If there is a known value for this field, it should be populated.

OBR-32 Principal Result Interpreter (NDL-200, Required or Empty) 00264

Definition: This field identifies the physician or other clinician who interpreted the observation and is responsible for the report content.

Comment: Use the first and last name of the physician/pathologist who interpreted the observation/result or the NPI (National Provider Identifier).

In the event the state license number is used record the state abbreviation, if the national provider identifier (NPI) is used, record NPI; if the local physician number is used, record DN.

Note for cancer registries: Corresponds to NAACCR items: Pathologist Last Name [7260], Pathologist First Name [7270], Pathologist Middle Name [7280], Pathologist Name Suffix [7290], Pathologist Lic Number [7300], Pathologist Lic--State [7310]. Also note that the NAACCR data items numbered 7000 and higher are specifically for use in Pathology Reporting as described in this Guide. Note that the Principal Result Interpreter

is required for reporting to cancer registries. This OBR-32 field has been relaxed to “Required or Empty” because some laboratories include this information in the prose of a text report and do not populate it separately in this field. This practice is discouraged; reasonable effort should be made to populate the Principal Result Interpreter in this OBR-32 field to reduce the burden on receiving registries.

An example showing this field with Dr. Quincy Pathologist, M.D., as the Principal Result Interpreter with an NPI of 109772 and recording the times that he actually read the slides would appear as:

```
OBR|...||109772&PATHOLOGIST&QUINCY&&&DR&&&NPI^201009301000^201009301040|...
```

Alternatively, if the registered OID for the namespace National Provider Identifier is to be used rather than using the local Namespace ID table 0363, the message would appear as:

```
OBR|...||109772&PATHOLOGIST&QUINCY&&&DR&&&2.16.840.1.113883.4.6&ISO^201009301000^201009301040|...
```

Note: The examples are showing only the population of the OBR-32 field; other fields in the segment are represented by ellipses (...).

OBR-44 Procedure Code (CWE-250, Conditional or Empty) 00393

Definition: This field contains a unique identifier assigned to the procedure, if any, associated with the Universal Service ID reported in field 4. *This field has been changed to a CWE data type (from a CE in the HL7 standard) for compatibility with clinical and ancillary systems that need to report the procedure in this field (rather than in an OBX) but need to send it as the Original Text component of the datatype.* This field will usually contain the CPT codes or SNOMED CT codes associated with the procedure. The CPT codes for the procedure may be available in other HL7 messages and are a licensed product of the American Medical Association. The SNOMED CT codes are available for use in the United States from the National Library of Medicine’s Unified Medical Language System (UMLS), and in Canada from the Canada Health Infoway Standards Collaborative. See [User-Defined Table 0088 – Procedure Codes](#) for examples. This generally is the procedure that was used to harvest the specimen. Conditionality predicate: If the procedure code is not identified in the OBX and it is coded, it should be populated here.

OBR-49 Result Handling (IS-2, Required or Empty) 01647

Definition: Transmits information regarding the handling of the result. For example, an order may specify that the result (e.g., an x-ray film) should be given to the patient for return to the requestor. Refer to [User-Defined Table 0507 – Observation Result Handling](#) for suggested values. If this field is not populated, then routine handling is implied.

OBR-50 Parent Universal Service Identifier (CWE-250, Conditional or Empty) 02286

Definition: This field contains the universal service identifier code for the parent order, as identified in ORC-8 Parent and/or OBR-29 Parent (if present), which caused this observation/test/battery to be performed. This can be based on local and/or “universal” codes. HL7 recommends the “universal” service identifier.

Notes:

ORC-8 Parent and/or OBR-29 Parent does not have to be present for OBR-50 to be used. However, the absence of ORC-8 Parent and/or OBR-29 Parent introduces potential ambiguity of the actual order being referenced.

ORC-8 Parent and OBR-29 Parent identify an individual parent order (e.g., OBR) for the ORC-31 Parent Universal Service Identifier and OBR-50 Parent Universal Service Identifier.

ORC-31 Parent Universal Service Identifier is the same as OBR-50, Parent Universal Service Identifier. If both fields are valued, they must contain the same value.

OBR-50 will be deprecated in version 2.7 to enable message developers to start to adjust and be prepared for supporting the intended 1:1 relationship between Placer/Filler Order Number and Universal Service Identifier.

2.7.3. Observation/Result (OBX) Segment

The OBX segment is used to transmit a single observation or observation fragment. It represents the smallest indivisible unit of a report. Its principal mission is to carry information about observations in report messages. Although OBR gives general information about the order for the test and ORC gives information on all services that are requested, the OBX segment gives the specific, individual tests performed (OBX-3) and the specific results for each test (OBX-5). Laboratory-based reporting to cancer registries focuses on OBX-3 and OBX-5 as the most informative elements of the message; thus, every effort should be made to make OBX-3 and OBX-5 as complete and unambiguous as possible.

The OBX segment is used in two different locations in the ORU_R01 message defined in this Guide: immediately following the OBR segment, and immediately following the SPM segment. The first location, where a repeating set of OBX segments follows the OBR, is intended to carry information about the overall case being reported. The second location in the message, where a repeating set of OBX segments is associated with an SPM segment, is intended to carry information that is specific to a particular specimen. Note that if the SPM segment is not used in an implementation, all observation information may be carried in the repeating set of OBX segments following the OBR.

For the structure of the message and OBX usage for particularly complex reports, such as those involving multiple cancers and multiple specimens, please refer to [Appendix E](#).

OBX Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardlnty
1	4	SI	O			00569	Set ID – OBX		R	[1..1]
2	3	ID	C		0125	00570	Value type		R	[1..1]
3	250	CE	R			00571	Observation identifier ^a		R	[1..1]
4	20	ST	C			00572	Observation sub-ID		RE	[0..1]
5	65536 ^b	^c	C	Y ^d		00573	Observation value ^a	7400, 7410, 7420, 7430, 7440, 7450, 7460, 7470, 2600, 7080, 7340, 7350, 7360, 7370, 7380, 7390	R	[1..12]
6	250	CE	O			00574	Units	7540	RE	[0..1]
7	60	ST	O			00575	Reference ranges		RE	[0..1]
8	5	IS	O	Y	0078	00576	Abnormal flags		RE	[0..5]
9	5	NM	O			00577	Probability		X	[0..1]
10	2	ID	O	Y	0080	00578	Nature of abnormal test		RE	[0..5]
11	1	ID	R		0085	00579	Observation result status	7330	R	[1..1]

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnltly
12	26	TS	O			00580	Effective date of reference range values		X	[0..0]
13	20	ST	O			00581	User-defined access checks		X	[0..0]
14	26	TS	O			00582	Date/time of the observation		RE	[0..1]
15	250	CE	O			00583	Producer's reference		CE	[1..1]
16	250	XCN	O	Y		00584	Responsible observer		RE	[0..5]
17	250	CE	O	Y		00936	Observation method		RE	[0..6]
18	22	EI	O			01479	Equipment instance identifier		X	[0..1]
19	26	TS	O			01480	Date/time of the analysis		CE	[0..1]
20							Reserved for harmonization with v2.6		X	[0..0]
21							Reserved for harmonization with v2.6		X	[0..0]
22							Reserved for harmonization with v2.6		X	[0..0]
23	567	XON	O	N		02283	Performing organization name		RE	[0..1]
24	631	XAD	O	N		02284	Performing organization address		CE	[0..1]
25	3002	XCN	O	N		02285	Performing organization medical director		X	[0..0]

^aFor laboratory-based reporting, LOINC is strongly recommended for OBX-3, and SNOMED CT is strongly recommended for OBX-5 when results are coded and CE data types are used.

^bThe length of the observation value field is variable, depending upon value type. See *OBX-2-value type*.

^cThe data type for OBX-5 can vary and is determined by OBX-2.

^dMay repeat for multipart, single answer results with appropriate data types (e.g., CE, TX, and FT data types).

Examples:

For cancer reporting using text value type results:

```
OBX|1|TX|22627-3^FINAL DIAGNOSIS^LN^^DIAGNOSIS^L|1|LEFT INGUINAL LYMPH NODE - GRANULOMATOUS LYMPHADENITIS|||||F
```

For patient age and employment:

```
OBR|2|||^ Additional Patient Demographics|...
OBX|1|NM|21612-7^reported patient age^LN||47|yr^year^ANSI+|...
OBX|2|TX|11294-6^Current employment^LN||laboratory technician|...
```

OBX Field Definitions

OBX-1 Set ID – Observation Simple (SI-4, Required) 00569

Definition: This field contains the sequence number. There can be many OBXs per OBR. The set ID allows the receiver to maintain the relational aspects of the message.

Example:

| 1 |

This field can be used to track a number of results within one test panel.

OBX-2 Value Type (ID-3, Required) 00570

Definition: This field contains the data type that defines the format of the observation value in OBX-5. An explanation of possible data types is given in [Appendix C](#).

This field contains the data type of the observation value reported in OBX-5. For instance, if the value in OBX-2 is “CE,” then the result reported in OBX-5 must be a coded element. When the value type is TX or FT, then the results in OBX-5 are bulk text. The choices allowed for the value type of an observation are listed in [HL7-Defined Table 0125 – Value Type](#). All HL7 data types are valid in this field except CM, CQ, SI, and ID. TX should not be used except to send large amounts of text. ST should be used to send short, and possibly encodable, text strings. For laboratory-based reporting, the CE, CWE, NM, and SN data types should be used whenever possible so that results can be interpreted easily.

When no standard format for the reported result is available, it is recommended to use (see OBX-5 for additional explanation):

- (1) CE with subsequent NTE for non-standard coded results when the result is a predefined text block.
- (2) TX for results that are truly free text.

Observations that usually are reported as numbers will sometimes have the string (ST) data type because non-numeric characters are often reported as part of the result (e.g., “<0.06”) to indicate the result was lower than detected by the present mechanism. In the example “<0.06,” “<” is a text symbol and the digit, “0.06” is considered a numeric value. However, this usage of the ST type should be discouraged because the SN (structured numeric) data type now accommodates such reporting. The SN data type is described under OBX-5 below.

OBX-3 Observation Identifier (CE-250, Required) 00571

Definition: This field contains a unique identifier for the observation and often is referred to as the question code. It identifies what is being reported in OBX-5, which often is referred to as the answer code. Examples of OBX-3 include the name of the specific test or observation method, and the name of the component part of the pathology report. For pathology reporting, OBX-3 uses a CE data type construct.

As noted in the table below, anatomical pathology reports, cytology reports, and hematology reports typically are in a narrative style format, and the information is contained within different sections or headings. This field contains the LOINC codes, which must be used when transmitting text-based information, for the text-based NAACCR data items. In addition to the below text-based LOINC codes, a pathology report may contain additional coded data elements and text-based information. Possible coded data elements include ICD-10-CM, CPT, ICD-O-3, and SNOMED CT information (see OBX-5). In the United States and Canada, the typical convention is to use LOINC codes as the question code (OBX-3). The codes in this table are components of the NAACCR Volume II reporting panel and are used primarily for labeling the sections of narrative reports;

although some may be used in synoptic reports under certain circumstances (see [Section 1.5.2](#), above). These are only used when a section is separate from the set of OBX segments holding the synoptic report structured data.

NAACCR Item Name	NAACCR Item#	LOINC Code	LOINC Component Name
Path--Final Diagnosis	7450	22637-3	Path report.final diagnosis
Path--Text Diagnosis	7400	33746-9	Pathologic findings
Path--Clinical History	7410	22636-5	Pathology report.relevant Hx
Path--Nature of Specimen	7420	22633-2	Pathology report.site of origin
Path--Gross Pathology	7430	22634-0	Pathology report.gross observation
Path--Micro Pathology	7440	22635-7	Path report.microscopic observation
Path--Comment Section	7460	22638-1	Pathology report.comments
Path--Suppl Reports	7470	*22639-9	Pathology report.supplemental reports
Path--Addendum	—	35265-8	Path report.addendum
—	—	60568-3	Path report.synoptic summary
Path--Addendum (Synoptic Report)	—	60569-1	Report addendum.synoptic

* This code (#22639-9) was used for supplemental reports, but because there are explicit LOINC codes for consult reports and addendum, the use of this code is deprecated and should not be used in any new or updated interfaces. LOINC code 35265-8 should be used for narrative supplemental reports, and LOINC code 60569-1 should be used in OBX-3.1 for CAP synoptic checklists that are specific to tumor marker/biomarker tests.

In addition to the above elements, pathology, hematology, and cytology reports may contain additional test or report results such as Complete Blood Count, Flow Cytometry, Estrogen Receptor Assay (ERA), Progesterone Receptor Assay (PRA), and Fluorescence *in situ* Hybridization (FISH). If these additional test results are available as discrete data elements, they should be included in the message with the appropriate LOINC test code and name in OBX-3. The associated value (or text-finding) and test reference ranges, if appropriate, should be included in OBX-5. The LOINC codes for additional related laboratory tests can be found at no cost at the LOINC website: <http://www.loinc.org>. The entire terminology may be downloaded for local use, or it may be searched at that location. For example, a report that is encoded might use LOINC codes such as 59847-4 Histology and Behavior ICD-O-3 or 59848-2 Morphology.ICD-O-3 to indicate such an ICD-O-3 code in the report.

The first component of OBX-3 is the LOINC code for a data element (text-based or coded) that will be transmitted. The second component is the name of the data element (text-based or coded) as it appears in the LOINC coding system. The third component is a code representing the name of the coding system that has the table in which the codes and names of the data elements (text-based or coded) can be found (e.g., LN is the code for LOINC). Coding systems other than LOINC, such as SNOMED CT or CPT, can be used. The codes for identifying coding systems are found in the HL7 standard documentation (<http://www.hl7.org>). Codes anticipated for use in public health and cancer registration reporting are shown in [User-Defined Table 0396 – Coding System](#).

Below are examples of LOINC codes used to identify sections of a pathology report, such as nature of specimen/site of origin and final diagnosis.

```
OBX|2|ST|22633-2^nature of specimen^LN|1|left breast biopsy...
```

```
OBX|1|TX|22637-3^Path report final diagnosis^LN||Malignant lymphoma, small B-cell type with plasmacytic differentiation and crystal-storing histiocytosis|...
```

Where <22633-2> is the identifier from the LOINC table for nature of specimen, <nature of specimen> is the text name as it appears in the table, <LN> is the name of the coding system, <1> specifies that it is the first specimen, and <left breast biopsy> identifies the specimen.

```
OBX|9|TX|22637-3^final diagnosis^LN||1. Infiltrating duct carcinoma, left breast...
```

Where <22637-3> is the identifier from the LOINC table for the final diagnosis, <final diagnosis> is the text name as it appears in the table, <LN> is the name of the coding system, and <1. Infiltrating duct carcinoma, left breast> is the final diagnosis for the first specimen.

For cancer reporting, patient age is sometimes needed when the birth date may not be available. The PID segment in HL7 Version 2.5.1 has only a field for date of birth, not for patient age. Many applications compute patient age based on birth date. In the absence of birth date, patient age may be recorded within an ORU message in an additional OBR/OBX combination of segments. The suggested data type for patient age is NM, which is recorded in OBX-2. The LOINC code for age is represented in OBX-3, and actual age is represented in OBX-5. Patient age can be “reported age” at the time of diagnosis (LOINC code 21612-7) or “estimated age” (LOINC code 21611-9). When birth date is unknown, age may be estimated by a third party on the basis of physical evidence.

A similar method may be used to record employment information that is not otherwise available in an ORU message. Several different LOINC codes identifying History of Occupation, Usual Occupation, Current Employment, Age at Diagnosis, Industry etc., are available. The appropriate LOINC code should be represented when sending patient employment information.

OBX-4 Observation sub-ID (ST-20, Required or Empty) 00572

Definition: This field is used to distinguish between multiple OBX segments with the same observation ID organized under one OBR. For example, a blood culture may have three different organisms growing, or a chest X-ray report might include three separate diagnostic impressions. The standard requires three OBX segments, one for each impression. By recording 1 in the sub-ID of the first of these OBX segments, 2 in the second, and 3 in the third, each OBX segment can be uniquely identified for editing or replacement. The sub-identifier can be further extended by adding decimals (e.g., 2.1, 2.2). It is strongly recommended that numeric values be used for laboratory-based reporting so that receiving applications can easily maintain the relational quality of the data.

The sub-identifier also is used to group related components in reports such as surgical pathology. It is traditional for surgical pathology reports to include all the tissues taken from one surgical procedure in one report. The example below has two segments of the report, one for each of the two tissues, the right colon, and the Rectosigmoid colon. Thus, there are two site-of-origin segments, there are two gross description segments, and there are two microscopic segments. Segments that apply to the right colon all have the sub-identifier 1. Segments that apply to the Rectosigmoid colon all have sub-identifier 2. The use of the sub-ID to distinguish repeating OBXs for the same observation ID is really a special case of using the sub-ID to group related subdivisions of information within the overall observation category. In such multi-specimen cases, this value must be populated. This field must be used carefully to avoid introducing ambiguities.

Example of sub-identifier usage for narrative reports:

```
OBR|1||97 810430|11529-5^Surgical Pathology Study Report^LN|...
SPM|1|97 810430||TISS^Tissue^HL70487|||C189^Colon NOS^ICD03
|||||202011091000|202011100900|1A-97 810430^^^PATHCONSULTANTS
OBX|1|ST|22633-2^Pathology report.site of origin^LN|1|right colon...
```

```

OBX|2|TX|22634-0^Pathology report.gross observation^LN|1|A: Specimen #1 is labeled
"colon" and consists of a segment of bowel measuring 13cm in length after
fixation...
OBX|3|TX|22635-7^Path report.microscopic observation^LN|1|A: Sections show two
biopsies of colon in which there is mild chronic inflammation in the lamina
propria. The colonic glands are regular and the goblet cell population is
preserved.There is no evidence of dysplasia or malignancy in the plane of
sections examined...
OBX|4|TX|22637-3^Pathology report final diagnosis^LN|1|A: BIOPSIES OF RIGHT COLON -
NO EVIDENCE OF DYSPLASIA OR MALIGNANCY...

OBR|2||97 810430|11529-5^Surgical Pathology Study Report^LN|...
SPM|1|97 810430||TISS^Tissue^HL70487|||C199^Rectosigmoid
junction^ICDO3|||||202011091000|202011100900|||||1B-97
810430^^^PATHCONSULTANTS
OBX|1|ST|22633-2^Pathology report.site of origin^LN|2|Rectosigmoid colon, biopsy...
OBX|2|TX|22634-0^Pathology report.gross observation^LN|2|B: The specimen consists of
a single dark tan, multi-lobulated sessile polyp that measures 2.1...
OBX|3|TX|22635-7^Path report.microscopic observation^LN|2|B: Sections show invasive,
moderately differentiated adenocarcinoma...
OBX|4|TX|22637-3^Pathology report final diagnosis^LN|2|B: ADENOCARCINOMA IN A
BACKGROUND OF A TUBULAR ADENOMA...

```

Use of OBX-4 in structured reports:

The Observation sub-ID is used to link certain types of multi-part answers. Multiple question-answer pairs that are grouped together under a particular heading should be linked together with the OBX-4 sub-ID field to preserve their association. However, this is not an absolute requirement, as some systems may be unable to construct this linkage. See [Section 3.4.2.2 Synoptic Segmented](#) in Chapter 3 for additional guidance.

OBX-5 Observation Value ([11]* Data type varies, User-assigned, Required, Repeating maximum 12) 00573

Definition: The results of the test appear here. For cancer registry reporting, the text of the pathology report (e.g., nature of specimen, gross pathology, final diagnosis) will be recorded in this segment. OBX-3 is typically referred to as the question code, and OBX-5 is referred to as the answer code. If multiple results or different sections of the pathology report are being reported for a case, it is recommended that they be entered in separate OBX segments. (See Chapter 3 for an example of a pathology report with multiple OBX segments.)

Below are some examples of segments for the transmission of text pathology report data.

```

OBX|1|TX|22637-3^Path report.final diagnosis^LN||Malignant lymphoma, small B-cell
type with plasmacytic differentiation and crystal-storing histiocytosis|...

OBX|1|TX|22636-5^Path report.relevant Hx^LN|| The patient was a 58 year-old woman who
had inflammatory ductal carcinoma of the left breast diagnosed on a core biopsy in
January 2007. An axillary lymph node was positive for metastatic disease on a
concurrent FNA. The tumor was found to be ER-positive, PR-negative, and Her2-Neu
weakly positive. Workup for further metastatic disease found multiple lesions in
the liver and spine as well as a 5 cm mass in the upper pole of the left kidney.
She received neoadjuvant chemotherapy and then underwent a modified radical
mastectomy in September 2005 that found extensive primary tumor as well as
metastases in 14 of 14 axillary lymph nodes.|...

```

For laboratory-based reporting, SNOMED CT is strongly recommended for OBX-5 whenever the CE (coded element) data type is indicated in OBX-2. If CE appears in OBX-2, it is assumed that OBX-3 uses a LOINC code and the result in OBX-5 is coded using SNOMED CT, ICD-10-CM, or CPT. OBX-5 indicates the coding system used a table of the coding systems as noted in Table 0396.

When numeric results are sent in OBX-5, the SN or NM data type is preferred for OBX-2 and, thus, SNOMED CT is not required. OBX-5 may have either the SNOMED CT code for “positive” or the SNOMED CT-specific names of organisms identified in the tests described in OBX-3. It is strongly recommended that the SNOMED CT code be used for the modifiers “positive” and “negative.” Other modifiers should be avoided, such as “limited findings,” “insufficient specimen,” “patient not at bedside,” or “see technician.” Further information on SNOMED CT can be found at the SNOMED CT website at <http://www.snomed.org>.

Examples:

An example for a SNOMED CT-coded final diagnosis:

```
OBX|1|CWE|22637-3^path report.final diagnosis^LN||82711006^Infiltrating duct carcinoma^ SCT|...
```

An example for malignant melanoma as final diagnosis; has an ICD-10-CM Disease Code in OBX-5:

```
OBX|1|CWE|22637-3^Path report.final diagnosis^LN||C43.30^Malignant melanoma of other and unspecified parts of face^I10C|...
```

An example for the transmission of CPT-coded elements:

```
OBX|1|CWE|33721-2^Bone marrow pathology biopsy report^LN||38221^Diagnostic bone marrow biopsy^C4|...
```

An example with the transmission of an ICD-10-PCS Procedure Code:

```
OBX|1|CWE|21938-6^Surgical approach^LN||OBTJ0ZZ^Resection of left lower lung lobe, open approach^I10P|...
```

An example for the transmission of an ICD-O-3-coded element for histology:

```
OBX|2|CWE|31205-8^Histology ICD-O-3^LN||98613^Acute myeloid leukemia NOS ^ICD03|...
```

An example for the transmission of an ICD-O-3-coded element for a tumor site:

```
OBX|11|CWE|22035-0^Primary site Cancer^LN||C11.3^Anterior wall of nasopharynx ^ICD03|...
```

An example of a CWE data type for primary site with the version of the SNOMED CT code system noted in the OBX-5:

```
OBX|1|CWE|21855-2^Primary Site^LN||93796006^Primary malignant neoplasm of female breast^SCT^^^January 2002|...
OBX|14|CWE|405979002^ Pathologic TNM Stage^SCT
```

```
||373204007^pT1b: Tumor more than 0.5 cm but not more than 1.0 cm in greatest  
dimension (breast)^SCT^^^July 2007|||||F
```

An example of a complete OBX segment coded for reported age of the patient at the time of diagnosis:

```
OBX|1|NM|21612-7^Age Patient Qn Reported^LN||47|yr^year^ANSI+|...
```

Similarly, a complete OBX segment for patient employment would appear as:

```
OBX|2|TX|11294-6^Current employment^LN||coal miner|||||F
```

An example for malignant melanoma as final diagnosis; has an ICD9-CM in OBX-5:

```
OBX|1|CWE|22637-3^Path report.final diagnosis^LN||C43.3^Malignant  
melanoma Other and unspecified parts of face^I10C|...
```

An example with two separate OBX rows. The first row pertains to nature of specimen and has a CPT-4 code in the OBX-5 field. The second row has final diagnosis (morphology as both histology and behavior) sent using ICD-O-3:

```
OBX|1|CWE|22633-2^Path report.nature of specimen^LN||85097^Bone marrow biopsy^C4|...
```

```
OBX|2|CWE|59847-4^Histology and Behavior ICD-O-3^LN||98613^Acute myeloid leukemia  
NOS^ICD03|...
```

An example of reporting OBX-5 with a large block of text as formatted text for easier processing by the receiving system. Format character used in cancer reporting is \X0D\\X0A\, which is a computer-readable instruction indicating the start of a new line.

Synoptic Summary for Thyroid OBX-5; with formatting characters

```
Synoptic Summary\X0D\\X0A\Thyroid\X0D\\X0A\Procedure: Total thyroidectomy; right paratracheal  
lymph node\X0D\\X0A\biopsy\X0D\\X0A\Tumor Focality: Multifocal\X0D\\X0A\Tumor Site:  
Right\X0D\\X0A\Tumor Size: 1.0 cm and 0.5 cm\X0D\\X0A\Histologic Type: Papillary, well  
differentiated\X0D\\X0A\Margins: Free; the closest inked resection margin < 0.1  
cm\X0D\\X0A\Angioinvasion (Vascular Invasion): Not identified\X0D\\X0A\Lymphatic Invasion: Not  
identified\X0D\\X0A\Perineural Invasion: Not identified\X0D\\X0A\Extrathyroidal Extension: Not  
identified\X0D\\X0A\Regional Lymph Nodes\X0D\\X0A\Number of Lymph Nodes Involved: 1, level  
VI\X0D\\X0A\Number of Lymph Nodes Examined: 1\X0D\\X0A\Size of Largest Metastatic Deposit  
(centimeters): 0.2 cm\X0D\\X0A\Extranodal Extension (ENE): Present\X0D\\X0A\Pathologic Staging  
(pTNM):\X0D\\X0A\TNM Descriptors: m\X0D\\X0A\Primary Tumor (pT)  
mpT1a\X0D\\X0A\Regional Lymph Nodes( pN): mpN1a\X0D\\X0A\Distant Metastasis  
(pM): mpMx\X0D\\X0A\Additional Pathologic Findings: None
```

The above special characters would result in the printed output below.

Synoptic Summary:

```
Thyroid  
Procedure: Total thyroidectomy; right paratracheal lymph node biopsy  
Tumor Focality: Multifocal
```

Tumor Site: Right
 Tumor Size: 1.0 cm and 0.5 cm
 Histologic Type: Papillary, well differentiated
 Margins: Free; the closest inked resection margin < 0.1 cm
 Angioinvasion (Vascular Invasion): Not identified
 Lymphatic Invasion: Not identified
 Perineural Invasion: Not identified
 Extrathyroidal Extension: Not identified
 Regional Lymph Nodes
 Number of Lymph Nodes Involved: 1, level VI
 Number of Lymph Nodes Examined: 1
 Size of Largest Metastatic Deposit (centimeters): 0.2 cm
 Extranodal Extension (ENE): Present
 Pathologic Staging (pTNM):
 TNM Descriptors: m
 Primary Tumor (pT) mpT1a
 Regional Lymph Nodes (pN): mpN1a
 Distant Metastasis (pM): mpMx
 Additional Pathologic Findings: None

Escape Sequence:

Ideally, all escape characters should be removed from the text before the data are placed in an HL7 message. If that is not possible, then the embedded escape characters in free text pathology data reported in OBX-5 should use the following characters:

Character	Conversion Description
\Cxyyy\	Single-byte character set escape sequence with two hexadecimal values not converted
\E\	Escape character converted to escape character (e.g., '\')
\F\	Field separator converted to field separator character (e.g., ' ')
\H\	Start highlighting not converted
\Mxyyyzz\	Multi-byte character set escape sequence with two or three hexadecimal values (zz is optional) not converted
\N\	Normal text (end highlighting) not converted
\R\	Repetition separator converted to repetition separator character (e.g., '~')
\S\	Component separator converted to component separator character (e.g., '^')
\T\	Subcomponent separator converted to subcomponent separator character (e.g., '&')
\Xdd...\	Hexadecimal data (dd must be hexadecimal characters) converted to the characters identified by each pair of digits
\Zdd...\	Locally defined escape sequence not converted

Examples:

Original final diagnosis data exported from the laboratory information system into an HL7 message:

```
OBX|1|TX|22637-3^Path report.final diagnosis^LN||Malignant lymphoma, small B-cell
type with plasmacytic differentiation & histiocytosis|...
```

Escape characters reported like this:

```
OBX|1|TX|22637-3^Path report.final diagnosis^LN||Malignant lymphoma, small B-cell
type with plasmacytic differentiation \T\ histiocytosis|...
```

Parser would give the following:

```
Malignant lymphoma, small B-cell type with plasmacytic differentiation &
histiocytosis|...
```

OBX-6 Units (CE-250, Required or empty) 00574

Definition: This field contains the units for the observation value in OBX-5 (ISO, ANSI, or UCUM). The default value is the ISO+ abbreviation. The ISO+ and ANSI+ customary units are shown in Section 7.3.2.6.2 of the HL7 Version 2.5.1 Standard. Commonly used ISO units include grams (gm or g), kilograms (kg), millimeter (mm), centimeter (cm), milligram per milliliter (mg/mL), gram per liter (gm/L), and moles per milligram (moles/mg).

Example:

```
|Ug/mL^microgram/milliliter^ISO+|
```

The units for age would be yr, wk, mo, d (in ANSI+ standards representation) in OBX-6.

Example:

```
|mo^month^ANS+|
```

Example:

```
|ng/mL^Nanograms per milliliter^UCUM|
```

This field is left empty if the OBX-5 Observation value holds data that is not a measurement, such as a coded value. Note that not all numeric values are measurements; some are counts. For example, an integer indicating the number of metastases observed would not require any units in OBX-6, whereas an integer indicating the size of a lesion would require units.

Note for cancer registries: Corresponds to the NAACCR data item Units for Age at Specimen [7540]. In the United States, UCUM is the preferred system for reporting units. Existing laboratory systems may populate this units field using ANSI units of measure, in which case the code system should be reported using the code for the ANSI+ code system, which is “ANS+.” Some laboratory systems may report using ISO units following the ISO 2955.83 standard with HL7 extensions; in this case, the code system in the third component of this field should be “ISO+.”

OBX-7 References Range (ST-60, Required or Empty) 00575

Definition: When the observation quantifies the amount of a toxic substance, then the upper limit of the range identifies the toxic limit. If the observation quantifies a drug, the lower limits identify the lower therapeutic bounds and the upper limits represent the upper therapeutic bounds, above which toxic side effects are common.

If numeric, the values of this field may report several values in one of the following three formats:

lower limit-upper limit	e.g., “3.5 – 4.5”
greater than...	e.g., “greater than 10”
less than...	e.g., “less than 15”

If alphabetical, the normal value may be reported in OBX-7. For instance, the normal result on an assay may be “pink.”

For those test results that have reference ranges that are known in the sending system, this field should be populated.

OBX-8 Abnormal Flags (IS-5, Required or Empty, Repeating maximum 5) 00576

Definition: This field contains the microbiology sensitivity interpretations. Refer to [HL7-Defined Table 0078 – Observation Interpretation](#) for valid entries.

Abnormal flags should be used for reporting microbiology sensitivity data. Abnormal flags for antimicrobial sensitivity reporting should conform to the recommendations of the National Committee for Clinical Laboratory Standards (NCCLS). For most reported findings, the allowable values are S, I, or R, and may be provided in addition to the numeric value in OBX-5. For results when a laboratory typically identifies the test as normal or abnormal, this field may be valued.

Microbiology results rarely are transmitted as part of cancer reporting, so this field is rarely valued in such reports. Other specific laboratory tests occasionally are included with cancer pathology reports, such as tumor marker tests; if the laboratory collects these abnormal flags with the results, they should be sent. For example, in HER2/neu testing, a FISH result of greater than 6.0 copies may be reported in OBX-5, and the laboratory may have a policy of reporting a positive using the abnormal flag, which is then reported using this field.

Example:

```
OBX|17|SN|31150-6^HER2/neu FISH^LN^^^||>^6.0|||P|||F
```

Note: Only certain abnormal flags are appropriate for specific laboratory tests.

OBX-10 Nature of abnormal test (ID-2, Required or Empty, Repeating maximum 5) 00578

Definition: This field contains the nature of the abnormal test. Valid values are drawn from [HL7-Defined Table 0080 – Nature of Abnormal Testing](#).

OBX-11 Observation Result Status (ID-1, Required) 00579

Definition: This field contains the observation result status. Refer to [HL7-Defined Table 0085 – Observation Result Status Codes Interpretation](#) for valid values. This field reflects the current completion status of the results for data contained in the *OBX-5 – Observation Value* field. It is a required field. Previous versions of HL7 stated this implicitly by defining a default value of “F,” indicating that the result has been verified to be correct and final.

Note for cancer registries: Corresponds to NAACCR item Path--Result Status [7330].

OBX-14 Date/Time Of The Observation (TS-26, Required or Empty) 00582

Definition: Records the time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation. This field is required in two circumstances. The first is when the observations (OBXs) reported beneath one report header (OBR) have different dates, for instance when one measurement within a battery may have a different time/date than another measurement.

Example:

```
|200012161330|
```

Date-time of the observation also is needed in the case of OBX segments that are being sent by the placer to the filler, in which case the date of the observation being transmitted is likely to have no relation to the date of the requested observation. In France, requesting services routinely send a set of the last observations along with the request for a new set of observations. The date of these observations is important to the filler laboratories.

In all cases, the observation date-time is the physiologically relevant date-time or the closest approximation to that date-time. In the case of tests performed on specimens, the relevant date-time is the specimen's collection date-time. In the case of observations taken directly on the patient (e.g., X-ray images, history, and physical), the observation date-time is the date-time that the observation was performed.

For NAACCR messaging, if this field is populated it should have the same date/time as OBR-7 and OBX-17.

OBX-15 Producer's Reference (CE-250, Conditional or Empty) 00583

Definition: Contains a unique identifier of the responsible entity producing service. The identifier for the producing service must be included for all cancer pathology report messages that are reported to cancer registries, and most often this is the sender of the message (laboratory) as identified in the *MSH-4 – Sending Facility*. However, when an observation in an OBX has been made by a facility other than that defined in the MSH, it must be identified here. When this field is null, the receiving system assumes that the observations were produced by the sending organization. In the United States, this is generally the CLIA identifier. In Canada, the local jurisdictional authority may mandate the use of certain identifiers for pathology laboratories; please contact the local authority for guidance. When the test results are produced at outside laboratories, the CLIA identifier for the laboratory that performed the test must appear here and will be different from the identifier listed as the sending facility in the MSH-4. Note that because the data type of this field is a CE-coded element rather than an EI (entity identifier), when populating this field the first component, "identifier," should contain the identifier of the organization; the second component, "text," should contain the name of the organization; and the third component, "Name of coding system," should contain the type of identifier, e.g., "CLIA." Conditionality predicate: Populate the identifier of the facility or organization producing this observation if different from the identifier in *MSH-4 Sending Facility* in this message.

Examples:

```
|01D0301145^HITECK PATH LAB^CLIA|
```

or

```
|UNIVERSITY HEALTH NETWORK^3910^MOH|
```

(where MOH [Ministry of Health] is the assigning authority for Hospital Master numbers in Ontario, Canada)

OBX-16 Responsible Observer (XCN-250, Required or Empty, Repeating maximum 5) 00584

Definition: This field contains the identifier of the individual directly responsible for the observation (the person who either performed or verified it). In a laboratory, the observer is the technician who performed or verified the analysis. The code for the observer is recorded as a CE data type. If the code is sent as a local code, it should be unique and unambiguous when combined with OBX-15-producer ID. For cancer reporting, this is the identifier of the pathologist reading the slides, or reviewing and signing a section of the report.

With the increased adoption of the content standards for Cancer Reports, a number of required data elements generally are not directly observed by the pathologist reading the slides, but are supplied to the laboratory with the specimen. These include items such as patient history, neoadjuvant therapy, metastatic disease, and other similar items collected or directly observed by clinicians outside of the Pathology Laboratory (surgeon, radiologist, etc.). When these data items are reported, information on the outside clinician documenting the item should be reported in OBX-16.

If a responsible observer for the particular individual result carried in this OBX is different from the Principal Result Interpreter in OBR-32 and is recorded in the sending system, this field must be populated.

In the following example, the Principal Result Interpreter is Quincy Pathologist, and the Surgeon is Dr. Bones McCoy. The result being reported is the tumor location from which the specimen was taken from the patient by the surgeon.

```
OBR|2||97810430|11529-5^SURGICAL PATH REPORT^LN^^PATHOLOGY
  REPORT^L|||20030922|||||
  164341^ONCOLOGIST^HANNAH^^^DR|||||F|||||109772^PATHOLOGIST^QUINCY
  ...
  OBX|31|TX|21855-2^Primary site Cancer^LN||Prostate|||||F|||||57684^McCoy^Bones
```

OBX-17 Observation Method (CE-250, Required or Empty, Repeating maximum 6) 00936

Definition: This field is used to transmit the method or procedure by which an observation was obtained when the sending system wants to distinguish among one measurement obtained by different methods and the distinction is not implicit in the test ID.

The vast majority of information in a Pathology Report is textual information (contained in the OBX segment) and produced directly by the pathologist or other clinicians in the Pathology Laboratory. If this field is not populated, then the Observation Method is considered to be the usual method for that type of result (physical examination for the Gross Pathology Study, microscopic examination by the pathologist for the Microscopic Study, etc.). However, in some circumstances, the result carried in the OBX segment is generated by other means. Such means may include but are not limited to specific probes for molecular studies, codes assigned by the tumor registrar, and coded results generated by an autocoder system or Natural Language Processing (NLP) system. When this occurs, it is recommended that this field, OBX-17, be used to indicate the method of obtaining those results. The recommended codes to indicate this circumstance are:

Code	Description
CTR	Generated by Certified Tumor Registrar
AUT	Generated by Autocoder or other automated system
OTH	Other staff (other than Tumor Registrar or Pathologist)

The code system to be populated in the third component of the CE triplet when using these codes should be “NAACCROMC” (NAACCR Observation Method Code).

Example of a Histology code assigned by the registrar:

```
OBX|46|CWE|59847-4^Histology and Behavior ICD-O-3 Cancer^LN||81403^Adenocarcinoma,
  NOS, Malignant^ICD03|||||F|||||CTR^Generated by Certified Tumor
  Registrar^NAACCROMC|...
```

Example of an anatomical location assigned by an NLP autocoder program:

```
OBX|23|CWE|21934-5^Surgery site.primary
  Cancer^LN||41216001^Prostate^SCT|||||F|||||AUT^Generated by Autocoder or other
  automated system^NAACCROMC|...
```

For many newly emerging molecular studies, no standard or commonly used codes exist for the test method used. The following example, specifying a particular probe used in the HER2 FISH test, shows how this may be populated with a local name for the method (no local or standard code):

```
OBX|58|SN|49683-6^HER2/CEP17 Tiss FISH-Rto^LN||5.0|||||F|||||^PathVysion HER-2 DNA
  FISH|...
```

OBX-19 Date/Time of the Analysis (TS-26, Conditional or Empty) 01480

Definition: This field is used to transfer the time stamp associated with generation of the analytical result by the instrument specified in Equipment Instance Identifier (see above). Conditionality predicate: May be populated if there is an Equipment Instance Identifier.

OBX-23 Performing Organization Name (XON-567, Required or Empty, Must Not Repeat) 02283

Definition: This field contains the name of the organization/service responsible for performing the service. When this field is null, the receiving system assumes that the observations were produced by the sending organization. The information for the performing organization is recorded as an XON data type. In the United States, the Medicare number of the performing organization is suggested as the identifier (component 10).

For laboratory, this field specifies the laboratory that produced the test result described in this OBX segment. It should be reported explicitly when the test results are produced at outside laboratories, for example. This information supports CLIA regulations in the United States. For the U.S.-producing laboratories, which are CLIA certified, the CLIA identifier should be used for the organization identifier (component 10). In Canada, use the identifier mandated by the local jurisdictional authority.

OBX-24 Performing Organization Address (XAD-631, Conditional or Empty, Must Not Repeat) 02284

Definition: This field contains the address of the organization/service responsible for performing the service.

For laboratories, this field specifies the address of the laboratory that produced the test result described in this OBX segment. It should be reported explicitly when the test results are produced at outside laboratories, for example. This information supports CLIA regulations in the United States.

2.7.4. Notes and Comments (NTE) Segment

The NTE segment is a common format for sending notes and comments. This optional, repeating segment may be inserted after any of the OBX segments, or the OBR segment, in the ORU message. The NTE segment applies to the information in the segment that immediately precedes it (i.e., the observation reported in the preceding OBX segment, or the type of observation identified in the OBR segment). The NTE segment is not further defined by HL7.

Note: This segment is not routinely completed. However, if this section is used, it should only include general comments, instructions, or results and not specific results.

NTE Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnly
1	4	SI	O			00096	Set ID – NTE		RE	[0..1]
2	8	ID	O		0105	00097	Source of comment		RE	[0..1]
3	64k	FT	O	Y		00098	Comment		RE	[0..4]
4	250	CE	O		0364	01318	Comment type		RE	[0..1]

Example:

NTE|1|L|THIS WOULD BE A COMMENT THAT COMES FROM THE LABORATORY.

NTE Field Definitions

NTE-1 Set ID (SI-4, Required or Empty) 00096

Definition: This field may be used where multiple NTE segments are included in a message. Their numbering must be described in the application message definition.

NTE-2 Source of Comment (ID-8, Required or Empty) 00097

Definition: This field is used when the source of comment must be identified. [HL7-Defined Table 0105 – Source of Comment](#) may be extended locally during implementation.

NTE-3 Comment (FT-64k, Required or Empty, Repeating maximum 4) 00098

Definition: This field contains the comment contained in the segment.

NTE-4 Comment Type (CE-250, Required or Empty) 01318

Definition: This field contains a value to identify the type of comment text being sent in the specific comment record. Allowable values are given in [User-Defined Table 0364 – Comment Type](#).

Note: NTE-2 already identifies one source of comment (e.g., ancillary, placer, other). However, some applications need to support other types of comment text (e.g., instructions, reason, remarks, etc.). A separate NTE segment can be used for each type of comment (e.g., instructions are on one NTE and remarks on another NTE). If the amount of text for a specific type of comment exceeds the NTE segment maximum, the NTE-1 Set ID field can be valued to group-related NTEs together when applicable. For example, all NTEs with a Set ID valued to 1 are grouped as a logical grouping of text.

2.7.5. Specimen (SPM) Segment

The intent of this segment is to describe the characteristics of a specimen. It differs from the intent of the OBR in that the OBR addresses order-specific information. It differs from the SAC segment in that the SAC addresses specimen container attributes. An advantage afforded by a separate specimen segment is that it generalizes the multiple relationships among order(s), results, specimen(s) and specimen container(s).

A specimen is defined as “A physical entity that is an individual, a group, an item, or a part representative of a larger group, class, or whole that is the target of an observation or analysis for the purpose of drawing conclusions about the group, class, or whole.” Note that any physical entity in the universe has the potential to become a specimen.

A specimen is collected or obtained from a source and may be representative of the source, or may represent a deviation within the source. A specimen may be wholly or partially consumed during an observation and any remaining portion of the specimen is persistent and can be stored.

This segment also may be used in limited cases to describe a “virtual” specimen. In particular, to identify the characteristics required for a specimen in the context of a specific observation or test.

In summary, SPM represents the attributes specific and unique to a specimen.

For cancer reporting, there are many different paths that the specimens and reports may follow, depending upon the complexity of the environment. Several diagrams in Chapter 2 illustrate the simplest flow, when all participants and HL7 users are within the same institution. This can be referred to as a “One Hospital Flow,” when there is one institution, one specimen, one Patient ID, and one Specimen ID for the entire report, which is sent (when complete) to the Cancer Registry.

Alternatively, sometimes there may be very complex paths that specimens take among multiple laboratories and systems, with one or more of these laboratories reporting to the registry in addition to the facility collecting the

specimen and originating the order. Please see the illustration of an example of such a complex case after the SPM attributes table, below.

As illustrated in the section on Multiple Hospital Flows in the Interaction discussion in [Section 2.2.3](#), complex flows of information tracking among multiple institutions, several of which may assign their own Specimen ID and/or Accession Number to the case or portion thereof, must be handled. To properly address these requirements, the two fields SPM-30 and SPM-31 are being pre-adopted from the HL7 Standard version 2.7; these fields were added to HL7 at that time specifically to address these types of scenarios involving multiple identifiers for specimens in a report sent to a central monitoring or surveillance agency. These scenarios are currently active in North America and must be addressed for reporting to registries.

SPM Attributes

Seq	Len	DT	Opt	RP #	Tbl #	Item #	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardlnty
1	4	SI	O			01754	Set ID – SPM		RE	[0..1]
2	80	EIP	O			01755	Specimen ID		R	[1..1]
3	80	EIP	O	Y		01756	Specimen parent IDs		RE	[0..1]
4	250	CWE	R		0487	01900	Specimen type		R	[1..1]
5	250	CWE	O	Y	0541	01757	Specimen type modifier		RE	[0..2]
6	250	CWE	O	Y	0371	01758	Specimen additives		X	[0..0]
7	250	CWE	O		0488	01759	Specimen collection method		X	[0..0]
8	250	CWE	O		9100	01901	Specimen source site		RE	[0..1]
9	250	CWE	O	Y	0542	01760	Specimen source site modifier		X	[0..0]
10	250	CWE	O		0543	01761	Specimen collection site		X	[0..0]
11	250	CWE	O	Y	0369	01762	Specimen role		RE	[0..0]
12	20	CQ	O			01902	Specimen collection amount		X	[0..0]
13	6	NM	C			01763	Grouped specimen count		X	[0..0]
14	250	ST	O	Y		01764	Specimen description		X	[0..0]
15	250	CWE	O	Y	0376	01908	Specimen handling code		X	[0..0]
16	250	CWE	O	Y	0489	01903	Specimen risk code		X	[0..0]
17	49	DR	O			01765	Specimen collection date/time		RE	[0..1]
18	26	TS	O			00248	Specimen received date/time		RE	[0..1]
19	26	TS	O			01904	Specimen expiration date/time		X	[0..0]
20	1	ID	O		0136	01766	Specimen availability		X	[0..0]
21	250	CWE	O	Y	0490	01767	Specimen reject reason		RE	[0..2]

Seq	Len	DT	Opt	RP #	Tbl #	Item #	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnltly
22	250	CWE	O		0491	01768	Specimen quality		X	[0..0]
23	250	CWE	O		0492	01769	Specimen appropriateness		X	[0..0]
24	250	CWE	O	Y	0493	01770	Specimen condition		X	[0..0]
25	20	CQ	O			01771	Specimen current quantity		X	[0..0]
26	4	NM	O			01772	Number of specimen containers		RE	[0..1]
27	250	CWE	O			01773	Container type		X	[0..0]
28	250	CWE	O		0544	01774	Container condition		X	[0..0]
29	250	CWE	O		0494	01775	Specimen child role		C	[0..1]
30	20	CX	O	Y		02314	Accession ID		RE	[0..25]
31	20	CX	O	Y		02315	Other specimen ID		RE	[0..300]

Example:

```
SPM|1|3444444&&123456&AHA^92756H&HITECKSPCID||TISS^Tissue^HL70487|||||||2007110
91000|200711100900|||||||H4_333333^^PATHCONSULTANTS
```

SPM Field Definitions**SPM-1 Set ID – SPM (SI-4, Required or Empty) 01754**

Definition: This field contains the sequence number. This field is used to identify SPM segment instances in message styles where the SPM segment repeats. In messages in which the SPM segment does not repeat, this field may be empty.

SPM-2 Specimen ID (EIP-80, Required) 01755

Definition: This field contains a unique identifier for the specimen as referenced by the Placer application, the Filler application, or both.

This field may be empty, as there are HL7 use cases in which a unique specimen identifier may not exist. For Cancer reporting, this field is always populated by the Filler application, as there are always actual specimens. Filler applications would be expected to assign a Specimen ID and populate this field accordingly.

For any ORU message being sent to either a system from which a specimen was received or to the central registry, the Placer Assigned Identifier is the specimen ID that was received with the specimen from the external “upstream” system. If the message is being sent by the originating HIS, then this is the original ID assigned during the specimen collection procedure prior to sending to any pathology laboratory for the results. The Filler Assigned Identifier is the number assigned by the laboratory sending the results (usually during the accessioning process, but for child/parts of specimens, it can be during the division of the specimen).

When a laboratory is returning a results message (ORU) to its upstream system with the information received from another laboratory it sent the specimen to, this filler number is its own number; the filler number assigned by the laboratory the reference results are received from should be populated in the SPM-31 Other Specimen ID.

Note that for complex flows among multiple institutions, each of which may assign their own Specimen ID and/or Accession Number, this field may not hold all the information from the multiple institutions. In these cases, the SPM-31 Other Specimen ID should be used to carry this additional information.

Note: When multiple physical specimens are assigned with the same ID, only a single SPM labeled with that ID in this field must describe the collection of specimens. Additional SPMs must be used if the descriptions are different.

SPM-3 Specimen Parent IDs (EIP-80, Required or Empty, Does not Repeat) 01756

Definition: This field contains the identifiers for the specimen or specimens that contributed to the specimen that is described by the segment instance.

If this field repeats, then SPM-11-Specimen Role should be valued with “L” (pooled). The repetitions of this field then carry the specimen IDs of the parent specimens contributing to the pool.

SPM-4 Specimen Type (CWE-250, Required) 01900

Definition: This field describes the precise nature of the entity that will be the source material for the observation.

Any physical entity that may have observations made about it may qualify as a specimen. The entry in this attribute describes the specific entity as precisely as possible, whether that is a complex organism (e.g., an ostrich) or a specific cellular mass (e.g., a specific muscle biopsy).

This attribute corresponds to the first component of OBR.15 – Specimen Source and SAC.6 – Specimen Source component 1 – *Specimen source name or code*. These components, and the SPS data type, were deprecated upon the development of this segment.

A nationally recognized coding system is to be used for this field. Valid coding sources for this field include:

- [HL7-Defined Table 0487 – Specimen Type](#) (replaces HL7 table 0070 – Specimen Source Codes) SNOMED

NAACCR supported. Note that for cancer reporting, the recommended HL7 values [HL7-Defined Table 0487 – Specimen Type](#) have been abbreviated in this document to those recommended for Cancer Reporting.

Example:

|TISS^Tissue^HL70487|

SPM-5 Specimen Type Modifier (CWE-250, Required or Empty) 01757

Definition: This field contains modifying or qualifying description(s) about the specimen type.

The use of this attribute is to modify, qualify, or further specify the entity described by SPM-4-Specimen Type. This is particularly useful when the code set used in SPM-4-Specimen Type does not provide the precision required to fully describe the specimen. For example, if the specimen was precisely described as “capillary venous blood” but the code set employed provided only “venous blood,” this attribute could be employed to add the modifier “capillary.”

Refer to [User-Defined Table 0541 – Specimen Type Modifier](#) for suggested values.

SPM-8 Specimen Source Site (CWE-250, Required or Empty) 01901

Definition: This field contains the source from which the specimen was obtained. For biological samples, it represents the anatomical site from which the specimen was collected.

For legal values refer to [User-Defined Table 9100](#).

SPM-11 Specimen Role (CWE, Required or Empty) 01762

Definition: This field indicates the role of the sample. Refer to [User-Defined Table 0369](#) – Specimen Role for suggested values. Each of these values normally is identifiable by the systems and its components and can influence processing and data management related to the specimen.

If this field is not populated, then the specimen described has no special or specific role other than serving as the focus of the observation. Such specimens include patient, environmental, and other specimens that are intended for analysis.

A grouped specimen consists of identical specimen types from multiple individuals who do not have individual identifiers and on which the same services will be performed. If the specimen role value is “G,” then the Grouped Specimen Count (SPM-13) must be valued with the total number of specimens contained in the group.

If the specimen role is “L,” the repetitions of Parent Specimen ID (SPM-4) represent the individual parent specimens that contribute to the pooled specimen.

SPM-17 Specimen Collection Date/Time (DR-49, Required or Empty) 01765

Definition: The date and time when the specimen was acquired from the source. The use of the Date Range data type allows for description of specimens collected over a period of time, for example, a 24-hour urine collection. For specimens collected at a point in time, only the first component (start date/time) will be populated. Please note that this length of 49 has been pre-adopted from HL7 Version 2.6, because it cannot be implemented within the length restriction imposed by the HL7 Version 2.5.1 Standard. This new length is the two TS components of length 24 each (Degree of Precision subcomponents not removed) plus one delimiter.

SPM-18 Specimen Received Date/Time (TS-26, Required or Empty) 00248

Definition: The specimen received date/time is the time that the specimen is received at the diagnostic service. The actual time that is recorded is based on how specimen receipt is managed and may correspond to the time the sample is logged in. This is fundamentally different from SPM-17 Specimen Collection date/time.

SPM-21 Specimen Reject Reason (CWE-250, Required or Empty, Repeating maximum 2) 01767

Definition: This describes one or more reasons the specimen is rejected for the specified observation/result/analysis. Refer to [HL7-Defined Table 0490 – Specimen Reject Reason](#) for valid values.

Example:

|RN^Contamination^HL70490|

SPM-26 Number of Specimen Containers (NM-4, Required or Empty) 01772

Definition: This field identifies the number of containers for a given sample. For sample receipt verification purposes; may be different from the total number of samples that accompany the order.

SPM-29 Specimen Child Role (CWE-250, Conditional or Empty) 01775

Definition: For child specimens, this field identifies the relationship between this specimen and the parent specimen. If this field is populated, then SPM-3-Specimen Parent ID must be populated. This field differs from SPM-15-Specimen Role in that this field refers to the role of this specimen relative to a parent role rather than the role of this specimen to the ordered service.

Refer to [HL7-Defined Table 0494 – Specimen Child Role](#) for valid values.

When a child specimen is the subject of additional studies and its role must be documented, this field should be populated.

SPM-30 Accession ID (CX-20, Required or Empty, Repeating maximum 25) 02314

Definition: This field contains accession identifier(s) associated with the specimen. In many cases, applications involved in the collection, transport, or testing of the specimen will assign their own accession identifiers. This field allows communication of these accession identifiers.

An accession ID may or may not, depending on laboratory practice, identify a single specimen. In addition, accession IDs are commonly re-used over time, so the accession ID may not uniquely identify a specimen. On the other hand, there is a great demand for unambiguously communicating the accession identifier(s). If the sending system has additional accession identifiers for this specimen, they must be populated in this field.

Note: The SPM-30 field SHOULD hold the original specimen identifier across every laboratory send-out downstream so that the registries can link independently received reports to the original surgical specimen. If the original specimen identifier is received with the specimen, then the receiving laboratory MUST save this original identifier and communicate it to any downstream laboratory. At a minimum, the reporting laboratory’s assigned identifier and the original specimen identifier across ALL laboratories must be included in a report to a registry.

Example showing the SPM-30 field illustrating multiple accession numbers reported to the cancer registry.

```
|57482739^^^Hospital 2 Path Lab~987204926^^^Hospital 3 Lab|
```

SPM-31 Other Specimen ID (CX-20, Required or Empty, Repeating maximum 300) 02315

Definition: This field contains other identifier(s) for the specimen as referenced in an application. Normally this field is used to carry additional identifiers for the specimen in addition to those identified in SPM-2 Specimen ID. In many cases other applications involved in the collection, transport, or testing of the specimen will assign additional specimen identifiers. This field allows communication of those other specimen identifiers. If the sending system has additional specimen identifiers for this specimen, they must be populated in this field.

Example showing the SPM-31 field for the message in Section 2.2.4.2 *Interactions for Multiple Hospital Specimen Processing and Reporting with Consults*, illustrating how the multiple Specimen IDs that were assigned by the Hospital 2 laboratory and the Hospital 4 laboratory are reported to the cancer registry.

```
|H2_3444444^^^HOSPITAL2~H4_3333333^^^HOSPITAL4
```

2.8. HL7 BATCH PROTOCOL

There are instances when it is convenient to transfer a batch of HL7 messages for reporting to cancer registries. Such a batch could be sent online using SFTP or HTTPS.

2.8.1. HL7 Batch File Structure

A batch of HL7 messages may be sent online using a common file transfer protocol or offline via tape or diskette. If needed, a group of batches may be sent using the file header and trailer segments. The FHS and FTS are optional and need not be sent if the transaction is one batch of records. The file/batch syntax follows:

```
[FHS]           (file header segment)
{ [BHS]         (batch header segment)
  { [MSH]       (zero or more HL7 messages)
```

```

    PID
    OBR
    ....
  ] }
  [BTS]          (batch trailer segment)
  }
  [FTS]          (file trailer segment)

```

The sequence numbering protocol has a natural application in batch transfers. See the discussion of batch acknowledgments that follows. A batch for reporting to cancer registries will consist of a single type of message (i.e., ORU). Batches usually should contain at least one HL7 message. There are only two cases in which an HL7 batch file may contain zero HL7 messages: (1) a batch containing zero HL7 messages may be sent to meet a requirement for periodic submission of batches when there are no messages to send; and (2) a batch containing zero negative acknowledgment messages may be sent to indicate that all of the HL7 messages contained in the batch being acknowledged are implicitly acknowledged. The attribute tables and field definitions for batch-related segments are given below.

Related Segments and Data Usage: The following segments relate to the HL7 Batch Protocol: (1) BHS – Batch Header, (2) BTS – Batch Trailer, (3) FHS – File Header, and (4) FTS – File Trailer. The BTS segment contains a field, *BTS-3-batch totals*, which may have one or more totals drawn from fields within the individual messages. The method for computing such totals resides with the sending facility.

2.8.2. Acknowledging Batches

In general, the utility of sending batches of data is that the data are accepted all at once, with errors processed on an exception basis. However, it is a permissible application of HL7 to acknowledge all messages. Several options for acknowledgment are given in the HL7 Version 2.5.1 Standard and are not addressed further here.

2.8.3. Batch Segments

2.8.3.1. File Header (FHS) Segment

The FHS segment is used to head a file (group of batches). Ideally, a single sending facility, for instance a regional laboratory for a hospital consortium, could send a group of batches of reportable findings from separate laboratories within the consortium. In this setting, each separate BHS would have a different CLIA identifier. The FHS would have a different CLIA number as well, or would have the same CLIA number as the one batch that was performed at the sending facility. This complexity of message processing is not common yet, either at laboratories or cancer registries. The description of batch reporting in this guide demonstrates reporting from a single facility and thus the CLIA number is the same for MSH, BHS, and FHS. This segment is required for batch submissions only.

FHS Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Usage	NAACCR Cardnltly
1	1	ST	R			00067	File field separator		R	[1..1]
2	4	ST	R			00068	File encoding characters		R	[1..1]
3	227	HD	O			00069	File sending application		RE	[0..1]
4	227	HD	O			00070	File sending facility		R	[1..1]
5	227	HD	O			00071	File receiving application		RE	[0..1]
6	227	HD	O			00072	File receiving facility		RE	[0..1]
7	26	TS	O			00073	File creation date/time		R	[1..1]
8	40	ST	O			00074	File security		RE	[0..1]
9	20	ST	O			00075	File name/ID/type		RE	[0..1]

10	80	ST	O			00076	File comment		RE	[0..1]
11	20	ST	O			00077	File control ID		RE	[0..1]
12	20	ST	O			00078	Reference file control ID		RE	[0..1]

EHS Field Definitions

Usage Notes: FHS fields 1–8 have the same definitions as the corresponding fields in the MSH segment. FHS segment was not shown in the examples, but the field definitions are provided below for reference.

FHS-1 File Field Separator (ST-1, Required) 00067

Definition: This field has the same definition as the corresponding field in the MSH segment.

FHS-2 File Encoding Characters (ST-4, Required) 00068

Definition: This field has the same definition as the corresponding field in the MSH segment.

FHS-3 File Sending Application (HD-227, Required or Empty) 00069

Definition: This field has the same definition as the corresponding field in the MSH segment.

FHS-4 File Sending Facility (HD-227, Required) 00070

Definition: This field has the same definition as the corresponding field in the MSH segment.

FHS-5 File Receiving Application (HD-227, Required or Empty) 00071

Definition: This field has the same definition as the corresponding field in the MSH segment.

FHS-6 File Receiving Facility (HD-227, Required or Empty) 00072

Definition: This field has the same definition as the corresponding field in the MSH segment.

FHS-7 File Creation Date/Time (TS-26, Required) 00073

Definition: This field has the same definition as the corresponding field in the MSH segment.

FHS-8 File Security (ST-40, Required or Empty) 00074

Definition: This field has the same definition as the corresponding field in the MSH segment.

FHS-9 File Name/ID (ST-20, Required or empty) 00075

Definition: This field can be used by the application processing file. Its use is not further specified.

FHS-10 File Header Comment (ST-80, Required or Empty) 00076

Definition: This field contains the free text field, the use of which is not further specified.

FHS-11 File Control ID (ST-20, Required or Empty) 00077

Definition: This field is used to identify a particular file uniquely. Use Timestamp plus a counter similar to MSH-10 to uniquely identify the file here. It can be echoed back in *FHS-12-reference file control ID*.

FHS-12 Reference File Control ID (ST-20, Required or Empty) 00078

Definition: This field contains the value of the *FHS-11-file control ID* when this file was originally transmitted. Not present if this file is being transmitted for the first time.

2.8.3.2. File Trailer (FTS) Segment

Used to define the end of a file. This segment is required for batch submissions only.

FTS Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Opt	NAACCR Cardnly
1	10	NM	O			00079	File batch count		R	[1..1]
2	80	ST	O			00080	File trailer comment		RE	[0..1]

FTS Field Definitions

Usage Notes: FTS segment was not used in the given examples, but the field definitions are provided below for reference.

FTS-1 File Batch Count (NM-10, Required) 00079

Definition: This field contains the number of batches contained in the file.

FTS-2 File Trailer Comment (ST-80, Required or Empty) 00080

Definition: The use of this free text field is not further defined in the HL7 protocol.

2.8.3.3. Batch Header (BHS) Segment

Used to define the start of a batch. This segment is required for batch submissions only.

BHS Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item#	NAACCR Opt	NAACCR Cardnly
1	1	ST	R			00081	Batch field separator		R	[1..1]
2	3	ST	R			00082	Batch encoding characters		R	[1..1]
3	227	HD	O			00083	Batch sending application		RE	[0..1]
4	227	HD	O			00084	Batch sending facility		R	[1..1]
5	227	HD	O			00085	Batch receiving application		RE	[0..1]
6	227	HD	O			00086	Batch receiving facility		RE	[0..1]
7	26	TS	O			00087	Batch creation date/time		R	[1..1]
8	40	ST	O			00088	Batch security		RE	[0..1]
9	20	ST	O			00089	Batch name/ID/type		RE	[0..1]
10	80	ST	O			00090	Batch comment		RE	[0..1]
11	20	ST	O			00091	Batch control ID		RE	[0..1]
12	20	ST	O			00092	Reference batch control ID		RE	[0..1]

BHS Field Definitions

Usage Notes: BHS fields 1–8 have the same definitions as the corresponding fields in the MSH segment. BHS segment was not shown in the examples, but the field definitions are provided below for reference.

BHS-1 Batch Field Separator (ST-1, Required) 00081

Definition: This field contains the separator between the segment ID and the first real field, BHS-2-batch encoding characters. As such, it serves as the separator and defines the character to be used as a separator for the rest of the message. Recommended value is | (ASCII 124).

BHS-2 Batch Encoding Characters (ST-3, Required) 00082

Definition: This field contains the four characters in the following order: component separator, repetition separator, escape characters, and subcomponent separator. Recommended values are ^~\& (ASCII 94, 126, 92, and 38, respectively).

BHS-3 Batch Sending Application (HD-227, Required or Empty) 00083

Definition: This field uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. Entirely site-defined.

BHS-4 Batch Sending Facility (HD-227, Required) 00084

Definition: This field contains the address of one of several occurrences of the same application within the sending system. Absent other considerations, the Medicare Provider ID might be used with an appropriate sub-identifier in the second component. Entirely site-defined.

BHS-5 Batch Receiving Application (HD-227, Required or Empty) 00085

Definition: This field uniquely identifies the receiving applications among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. Entirely site-defined.

BHS-6 Batch Receiving Facility (HD-227, Required or Empty) 00086

Definition: This field identifies the receiving application among multiple identical instances of the application running on behalf of different organizations. See comments for BHS-4-batch sending facility. Entirely site-defined.

BHS-7 Batch Creation Date/Time (TS-26, Required) 00087

Definition: This field contains the date/time that the sending system created the message. If the time zone is specified, it will be used throughout the message as the default time zone.

BHS-8 Batch Security (ST-40, Required or Empty) 00088

Definition: In some applications of HL7, this field is used to implement security features. Its use is not yet further specified.

BHS-9 Batch Name/ID/Type (ST-20, Required or Empty) 00089

Definition: This field can be used by the application processing the batch. It can have extra components if needed.

BHS-10 Batch Comment (ST-80, Required or Empty) 00090

Definition: This field is a comment field that is not further defined in the HL7 protocol.

BHS-11 Batch Control ID (ST-20, Required or Empty) 00091

Definition: This field is used to uniquely identify a particular batch. Use Timestamp and a counter similar to MSH-10 to uniquely identify the batch. It can be echoed back in the BHS-12-reference batch control ID if an answering batch is needed.

BHS-12 Batch Reference Batch Control ID (ST-20, Required or Empty) 00092

Definition: This field contains the value of the BHS-11-batch control ID when this batch was originally transmitted. This field is not valued if this batch is being sent for the first time.

2.8.3.4. Batch Trailer (BTS) Segment

Used to define the end of a batch. This segment is required for batch submissions only.

BTS Attributes

Seq	Len	DT	Opt	RP#	Tbl#	Item#	Element Name	NAACCR Item #	NAACCR Opt	NAACCR Cardnly
1	10	ST	O			00093	Batch message count		R	[1..1]
2	80	ST	O			00094	Batch comment		RE	[0..1]
3	100	NM	O	Y		00095	Batch totals		RE	[0..4]

BTS Field Definitions

Usage Notes: BTS segment was not shown in the examples, but the field definitions are provided below for reference.

BTS-1 Batch Message Count (ST-10, Required) 00093

Definition: This field contains the count of the individual messages contained within the batch.

BTS-2 Batch Comment (ST-80, Required or Empty) 00094

Definition: This field is a comment field that is not further defined in the HL7 protocol.

BTS-3 Batch Totals (NM-100, Required or Empty, Repeating maximum 4) 00095

Definition: This field contains the batch total. The numbers of messages should be counted and represented here to allow recipients to have simple batch-level auditing.

3. Synoptic Reporting of Anatomic Pathology and Biomarker Reports

3.1. THE CAP CANCER PROTOCOLS

The [College of American Pathologists \(CAP\) Cancer Protocols \(CCPs\)](#) are detailed guidelines for creating complete standardized pathology reports for new cancer cases. Each CCP contains one or more case summaries (i.e., checklists or templates) and extensive background notes with instructions for completing the case summaries. The widespread use of the CCPs for cancer resections is driven by a requirement to use them for laboratory and/or cancer center accreditation by CAP and the American College of Surgeons Commission on Cancer (CoC). In many cases, CCPs for biopsies and biomarkers also are used, but this is less widespread because few biopsy and biomarker CCPs are required for laboratory or cancer center accreditation. As a national entity that sets standards and accredits cancer programs, CoC-accredited cancer programs treat more than 70 percent of all cancer patients nationwide. Refer to <https://www.facs.org/media/press-releases/2016/oa0216>.

3.2. CCP-DERIVED REPORTS

CCPs are used in three main workflows, including dictation from the case summary template, the use of Word macros, and increasingly, the use of the computer-readable XML case summary format known as the [CAP electronic Cancer Checklists](#) (eCCs).

The eCCs are used to automate the creation of data entry forms in software systems, which include Laboratory Information Systems (LIMS), Anatomic Pathology (AP) software, electronic health record (EHR) systems, and middleware software that connects to EHR and pathology systems. CCPs are freely available to all on the [CAP website](#), and the eCCs are available for registry and nonprofit research work with a free license from CAP (email: capecc@cap.org). Regardless of the CCP workflow employed, CAP and CoC urge pathologists to produce reports in a streamlined question-answer layout known as the “synoptic report,” described in [Appendix A](#).

3.3. CAP eCC REPORT MESSAGES

eCC-based pathology reports are not just formatted in the synoptic message format style—they also have the capacity to be transmitted automatically to registries and clinical nodes in a well-defined structure and computer-readable format that does not require manual parsing or the use of Natural Language Processing (NLP) approaches to be incorporated into registry or clinical software. Each section, question, and answer in an eCC template (the XML version of a case summary) has a unique identifier (the ID, previously known as a “Ckey” or “Composite Key”).

eCC XML is the computer-readable blueprint that laboratory software uses to create data entry forms for eCC pathology reporting. It contains all of the information needed to construct an eCC-based OBR segment group⁹ (ORDER_OBSERVATION). eCC XML was produced in older formats called legacy eCC and, later, enhanced eCC (enh eCC). The production of these XML formats ceased in 2018. The older eCC formats were replaced by a new XML format called Structured Data Capture (SDC). For more information, refer to <https://github.com/IHE-SDC-WG>.

⁹The segment group was introduced in HL7 Version 2.5.1 and completed in HL7 Version 2.6.

Vendors extract the information from the eCC XML and render data-entry forms for pathologists to complete. Vendor systems must retain the eCC XML metadata so that it can be used to transmit all pathology report data in an unambiguous, complete, and interoperable manner.

In recent years, much effort has been devoted to maintaining close levels of conformance between the site-specific data item (SSDI) data elements, the CAP eCC structures, and the American Joint Committee on Cancer (AJCC) requirements for data collection. To build on this conformance process, the eCC IDs currently are being mapped to appropriate ICD-O-3 codes when applicable (for histologies and primary tumor site). The IDs also are being mapped to NAACCR data item fields and codes (as found in the NAACCR Volume 2 data dictionary and the SSDI, STORE, and Grade manuals) and to SNOMED codes. This mapping work eventually will enable much more robust interoperability between registries and clinical research efforts. However, this interoperability will only be available for eCC data sets, because text-based reports cannot be readily transformed into registry-conformant codes.

New and improved versions of the CCPs and eCCs are released about twice a year by the CAP Cancer Committee, and this can introduce some version-management issues. To this end, CAP supplies an online eCC XML comparison tool that allows any eCC user to compare any two versions of an eCC template released since 2009 and produce a detailed difference report in a variety of formats. The eCC XML comparison report allows registry users to study how eCC data element changes could affect registry data collection in the past, present, and future.

34. OBR SEGMENT VARIANTS IN CCP-BASED REPORTS: NARRATIVE, SYNOPTIC, AND eCC

[Section 2.7.2](#) describes the details of OBR segment construction. Here, we focus on special considerations for transmitting variations of anatomic pathology and biomarker reports. These reports may include several sub-reports or components, adding complexity to message creation and processing.

A single NAACCR Volume V transmission ideally should provide a pathology report derived from a single burst of laboratory activity based on a specimen or specimens derived from that one episode of care. Separate Volume V messages may be generated for each type of laboratory activity (e.g., cytology, anatomic pathology, flow cytometry, and biomarkers).

Multiple tumors: In the case of multiple tumors diagnosed at the same time, ideally, separate Volume V messages should be generated for each tumor type. Please see an example of this in [Appendix E](#). However, this may not be possible when multiple tumors are described in a single report generated by a pathology laboratory.

Multiple OBRs: In many cases, a Volume V message will consist of several OBR segments, each of which will contain multiple OBX rows that represent the pathology report. For messages with both narrative and eCC-formatted OBRs, the contents of each OBR report may differ somewhat, and this is the common practice for narrative reports accompanied by eCC-based message data. For example, a narrative report OBR may contain a gross section that is not included in the eCC OBR group.

Separate OBR for each modality: Reports of different testing modalities, such as anatomic pathology, cytology, molecular pathology and/or flow cytometry, should be included in separate OBR-OBX pairs (one OBR per testing modality), unless they have been merged into a single report at the sending site.

Single OBR for merged modalities: Reports of multiple testing modalities may be included in a single OBR message. Results derived from a small group of tightly related specimen collection events and procedures on

the specimen may be formed as a merged or unified report. For example, flow cytometry data often are merged with hematopathology reports into a single unified or composite report.

In summary, each Volume V message will contain at least one OBR segment. When more than one report format (e.g., narrative plus eCC) or separate report component (e.g., separate cytology and anatomic pathology reports) is transmitted in a single message, each report format and report type will be found in its own OBR segment in the message.

OBR-4: This field is the Universal Service ID, which indicates the type of report that is being transmitted in the OBX rows that follow it. [Section 2.7.2](#) discussed the list of report types and the LOINC codes to use in OBR-4. However, OBR-4 for synoptic report messages is treated in a different manner, as described below.

Report Type Descriptors in the OBR and OBX Segments for CCP-based Reports: Two basic CCP-based report types are considered in this chapter. Each report type belongs in a separate OBR group.

3.4.1. Structured and Unstructured Narrative

The traditional narrative pathology report may be unstructured, i.e., treated as a single mass of text, or it may be structured into separate OBX segments with a LOINC descriptor to identify which section of the pathology report is being sent. Structured reports have more defined formatting but do not meet the CAP's synoptic question-answer format criteria. For new CCP-based anatomic pathology narrative and structured reports, the OBR-4.1 LOINC code is **11529-5** and the OBR-4.2 text is **Surgical Pathology Study report**. These codes are used whether or not the narrative report is based on a CCP.

3.4.2. Synoptic

A synoptic report message may be either a synoptic summary message style, a synoptic segmented message style (without special eCC IDs for the questions and answers), or a synoptic eCC message that is additionally encoded with identifiers. These types of reports are distinguished by the first OBX in the report, which defines which style message is being reported. Sections below describe in detail how to report the first three OBX segments.

OBX-3.1 Value (LOINC code)	OBX-5 Value (Identifier of Document Source Style)	Explanation (See Section 1.5.2.3 , Synoptic Reports, above)
60573-3	CAP Synoptic Summary	Synoptic Summary message
60573-3	CAP Synoptic Segmented	Synoptic Segmented message
60573-3	CAP eCC	Synoptic eCC message

3.4.2.1. Synoptic Summary

Synoptic Summary reports are pathology reports that are in synoptic format for human reading but are *not* processed as one OBX per question-answer pair in the HL7 message and are *not* considered to be synoptic NAACCR Volume V messages. These types of report messages are processed the same as narrative-style messages, regardless of their synoptic report origin, and are not further considered in this chapter. This style of reporting should be avoided.

The OBX Report Metadata Rows for CCP-Based CAP Synoptic Summary Messages: To create a non-eCC (non-encoded) synoptic summary message format, the first three OBX rows should identify the CAP template in use.

- The **first OBX row** in the OBR group will indicate the type of template that was used to construct the report:
 - OBX-2 will be "TX."

- OBX-3.1 will contain LOINC code **60573-3**; OBX-3.2 will contain the text: **Report template Source**; and OBX-3.3 will contain the LOINC code system abbreviation: **LN**.
- OBX-5 will contain the text: **CAP Synoptic Summary**.
- The **second OBX row** in the OBR group will contain the identifier of the specific template used to construct the report:
 - OBX-2 will be “TX.”
 - OBX-3.1 will use the LOINC code **60572-5**, OBX-3.2 will contain the text: **Report template ID**, and OBX-3.3 will contain the LOINC code system abbreviation: **LN**.
 - OBX-5 will contain the name of the CCP case summary used for the report.
 - The report template ID is the same as the CCP case summary title. The CCP case summary title is found at the top of the first page of each case summary.
- The **third OBX row** in the OBR group will contain the version of the CCP used to construct the report:
 - OBX-2 will be “TX.”
 - OBX-3.1 will contain LOINC code **60574-1**, OBX-3.2 will contain the text: **Report template version ID**, and OBX-3.3 will contain the LOINC code system abbreviation: **LN**.
 - OBX-5 will contain the version of the CCP:
 - The version ID is the CCP version found in the CCP document. The format is similar to the following: 4.0.1.1 This version ID is found in the upper right-hand corner of each CCP case summary and also is found in the filename of the PDF and Word version of the case summaries.

One or more additional OBX segments will contain question/answer content in the OBX-5 component.

3.4.2.2. Synoptic Segmented

A synoptic segmented message may not have any OBX that contains more than one question-answer pair.

The OBX Report Metadata Rows for CCP-Based Synoptic Segmented Messages: To create a non-eCC (non-encoded) synoptic segmented message format, the first three OBX rows should identify the CAP template in use.

- The **first OBX row** in the OBR group will indicate the type of template that was used to construct the report:
 - OBX-2 will be “TX.”
 - OBX-3.1 will contain LOINC code **60573-3**, OBX-3.2 will contain the text: **Report template Source**, and OBX-3.3 will contain the LOINC code system abbreviation: **LN**.
 - OBX-5 will contain the text: **CAP Cancer Protocols**
 - For templates that are not derived from CPP, this OBX value must not be CAP Cancer Protocols. Instead this OBX-5 value must identify the template system in use.
- The **second OBX row** in the OBR group will contain the identifier of the specific template used to construct the report:
 - OBX-2 will be “TX.”
 - OBX-3.1 will use the LOINC code **60572-5**, OBX-3.2 will contain the text: **Report template ID**, and OBX-3.3 will contain the LOINC code system abbreviation: **LN**.
 - OBX-5 will contain the name of the CCP template used for the report.

- If the transmission of a local name for the CCP template is desired, then the name should be populated in the ninth component (“original text”) of the CWE in the OBX-5 (OBX-5).
- The **third OBX row** in the OBR group will contain the version of the template used to construct the report:
 - OBX-2 will be “TX.”
 - OBX-3.1 will contain LOINC code **60574-1**, OBX-3.2 will contain the text: **Report template version ID**, and OBX-3.3 will contain the LOINC code system abbreviation: **LN**.
 - OBX-5 will contain the version of the template:
 - The version ID is the CCP version found in the CCP document. The format is similar to the following: 4.0.1.1

All remaining OBX question/answer rows under the parent OBR will contain the actual content of the pathology report in synoptic format. OBX rows for section headers and subheaders may be interspersed as needed. The OBX rows for question/answer pairs will place question text into OBX-3.2 and answer text into OBX-5. Because the synoptic segmented message may be derived from a formatted text report with little or no computer-readable metadata, no codes, terminologies, or data types (other than TX [text]) will be available in many cases. If the synoptic report is derived from an eCC message format, every effort should be made to use the eCC metadata and produce a properly encoded eCC report with all relevant metadata, as described in detail later.

See [Appendix E](#) for examples of non-eCC, CCP-based synoptic messages.

Headers and Nesting in Synoptic Segmented Messages: For line items in a report that are headers or sections containing groups of related items, such as the collection of entered data for margins, the header section is encoded in the following way: OBX-3 contains the fixed text value “Header,” and OBX-5 contains the text of the header/section. This technique is not used for eCC message format reports that have eCC IDs (see below).

To ease the task of registries that must process the received message, it is recommended that the OBX-4 Observation Sub-ID be used to group all of the items that the header refers to with the same numeric value. The items that are “nested” within that header should all share the same OBX-4 Observation Sub-ID value that is defined in the OBX containing the header, making it easier for registries to understand the grouping of the entered information.

For example:

```
OBX|10|TX|^Header|2|Histologic grade|||||F
OBX|11|TX|^Header|2.1|Gleason Pattern|||||F
OBX|12|TX|^Primary Pattern|2.1|3|||||F
OBX|13|TX|^Secondary Pattern|2.1|4|||||F
```

In this example, note the decimal segmentation for the “2.1” sub-header, nested under the “2” section header. This decimal pattern is recommended to keep the section headers in correct alignment. The items that are “nested” within the sub-header all share the same OBX-4 Observation Sub-ID value (2.1) that is defined in the OBX containing the 2.1 header, making it easier for registries to understand the grouping of the entered information.

Some laboratories may be unable to format the message in this way, but if used, registries will have an easier time determining the grouping of the reported synoptic data.

3.4.2.3. Synoptic eCC

The synoptic eCC message style is fully encoded Question and Answer pairs in separate OBX segments. Each OBX segment contains one or more identifiers derived from the XML template. See Section 3.5 below for further guidance on reporting eCC templates.

3.5. CONSTRUCTING THE OBX ROWS FOR A CAP eCC MESSAGE FORMAT

The following rules describe how to encode an eCC message format (“encoded”) report. Sending facilities must ensure that receiving facilities are able to accept and process these messages. However, the eCC messages format is very similar to non-eCC synoptic segmented messages, differing primarily by the inclusion of eCC IDs in OBX-3.1 and OBX-5, in addition to other metadata.

3.5.1. eCC SDC XML as the Source of eCC Metadata

For eCC message format reporting, pathology system software generates data entry forms by reading the form definition metadata inside an eCC XML file, which is now based on the SDC format. Thus, for a given eCC-based report, the most generic approach to locate the requisite eCC metadata (e.g., eCC IDs, units, data types, title text) is to examine the SDC XML file used to create the eCC data entry form that is used to create the synoptic pathology report. Although it is possible to extract this eCC metadata from vendor software systems as well, each vendor maintains its metadata in a proprietary format, making those formats inappropriate to use for the examples in this Guide. Because the SDC template is the common denominator for all eCC-based vendor systems, this document shows metadata location examples derived from the source SDC XML documents rather than from a proprietary eCC-based software system. Understanding the SDC source XML is critical to the proper validation of eCC messages. However, each creator of HL7 messages should be able to extract the same metadata directly from the vendor software system, based on the imported SDC metadata.

A. Rules for the eCC template and version identifiers:

To recap the earlier discussion for non-eCC synoptic segmented messages, eCC message format templates are identified with (a) the source/publisher of the template, (b) the ID and name of the template, and (c) the version of the template. Specific LOINC codes identify each of these:

- 60573-3 - Report template source
- 60572-5 - Report template ID
- 60574-1 - Report template version ID

These LOINC codes are used to define the content of the first three OBX-3 rows, which are found immediately following the OBR segment identifying the report as a synoptic report message. At this time, there is no special OBR code to indicate that the OBR represents an eCC-encoded synoptic report. This information must be obtained from the first OBX row.

The **first OBX row** contains this invariant string for the **Report template source**:

```
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
```

The following example shows how metadata for the next two OBX rows is extracted from a source SDC XML document. Below is a partial SDC XML sample from the Radical Prostatectomy eCC template. The color-coded areas are described in the rules below.

```

<FormDesign
ID="Prostate.Res.128_3.003.001.REL_sdcFDF"
baseURI="www.cap.org/eCC"
fullURI="baseURI=www.cap.org/eCC&lineage=Prostate.Res.128&
_version=3.003.001.REL&docType=sdcFDF"
formTitle="PROSTATE GLAND: Radical Prostatectomy"
lineage="Prostate.Res.128"
filename="Prostate.Res.128_3.003.001.REL_sdcFDF.xml"
version="3.003.001.REL" xmlns="urn:ihe:qrph:sdc:2016">
...
<Property name="TemplateID" type="CAPeCC_meta" order="8" propName="TemplateID"
val="128.100004300" />
...

```

In the **second OBX row**:

- OBX-2 will be “CWE.”
- For eCC SDC XML templates, OBX-5 will contain the **Report template ID**. This value may be found by applying the following XPath to the source SDC XML template:
`/FormDesign/Property[@name="TemplateID"]/@val`
- The **display name** in OBX-5 holds the *formTitle* attribute of the **FormDesign** element (XPath: `/FormDesign/@formTitle`) of the eCC SDC XML file.
- Here is an example of the second OBX row derived from this sample:

```

OBX|2|CWE|60572-5^Report template ID^LN||128.100004300^PROSTATE GLAND: Radical
Prostatectomy^CAPECC|||||F

```

In the **third OBX row**:

- For SDC eCC message format templates, the value for the **Report template version ID** is found in the **version** attribute of the **FormDesign** element of the eCC SDC XML file. The **version** may be found by applying the following XPath to the eCC’s source SDC XML:
`/FormDesign/@version` in the eCC XML. The format is similar to the following:
3.003.001.REL
- Here is an example of the third OBX row:

```

OBX|3|ST|60574-1^Report template version ID^LN||3.003.001.REL|||||F

```

The complete eCC OBR with the three special OBX segments is shown below:

```

OBR|1||123456789|60568-3^Synoptic report^LN|
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F
OBX|2|CWE|60572-5^Report template ID^LN||128.100004300^
PROSTATE GLAND: Radical Prostatectomy^CAPECC|||||F
OBX|3|ST|60574-1^Report template version ID^LN||3.003.001.REL|||||F

```

- B. The OBX 3/5 Question/Answer Pattern:** In general, for each eCC data element (question/answer pair), one new OBX row is added. The OBX-3.1 and 3.2 fields contain the Question’s eCC ID and the question text (e.g., 1234.100004300^Histologic Type), and the OBX-5 field contains the answer data. The OBX-5 field records answer data using several related formats, as described below in detail. If more than one answer is provided for a question, then one additional OBX row is used for each additional answer. The number of OBX rows to add for various eCC question/answer patterns will be described later as well. **The OBX-5 data type** is populated in OBX-2. The default value for

all selected LI and LIR items will be **CWE** (coded), to permit the eCC ID value to be sent as a coded answer. When OBX-5 contains a user-entered value, then OBX-2 will reflect the data type of that value. Several examples will be provided later.

- C. eCC Primary XML Components for HL7 Transmission:** In eCC message format SDC XML templates, the primary data element building blocks are **Question** (Q), **ListItem** (LI; i.e., answer choice), and **Section** (S). For user-entered text and numeric responses, eCC message format SDC XML includes the **Response** and **ListItemResponse** (LIR) structures. Note that each of these SDC XML-derived components is indicated with an initial capital letter to indicate that it is a specific kind of SDC XML object type. Each of these components and their relevant substructures will be described below.
- D. eCC IDs:** eCC IDs use the “composite key” (Ckey) format, which is a decimal format having up to nine digits before the decimal point (the integer part), with nine digits permitted after the decimal point (the decimal part). The integer part is a curated identifier that uniquely labels an eCCSection, Question, or ListItem in a particular eCC template. The decimal part is a number (called a “namespace”) assigned by CAP staff to identify the organization that is authorized to edit the eCC templates. CAP’s internal namespace is “100004300.” The trailing zeros are significant in some systems and thus should not be omitted.

eCC data elements must be transmitted using the eCC ID values for each Question and ListItem found in the eCC XML template that was used to generate the pathology report. When eCC IDs are used in the HL7 message, the ID value will be the full decimal value of the ID, including any trailing zeros (e.g., 1234.100004300). The Coding System value in OBX-3.3 and OBX-5 for eCC IDs is “CAPECC.”

Below are three examples of elements with eCC IDs from SDC XML. As with all SDC metadata, these should be obtainable from within the eCC-based vendor software.

```
<Section ID="17097.100004300" title="SPECIMEN (Note A)">
...
<Question ID="18225.100004300" title="Procedure">
...
<ListItem ID="18226.100004300" title="Radical prostatectomy">
```

- E. Question (Q):** All eCC Question data are placed in OBX-3. The eCC ID for the Question is placed in OBX-3.1. The title text for the Question is placed OBX-3.2. There are three main types of questions: **Single-Select** (QS), **Multi-Select** (QM), and **Response** (QR). The QR was previously called Question-Fillin (QF). Each of these will be explored in detail later.
- F. ListItem (LI):** A ListItem is an answer choice presented to a user in a Data Entry Form (DEF), usually with a list of other LI answer choices that may be selected. The eCC ID for the selected answer choice is placed in OBX-5. The **title** content (`Radical prostatectomy` in the SDC XML example below) for the selected LI is placed in OBX-5. The LI was previously known as Answer (A).

Example:

```
<ListItem ID="18226.100004300" title="Radical prostatectomy">
```

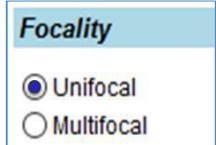
```
OBX|9|CWE|18225.100004300^Procedure^CAPECC||
OBX-5→18226.100004300^Radical prostatectomy^CAPECC|||||||
```

More LI examples will be shown in the sections below.

- **Note:** In some cases, selecting an LI presents the user with a **ListItemResponseField** (LIRF), in which the user can select the ListItem and then enter a value, generally with a string or numeric data type. An LI paired with an LIRF is called the **ListItem Response** (LIR) pattern. The LIR previously was known as the Answer-Fillin (AF). (This is covered later.)
- G. Single-Select Questions (QS)** are Questions supplied with a list of LIs, but the user may select only one of the provided LIs. Each QS with its selected LI will be transmitted using a single OBX segment. The eCC ID for the selected answer choice (selection is indicated with `selected="true"` in the `ListItem` SDC XML) is placed in OBX-3.1. The `title` content for the question is placed in OBX-3.2.
- **Exception:** If the selected LIs is an LIR, then two OBX rows will be needed for the selected LIR. (This is covered later.)

Example of SDC XML for a QS with part of a data entry form (inset):

```
<Question ID="39102.100004300" title="Focality" >
  <ListField>
    <List name>
      <ListItem ID="3845.100004300" title="Unifocal" selected="true" />
      <ListItem ID="3849.100004300" title="Multifocal" />
    </List>
  </ListField>
</Question>
```



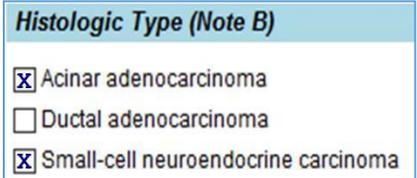
The OBX for this simple QS is shown below. (OBX-4 and fields after OBX-5 are omitted for simplicity.)

```
OBX|5|CWE|39102.100004300^Focality^CAPECC||
  OBX-5-> 3845.100004300^Unifocal^CAPECC|||||
```

- H. Multi-Select Questions (QM)** are questions supplied with a list of LIs, and the user may select one or more of the provided LIs. Multi-select questions with x selected LIs will usually contain x OBX segments, where the eCC question ID repeats in each of the x OBX-3 fields, but the OBX-5 answer field will contain the eCC ID for a single selected LI. The OBX segments repeat such that each selected LI has a single OBX row to represent it.
- **Exception:** If the list of LIs contains any LIRs, then an extra OBX row will be needed for each selected LIR. (This is covered later.)

Example of SDC XML for a QM with part of a data entry form (inset):

```
<Question ID="53672.100004300" title="Histologic Type">
  <ListField maxSelections="0">
    <List>
      <ListItem ID="56746.100004300" title="Acinar adenocarcinoma"
        selected="true" />
      <ListItem ID="55730.100004300" title="Ductal adenocarcinoma" />
      <ListItem ID="50277.100004300" title="Small-cell neuroendocrine carcinoma"
        selected="true"/>
    </List>
  </ListField>
</Question>
```

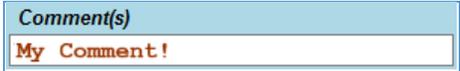


The `ListField` element above shows that `maxSelections="0"`, which indicates that this is a QM, not a QS. The XML and the inset image show that two LIs have been selected by the user. In `ListItem`, this is represented with `selected="true"`. The OBX for the two selected LIs would look like the following example. Note that both LIs share the same OBX-5 Question content. (OBX-4 and fields after OBX-5 are omitted for simplicity.)

```
OBX|9|CWE|53672.100004300^Histologic Type^CAPECC|
  OBX-5→56746.100004300^Acinar adenocarcinoma^CAPECC|||||
OBX|10|CWE|53672.100004300^Histologic Type^CAPECC|
  OBX-5→50277.100004300^Small-cell neuroendocrine carcinoma^CAPECC|||||
```

- I. The Question Response (QR) Pattern:** Some questions have fill-in **Response Fields** (RFs) instead of LIs; this is the Question-Response (QR) pattern. In the QR pattern, the user’s response (e.g., the text or number entered in the data entry form) is placed in OBX-5. Here is a QR example:

```
<Question ID="40273.100004300" title="Comment(s)">
  <ResponseField>
    <Response>
      <string maxLength="4000" minLength="0" val="My Comment!" />
    </Response>
  </ResponseField>
</Question>
```



An OBX sample follows. Note the use of “TX” (not “ST”) to indicate user-entered alphanumeric content in OBX-3.1. (OBX-4 and fields after OBX-5 are omitted for simplicity.)

```
OBX|20|TX|40273.100004300^Histologic Type^CAPECC||My Comment!^CAPECC|||||
```

Another QR example demonstrates how a numeric data type (**decimal**) and units (**grams**) are encoded in the SDC XML and the OBX:

```
<Question ID="18230.100004300" title="Prostate Weight (g)">
  <ResponseField>
    <Response>
      <decimal val="47.2" />
    </Response>
    <ResponseUnits val="grams" unitSystem="UCUM" />
  </ResponseField>
</Question>
```



The OBX is shown below. “NM” (numeric) is used in OBX-2 and units metadata are in OBX-6. Note that OBX-6.2 is empty, and the `title` text “(g)” (which indicates units of grams) is *not* used here, even though to the human reader, it is related to the units metadata in the XML. See the section on units below for more information on filling OBX-6 from SDC-derived metadata.

```
OBX|6|NM|18230.100004300^Prostate Weight (g)^CAPECC||47.2|grams^^UCUM|||||
```

- J. Title Text and Report Text:** The `title` attributes in the previous SDC XML examples contain the text that should appear in the pathology software data entry form. This `title` text ordinarily would also appear in OBX-3.2 or OBX-5 in the HL7 message, as described later. However, in some cases, the `title` text should not appear in a printed pathology report. If the reported text should be different from the data entry form `title` text, it is stored in an SDC `reportText` property that is a child element of the modified Question, ListItem, or Section element, e.g.:

```
<Question ID="17043.100004300" title="?TNM Descriptors">
  <Property propName="reportText" val="TNM Descriptors" />
  ...
```

In this case, a leading “?” symbol in the **title** has been removed for generation of the pathology report text “TNM Descriptors.” Whenever possible, the text included in HL7 messages should have the report text **val** content (TNM Descriptors in this case) override the **title** attribute in the parent element. This will make the HL7 message better match the printed report and prevent misinterpretation of the transmitted results.

In some cases, the **title** text used in the data entry form is completely omitted from the report. This is indicated by the use of “{no text}” in the **val** attribute of the **reportText** Property. For example:

```
<ListItem ID="16809.100004300" title="Other histologic type not listed (specify)">
  <Property propName="reportText" val="{no text}" />
  ...

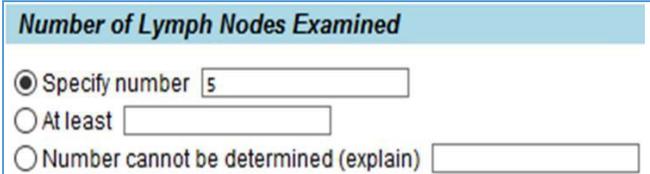
```

K. ListItem Response Pattern (LIR): In some cases, a selected LI provides the user a place to enter a fill-in response after the answer is selected. This response is “attached” to the selected LI, and the pattern is called a List Item Response (LIR). For example, an LIR will appear in a list of LIs with special text such as “Other (specify).” If the user selects this LIR (indicated here with **selected="true"**), the user will type in the form’s response field to provide a string or numeric value (**string** in this example). In this case, one *additional* OBX row is used to carry the user’s response for the LIR. This extra OBX shares the question’s eCC ID and **title** content in OBX-3, but the selected LIR’s eCC ID is placed in **OBX-4** (not in OBX-5), and the user’s response value (“5” in this example) is placed in OBX-5.

Below is an example with three LIRF element blocks. Only the first LIRF is shown; the others were omitted to save space (at the ellipsis [...] symbols).

Note the use of **reportText** with a value of {no text} in the first LIRF. This indicates that we should *not* show the LI **title** text (Specify number) in the report or the message. Instead, we will substitute the user’s response value, which in this case is the integer 5. The use of **reportText** is very common in the LIRF pattern.

```
<Question ID="49907.100004300" title="Number of Lymph Nodes Examined">
  <ListField>
    <List>
      <ListItem ID="10799.100004300" title="Specify number" selected="true" >
        <Property propName="reportText" val="{no text}" />
        <ListItemResponseField responseRequired="true">
          <Response>
            <integer val="5"/>
          </Response>
        </ListItemResponseField>
      </ListItem>
      <ListItem ID="33429.100004300" title="At least">
        ...
      </ListItem>
      <ListItem ID="14505.100004300" title="Number cannot be determined
(explain)">
        ...
      </ListItem>
    </List>
  </ListField>
</Question>
```



```
OBX|36|CWE|49907.100004300^Number of Lymph Nodes Examined^CAPECC||
  OBX-5->10799.100004300^Specific number^CAPECC|||||||
OBX|37|NM|49907.100004300^Number of Lymph Nodes Examined^CAPECC|10799.100004300|
  OBX-5->5|||||||
```

In a printed synoptic report, this would appear as follows:

“Number of Lymph Nodes Examined: 5”

Note that the text *Specify number* has been discarded in the report as well as the message. Also note that we used an extra OBX to carry the user’s response (5) in OBX-5. The LI ID of the first OBX-3.1 was placed into OBX-4.

Note that OBX-2 contains “CWE” for the first OBX (which contains an eCC ID in OBX-5) and “NM” for the second OBX (which contains a numeric value in OBX-5).

- L. Units of Measure:** For NM types on QR and LIR OBX rows, the OBX-6 field should include the units information, if this is available in the SDC XML template. The units can be found in the `ResponseUnits` element inside the QR’s `ResponseField` or the LIR’s `ListItemResponseField`, when applicable. The content of `val` and `unitSystem` in `ResponseUnits` should be used to populate OBX-6.1 and OBX-6.3. The `val` content of `TextAfterResponse` should be used to populate OBX-6.2, because this is the text that appears in the synoptic report.

When this `Response` data type element name is `string`, the OBX-2 value should be “ST.” When this element name is `integer`, `decimal`, or any other numeric type, the OBX-2 value type should be “NM.”

Here is an example of a `ResponseField` from a QR:

```
<ResponseField>
  <Response>
    <decimal val="10"/>
  </Response>
  <TextAfterResponse val="Millimeters (mm)"/>
  <ResponseUnits val="mm" unitSystem="UCUM"/>
</ResponseField>
```

For the above QR `ResponseField` example, OBX-6 would appear like the example below. (The value 10 was entered by the user in the data entry form, and belongs in OBX-3.2 [not shown]):

```
|mm^Millimeters (mm)^UCUM|
```

- M. eCC Sections** (previously called “Headers”) are placed in a new OBX row. The eCC ID and title text are placed in OBX-3.1 and 3.2. No mapped codes are used. OBX-5 contains the word “SECTION.” OBX-2 contains “ST.”

NOTE: The inclusion of section headers is a change from the previous NAACCR Volume V guidance.

```
OBX|36|ST|17097.100004300^SPECIMEN (Note A)^CAPECC||SECTION|||||||
```

- N. DisplayedItems** (formally called “Notes”) and **Properties** are *not* encoded in the HL7 message. However, see the discussion on `reportText`, above.
- O. Repeating Sections and Questions:** Some Sections and Questions are allowed to repeat inside the data entry form, along with all of their child content. To prevent ambiguity associated with duplicate `IDs`, `IDs` are incremented with new unique values for each Section, Question, and ListItem in the repeated area. New repeating `IDs` are created by the data entry form software and are converted to new OBX rows, exactly the same as `IDs` in the original SDC XML.

The repeating `IDs` begin with the `ID` from the SDC XML, followed by two underscores (__) and a monotonically increasing integer value that is incremented by 1 for each new repeated area in the data entry form. For example, 1234.100004300 in the SDC XML would become 1234.100004300__1 for the first repeat. All descendant Sections, Questions, and ListItems in the

repeated area (i.e., those Sections, Questions, and ListItems contained in the repeated Section, or subsumed by a repeated Question in the SDC XML) would have the same suffix (1) appended to their IDs. This new ID suffix would replace any existing suffix on those IDs, if present from a previous repeat cycle. Assignment of new IDs to repeated Sections, Questions, and ListItems is covered in the SDC Technical Reference Guide, available from CAP.

P. Secondary Code Systems: The OBX-3 and OBX-5 fields support the inclusion of a secondary code value (e.g., ICD-O-3 or NAACCR codes). The secondary codes for registry reporting include:

- **ICD-O-3 Codes** for histologic site and primary tumor site ListItems (answers) (OBX-5)
- **NAACCR Vol II Data Dictionary** item numbers for Questions (OBX-3) and alphanumeric answer codes for ListItems (OBX-5)
- **SNOMED-CT Codes.** Some SNOMED CT codes are distributed in the CAP eCC releases in an eCC ID-SNOMED mapping file. These generally cover histologic type and primary tumor site, and these SNOMED codes thus are similar to the ICD-O-3 code coverage. Work is in progress to map all eCC Question (OBX-3) and ListItem IDs (OBX-5) to SNOMED CT codes.

To supply inline secondary codes in OBX rows, the formats are as follows:

- **SNOMED CT:** When SNOMED-CT codes are transmitted in the HL7 message, the Coding System value will be “SCT.” OBX-3.4-OBX 3.6 would contain this pattern:

```
...^conceptID^FullySpecifiedName^SCT...
```

and the same pattern would be used for OBX-5, as described in [Section 2.7.3](#). For example, see the **highlighted** OBX-5 subfields inside the **bolded** OBX-5 field:

```
OBX|9|CWE|16800.100004300^Histologic Type (Note A^CAPECC||
16802.100004300^Adenocarcinoma (acinar, not otherwise specified^CAPECC^
35917007^Adenocarcinoma, no subtype (morphologic abnormality)^SCT
|||||F||||200407261530
```

The same patterns are used for other code systems as well.

Note: Legacy SNOMED alphanumeric codes should NEVER be transmitted, because they are extremely outdated.

- **ICD-O-3 Codes:** ICD-O-3 codes are used only for histologic type answers and are not required in eCC messages. In most cases, it is preferable to apply the ICD-O-3 codes by matching the eCC IDs with the latest CAP ICD-O-3 map, and this is done at the cancer registry. If ICD-O-3 codes are transmitted with the message, the complete ICD-O-3 code, including the behavior code, is placed in OBX-5. The behavior code should be preceded by a forward slash. OBX-5 should contain the official WHO text for the ICD-O-3 code. OBX 5 contains the current version text, including the version, but without dashes, e.g., “ICDO3.”
- **LOINC:** LOINC codes are not currently used for eCC data element values. However, when LOINC codes are transmitted in OBX-3, OBX 3.1 will contain the numeric LOINC code, OBX-3.2 will contain the LOINC text value, and OBX-3.3 will contain “LN.”

Code Maps: eCC IDs are designed to be mapped to other terminologies as needed for specific use cases. Maps are released and updated by CAP as needed for registry purposes. Maps are released in a simple XML format and are designed to be applied to transmitted eCC IDs after the HL7 messages have been received at an endpoint node. Efforts are underway to

make maps between IDs, SNOMED CT, and Registry codes broadly available to the registry community.

Code maps provide the ability to assign codes (e.g., from ICD-O-3, NAACCR, or SNOMED CT) to eCC data *after the eCC transmission has occurred*. Importantly, maps provide the ability to fix incorrect codes and supply missing codes even years after the eCC messages were transmitted. For these reasons, maps are the preferred way to supply codes in conjunction with eCC transmissions.

Although code maps are designed for post-transmission application to eCC IDs, individual codes that originate in CAP eCC maps may be sent in individual OBX rows as well. If eCC IDs are not available in the sending system, it will not be possible to use the eCC maps to assign codes, and inline incorporation of static codes in OBX rows is the only available mechanism available in this manual to attach codes to the OBX rows. However, in the absence of approved eCC-linked maps and IDs to attach the codes, it is unlikely for correct registry-usable codes to be consistently available for inline use in OBX rows.

- Q. eCC Contextual Nesting and the HL7 Message Style:** Maintaining child → parent eCC linkages in the HL7 message for each Question and Section is strongly recommended. The parent eCC ID should be populated in OBX-4; the content of OBX-4 should be prefixed with a “+” to indicate that this is a parent eCC ID. The parent eCC ID is the ID on the first XML ancestor element that contains an ID attribute. Sections and Questions may have parents of Section, Question, or ListItem (or its LIR variant). Nesting to any depth is supported with this approach. Examples of nesting using OBX-4 are shown in [Appendix E](#).

For sending sites unable to generate child → parent eCC linkages using OBX-4, the native nested eCC data element structure in HL7 will be effectively flattened because the internal contextual linkages between OBX rows will be broken. The flattened transmission format can result in misinterpretation of the transmitted data if the data are printed out in a flattened format and then used for clinical purposes. Although the original layout usually can be reconstructed by repopulating the original eCC XML template with the transmitted data, this takes extra work and errors may be introduced.

Appendix A. College of American Pathologists (CAP) Definition of Synoptic Reporting



A.1. Definition of Synoptic Reporting

Synoptic reporting in surgical pathology is a style of reporting that has advantages for a variety of users of surgical pathology reports.¹⁻³ For pathologists, synoptic reporting can improve the completeness, accuracy, and ease of creating the report.⁴⁻¹² For clinicians, synoptic reports can make data extraction from the report both more rapid and more accurate.¹³⁻¹⁵ For researchers and cancer registrars, synoptic reporting also ensures that these data elements are amenable to scalable data capture, interoperability, and exchange, enabling the creation of structured data sets to facilitate research.

In order to help pathologists achieve these goals, the CAP has developed a list of specific features that define *synoptic* report formatting for accreditation compliance. These include:

All required data elements outlined on the currently applicable surgical case summary from the cancer protocol that are included in the report must be displayed in synoptic format.

- Synoptic reporting is defined by the data element followed by its answer (response), e.g., “Tumor size: 5.5 cm.” Outline format without the paired “data element: response” format is not considered synoptic.
- The data element does not have to be identical (i.e., verbatim) to that listed in the CAP protocol and may be rephrased (e.g., for conciseness) as long as the intended meaning remains clear.
- Multiple related elements can be combined into a single data entry, as long as the individual responses can be distinguished by the reader and as long as the intended meaning remains clear. Examples include but are not limited to:

¹ College of American Pathologists. “Resources & Publications: Cancer Protocols.” www.cap.org/cancerprotocols.

² Ellis DW, Srigley J. “Does standardised structured reporting contribute to quality in diagnostic pathology? The importance of evidence-based datasets.” *Virchows Arch*. 2016;468(1):51–59.

³ Srigley JR, McGowan T, Maclean A, Raby M, Ross J, Kramer S, Sawka C. “Standardized synoptic cancer pathology reporting: a population-based approach.” *J Surg Oncol*. 2009;99(8):517–524.

⁴ Kang HP, Devine LJ, Piccoli AL, Seethala RR, Amin W, Parwani AV. “Usefulness of a synoptic data tool for reporting head and neck neoplasms based on the College of American Pathologists cancer checklists.” *Am J Clin Pathol*. 2009;132(4):521–530.

⁵ Idowu MO, Bekeris LG, Raab S, Ruby SG, Nakhleh RE. “Adequacy of surgical pathology reporting of cancer: a College of American Pathologists Q-Probes study of 86 institutions.” *Arch Pathol Lab Med*. 2010;134(7):969–974.

⁶ Messenger DE, McLeod RS, Kirsch R. “What impact has the introduction of a synoptic report for rectal cancer had on reporting outcomes for specialist gastrointestinal and nongastrointestinal pathologists?” *Arch Pathol Lab Med* 2011;135(11):1471–1475.

⁷ Karim RZ, van den Berg KS, Colman MH, McCarthy SW, Thompson JF, Scolyer RA. “The advantage of using a synoptic pathology report format for cutaneous melanoma.” *Histopathology*. 2008;52(2):130–138.

⁸ Lam E, Vy N, Bajdik C, Strugnell SS, Walker B, Wiseman SM. “Synoptic pathology reporting for thyroid cancer: a review and institutional experience.” *Expert Rev Anticancer Ther*. 2013;13(9):1073–1079.

⁹ Valenstein PN. “Formatting pathology reports: applying four design principles to improve communication and patient safety.” *Arch Pathol Lab Med*. 2008;132(1):84–94.

¹⁰ Renshaw MA, Renshaw SA, Mena-Allauca M, Carrion PP, Mei X, Narciandi A, Gould EW, Renshaw AA. “Performance of a web based method for generating synoptic reports.” *J Pathol Inform*. 2017;8:13.

¹¹ Renshaw MA, Gould EW, Renshaw A. “Just say no to the use of no: alternative terminology for improving anatomic pathology reports.” *Arch Pathol Lab Med*. 2010;134(9):1250–1252.

¹² Renshaw SA, Mena-Allauca M, Touriz M, Renshaw A, Gould EW. “The impact of template format on the completeness of surgical pathology reports.” *Arch Pathol Lab Med*. 2014;138(1):121–124.

¹³ Renshaw AA, Mena-Allauca M, Gould EW. “Reporting Gleason grade/score in synoptic reports of radical prostatectomies.” *J Pathol Inform*. 2016;7:54.

¹⁴ Strickland-Marmol LB, Muro-Cacho CA, Barnett SD, Banas MR, Foulis PR. “College of American Pathologists Cancer Protocols: optimizing format for accuracy and efficiency.” *Arch Pathol Lab Med*. 2016;140(6):578–587.

¹⁵ Renshaw AA, Gould EW. “Comparison of accuracy and speed of information identification by non-pathologists in synoptic reports with different formats.” *Arch Pathol Lab Med*. 2017;141:418–422.

- Anatomic site or specimen, laterality, and procedure
- Pathology Staging Tumor Node Metastasis (pTNM) staging elements
- Negative margins, as long as all negative margins are specifically enumerated where applicable
- Tumor type and grade
- All parts of grade (e.g., “Gleason grade: 3+4 = 7 (Group 3)”)
- Breast tubule formation, nuclear pleomorphism, and mitotic rate
- All portions of an ancillary study result (e.g., “Estrogen receptor: Positive, 100% of cells, strong”)
- Positive cores/total cores
- Positive lymph nodes/total lymph nodes
- Size (when giving more than one dimension)
- Required data elements may be listed in any order.
- Additional methods may be used in order to enhance or achieve visual separation, such as use of headers, indentations, or bolding and/or font variations.
- Additional items may be added within the synoptic report as needed.
- Required elements may appear in a summary format elsewhere in the report **IN ADDITION TO**, but not as replacement for, the synoptic report (i.e., all required elements must be in the synoptic portion of the report in the format defined above).
- Wording of the responses is at the discretion of the reporting pathologist.

Within this framework a variety of different formats are allowed. Specifically, pathologists may choose to have two separate columns for data elements and responses (may be easier to read or preferred by clinicians) or may left justify the responses. Responses can be on the same line (may be easier to read) or on the following line/s. Pathologists may also choose to add additional formatting items, including bolding/italics or indentation to increase the readability of the report. Pathologists may also choose to add additional formatting to improve natural language parsing. In some cases, the pathologist may want to include a substantial amount of information as a response, and this may be referenced using the phrase “see note.” Pathologists may use a list with filled-in checkboxes for their responses, but this is discouraged since this may easily be misread by a clinician.

The CAP has developed a few examples of synoptic reporting (attached) for the use as training tools for inspectors. Sample reports 1-7 are examples of acceptable synoptic reporting; Sample reports 8 and 9 do not show acceptable synoptic style reporting. Please refer to the specific CAP cancer protocol for further information concerning requirements for accreditation purposes.

A.2. Synoptic Report Example #1

CARCINOMA OF THE COLON OR RECTUM

TUMOR SUMMARY:	Colon
Procedure:	Left hemicolectomy
Tumor site:	Left (descending) colon
Tumor size:	6 cm
Tumor perforation:	Not identified
Histologic type:	Adenocarcinoma
Grade:	Grade 2/4, Moderately differentiated
Extent:	Invades pericolic adipose tissue
Margins:	Free, 2 cm radial
Treatment effect, primary site:	No prior treatment
Lymphovascular invasion:	Cannot be determined
Perineural invasion:	Not identified
Tumor deposits:	Not identified
Lymph nodes, # sampled:	24
Lymph nodes, # involved:	1
Stage (AJCC 8):	pT3 pN1a

A.3. Synoptic Report Example #2

CARCINOMA OF THE PROSTATE

ADDED “|” TO IMPROVE NATURAL LANGUAGE PARSING

Procedure:	Radical prostatectomy
Histologic type:	Adenocarcinoma
Gleason primary pattern:	Grade 4
Gleason secondary pattern:	Grade 3
Gleason tertiary pattern:	Not applicable
Gleason score:	Score 7
Grade group:	Group 3
Tumor size:	100 mm
Extraprostatic extension:	Not identified
Urinary bladder neck invasion:	Not identified
Seminal vesicle invasion:	Not identified
Margins:	Positive, focal, left posterior
Treatment effect, primary site:	None
Regional lymph nodes:	No lymph nodes submitted or found
Stage (AJCC 8):	mpT2 pNX

A.4. Synoptic Report Example #3

CARCINOMA OF THE PROSTATE **GRADES COMBINED ON TWO LINES**

TUMOR SUMMARY:	Prostate, prostatectomy
Procedure:	Radical prostatectomy
Type:	Adenocarcinoma
Grade:	Gleason grade 3 + 4 = 7 (Group 3)
Gleason tertiary pattern:	Not applicable
Tumor size:	At least 1.1 cm as measured from the glass slide
Extraprostatic extension:	None
Urinary bladder neck invasion:	None
Seminal vesicle invasion:	None
Margins:	Positive, focal, left posterior
Treatment effect, primary site:	None
Lymph nodes, # sampled:	0
Stage (AJCC 8):	mpT2 pNX

A.5. Synoptic Report Example #4

DUCTAL CARCINOMA *IN SITU* OF THE BREAST ***SPECIMEN, LATERALITY, AND PROCEDURE COMBINED ON ONE LINE, AS ALLOWED***

Specimen, Laterality, Procedure: Partial breast, right, excision without wire-guided localization

Estimated size of DCIS: at least 380 mm

Histologic Type: Ductal carcinoma *in situ*

Architectural Patterns: Solid

Nuclear Grade: Grade II (intermediate)

Necrosis: Present, focal

Margins: Margin(s) uninvolved by DCIS Distance
from closest margin: 4 mm Specify closest
margins: Superior

Regional Lymph Nodes: No lymph nodes submitted or found

Pathologic Staging (pTNM)

Primary Tumor (pT): pTis (DCIS)

Regional Lymph Nodes (pN): pNX

A.6. Synoptic Report Example #5

LEFT BREAST MASTECTOMY

Procedure:

Total mastectomy (including nipple and skin)

Specimen Laterality:

Left

Tumor Size:

Greatest dimension of largest focus of invasion >1MM: 3.5 mm

Histologic Type:

Invasive ductal carcinoma (no special type or otherwise specified)

Histologic Grade:

Glandular (Acinar) / Tubular Differentiation: Score 2

Nuclear Pleomorphisim: Score 1

Mitotic Rate:

Score 1 Overall Grade:

Grade 1

Tumor Focality:

Single focus of invasive carcinoma

DCIS:

No DCIS present in specimen

Invasive Carcinoma Margins:

Margins uninvolved by invasive carcinoma

Distance from closest margin: 25mm Closest

Uninvolved Margin: Deep

Lymph Nodes:

Uninvolved by tumor cells

Total number of nodes examined (sentinel and nonsentinel): 13 Number of

sentinel lymph nodes examined: 3

Treatment Effect:

No known presurgical therapy

Primary Tumor (pT):

pT1a

Regional Lymph Nodes

(pN):

pN0

Estrogen and Progesterone Receptors:

Previously

performed

(HER2) ERBB2 Status:

Previously performed

A.7. Synoptic Report Example #6

GASTROINTESTINAL STROMAL TUMOR (GIST)—Based on AJCC/UICC TNM, 8th edition USES THE CAP CANCER CHECKLIST, AS ALLOWED

Procedure

Local excision

Resection

Specify type (e.g., partial gastrectomy): _____ total gastrectomy _____

Metastasectomy

Other (specify): _____

Not specified

Tumor Site

Specify (if known): gastric body _____

Not specified

Tumor Size

Greatest dimension: 5.3 cm

*Additional dimensions: 4.8 x 4.5 cm

Cannot be determined (see "Comment")

Tumor Focality

Unifocal

Multifocal

Specify number of tumors: _____

Specify size of tumors: _____

Histologic Subtype

Gastrointestinal stromal tumor, spindle cell type

Gastrointestinal stromal tumor, epithelioid type

Gastrointestinal stromal tumor, mixed

Gastrointestinal stromal tumor, other (specify): _____

Mitotic Rate

Specify: 2 /5 mm²

***Necrosis**

* Not identified

* Present

*Extent: _____ %

* Cannot be determined

Histologic Grade

GX: Grade cannot be assessed

G1: Low grade; mitotic rate $\leq 5/5$ mm²

G2: High grade; mitotic rate $>5/5$ mm²

Risk Assessment

- None
- Very low risk
- Low risk
- Moderate risk
- High risk
- Overtly malignant/metastatic
- Cannot be determined None

Margins

- Cannot be assessed
- Uninvolved by GIST
Distance of tumor from closest margin (millimeters or centimeters): _____ mm or
_____ cm Specify margin (if
known): _____
- Involved by GIST
Specify margin(s) (if known): _____

Regional Lymph Nodes (Note D)

- No lymph nodes submitted or found

Lymph Node Examination (required only if lymph nodes are present in specimen)

Number of Lymph Nodes Involved: _____
_____ Number cannot be determined (explain): _____

Number of Lymph Nodes Examined: _____
_____ Number cannot be determined (explain): _____

Pathologic Stage Classification (pTNM, AJCC 8th Edition) (Note G)

Note: Reporting of pT, pN, and (when applicable) pM categories is based on information available to the pathologist at the time the report is issued. Only the applicable T, N, or M category is required for reporting; their definitions need not be included in the report. The categories (with modifiers when applicable) can be listed on 1 line or more than 1 line.

TNM Descriptors (required only if applicable) (select all that apply)

- m (multiple)
- r (recurrent)
- y (posttreatment)

Primary Tumor (pT)

- pTX: Primary tumor cannot be assessed
 pT0: No evidence of primary tumor
 pT1: Tumor 2 cm or less
 pT2: Tumor more than 2 cm but not more than 5 cm
 pT3: Tumor more than 5 cm but not more than 10 cm
 pT4: Tumor more than 10 cm in greatest dimension

Regional Lymph Nodes (pN) (Note D)

- pN0: No regional lymph node metastasis or unknown lymph node status
 pN1: Regional lymph node metastasis

Distant Metastasis (pM) (Note D) (required only if confirmed pathologically in this case)

- pM1: Distant metastasis
Specify site(s), if known: _____

+ Additional Pathologic Findings

+ Specify: _____

Ancillary Studies (Note E)

Note: For molecular genetic and further immunohistochemical study reporting, the CAP GIST Biomarker Template should be used. Pending biomarker studies should be listed in the Comments section of this report.

Immunohistochemical Studies

- KIT (CD117)
 Positive
 Negative
 DOG1 (ANO1)
 Positive
 Negative
 Other (specify): _____
 Pending
 Not performed

+ Molecular Genetic Studies (eg. KIT, PDGFRA, BRAF, SDHA/B/C/D, or NF1 mutational analysis)

- + Submitted for analysis; results pending
+ Performed, see separate report: _____
+ Performed
+ Specify method(s) and results: _____
+ Not performed

+ Preresection Treatment (select all that apply)

- + No known preresection therapy
+ Previous biopsy or surgery (specify): _____
+ Systemic therapy performed (specify type): _____
+ Therapy performed, type not specified
+ Not specified

Treatment Effect (Note F)

No known presurgical therapy

Not identified

Present

+ Specify percentage of viable tumor: _____%

Cannot be determined

+ **Comment(s)**

A.8. Unacceptable Synoptic Report Example #7

COLON

NOT ACCEPTABLE AS SYNOPTIC STYLE REPORTING: NOT ALL ELEMENTS ARE PRESENT AND DIAGNOSTIC PARAMETER PAIR IS ABSENT

Diagnosis:

Colon, right hemicolectomy:

Invasive adenocarcinoma, 3.4 x 3.0 cm involving muscularis propria

All margins negative

No lymphatic invasion

No metastatic tumor identified

A.9. Unacceptable Synoptic Report Example #8

KIDNEY

NOT ACCEPTABLE AS SYNOPTIC STYLE REPORTING: ALTHOUGH ALL REQUIRED ELEMENTS ARE PRESENT, DIAGNOSTIC PARAMETER PAIR IS ABSENT

Diagnosis:

Kidney, Left (Radical Nephrectomy):

Clear cell adenocarcinoma, Furhman nuclear grade 3, 8.3 cm, unifocal involving upper pole of kidney and extending into the renal vein with the renal vein margin positive. Sarcomatoid features not identified.

No lymph nodes submitted, adrenal gland uninvolved, lymphatic invasion present, no venous large vessel invasion, pT3, Nx. No significant pathologic alterations identified.

Appendix B. Code Tables

Note: Where only selected values are listed for Health Level Seven (HL7) tables, please refer to the HL7 Standard for complete listings. In this section, values are selected from standard codes where available. The values listed in the HL7-defined tables (e.g., Table 0003) SHALL be used. For the user-defined tables (e.g., Table 0002), unless specified in the table description, the values listed are those generally expected to be used for NAACCR cancer registry messaging. Different values may be sent on an *ad hoc* basis by senders, but there is no guarantee that receiving registries will be able to understand the values unless prior arrangements are made with the registry.

The tables provided below are for fields and components that are used in cancer registry reporting. Other coded fields and components may be found in the HL7 standards.

User-Defined Table 0001 – Sex [values suggested by HL7] (use in PID-8, NK1-15)

Value	Display Name	Definition	Comment/Usage Note	Status
F	Female			
M	Male			
H	Hermaphrodite, undetermined			
T	Transsexual			
O	Other			
U	Unknown			

User-Defined Table 0002 – Marital Status (use in PID-16)

Value	Display Name	Definition	Comment/Usage Note	Status
A	Separated			
D	Divorced			
M	Married			
S	Single			
W	Widowed			
C	Common law			
G	Living together			
P	Domestic partner			
R	Registered domestic partner			
E	Legally separated			
N	Annulled			
I	Interlocutory			
B	Unmarried			
U	Unknown			
O	Other			
T	Unreported			

HL7-Defined Table 0003 – Event Type [only selected values listed] (use in MSH-9, second component)
 Note that this shows only the Event Type for the Cancer Pathology Report Message described in this Guide.

Value	Display Name	Definition	Comment/Usage Note	Status
R01	ORU/ACK – Unsolicited transmission of an observation message			

User-Defined Table 0004 – Patient Class [values suggested by HL7] (use in PV1-2)

Value	Display Name	Definition	Comment/Usage Note	Status
E	Emergency			
I	Inpatient			
O	Outpatient			
P	Pre-admit			
R	Recurring patient			
B	Obstetrics			
C	Commercial account			
N	Not applicable			
U	Unknown			

User-Defined Table 0005 – Race [values are compliant with OMB directive for combined format] (use in PID-10, NK1-35)

Value	Display Name	Definition	Comment/Usage Note	Status
1002-5	American Indian or Alaska Native			
2028-9	Asian			
2054-5	Black or African American			
2076-8	Native Hawaiian or Other Pacific Islander			
2106-3	White			
2131-1	Other Race			

User-Defined Table 0006 – Religion [from HL7 Version 2.5] (use in PID-17)

Value	Display Name	Definition	Comment/Usage Note	Status
AGN	Agnostic			
ATH	Atheist			
BAH	Baha'i			
BRE	Brethren			
BUD	Buddhist			
BMA	Buddhist: Mahayana			
BTH	Buddhist: Theravada			
BTA	Buddhist: Tantrayana			
BOT	Buddhist: Other			
CFR	Chinese Folk Religionist			
CHR	Christian			
ABC	Christian: American Baptist Church			
AMT	Christian: African Methodist Episcopal			

Value	Display Name	Definition	Comment/Usage Note	Status
AME	Christian: African Methodist Episcopal Zion			
ANG	Christian: Anglican			
AOG	Christian: Assembly of God			
BAP	Christian: Baptist			
CRR	Christian: Christian Reformed			
CHS	Christian: Christian Science			
CMA	Christian: Christian Missionary Alliance			
COC	Christian: Church of Christ			
COG	Christian: Church of God			
COI	Christian: Church of God in Christ			
COM	Christian: Community			
COL	Christian: Congregational			
EOT	Christian: Eastern Orthodox			
EVC	Christian: Evangelical Church			
EPI	Christian: Episcopalian			
FWB	Christian: Free Will Baptist			
FRQ	Christian: Friends			
FUL	Christian: Full Gospel			
GRE	Christian: Greek Orthodox			
JWN	Christian: Jehovah's Witness			
MOM	Christian: Latter-Day Saints (LDS)			
LUT	Christian: Lutheran			
LMS	Christian: Lutheran Missouri Synod			
MEN	Christian: Mennonite			
MET	Christian: Methodist			
NAZ	Christian: Church of the Nazarene			
ORT	Christian: Orthodox			
PEN	Christian: Pentecostal			
COP	Christian: Other Pentecostal			
PRE	Christian: Presbyterian			
PRO	Christian: Protestant			
PRC	Christian: Other Protestant			
REC	Christian: Reformed Church			
REO	Christian: Reorganized Church of Jesus Christ-LDS			
CAT	Christian: Roman Catholic			
SAA	Christian: Salvation Army			
SEV	Christian: Seventh Day Adventist			
SOU	Christian: Southern Baptist			
UCC	Christian: United Church of Christ			
UMD	Christian: United Methodist			
UNI	Christian: Unitarian			
UNU	Christian: Unitarian Universalist			
WES	Christian: Wesleyan			
WMC	Christian: Wesleyan Methodist			
COT	Christian: Other			
CNF	Confucian			
DOC	Disciples of Christ			
ERL	Ethnic Religionist			
HIN	Hindu			
HSH	Hindu: Shaivites			
HVA	Hindu: Vaishnavites			
HOT	Hindu: Other			
JAI	Jain			
JEW	Jewish			
JCO	Jewish: Conservative			

Value	Display Name	Definition	Comment/Usage Note	Status
JOR	Jewish: Orthodox			
JRC	Jewish: Reconstructionist			
JRF	Jewish: Reform			
JRN	Jewish: Renewal			
JOT	Jewish: Other			
MOS	Muslim			
MSH	Muslim: Shiite			
MSU	Muslim: Sunni			
MOT	Muslim: Other			
NAM	Native American			
NRL	New Religionist			
NOE	Nonreligious			
SHN	Shintoist			
SIK	Sikh			
SPI	Spiritist			
OTH	Other			
VAR	Unknown			

HL7-Defined Table 0008 – Acknowledgment Code

See the HL7 Standard Version 2.5.1 for suggested values.

User-Defined Table 0010 – Physician ID (use in all XCN data types; including PV1-7, 8, 9, 17, RXA-10)
[locally defined]

To perform conformance on this table, populate this table with local values. Each facility should establish a system of coding its reporting physicians. The National Provider Identifier (NPI) is preferred.

HL7-Defined Table 0061 – Check Digit Scheme (use in all CX data types; including PID-2,3,4,18,21)

Not used in NAACCR Cancer Registry messaging. See the HL7 Standard Version 2.5.1 for defined values.

User-Defined Table 0063 – Relationship [from HL7 Standard, Version 2.5.1] (use in NK1-3, NK1-31, IN1-17, IN2-62)

Value	Display Name	Definition	Comment/Usage Note	Status
ASC	Associate			
BRO	Brother			
CGV	Care giver			
CHD	Child			
DEP	Handicapped dependent			
DOM	Life partner			
EMC	Emergency contact			
EME	Employee			
EMR	Employer			
EXF	Extended family			
FCH	Foster child			
FND	Friend			
FTH	Father			
GCH	Grandchild			
GRD	Guardian			
GRP	Grandparent			
MGR	Manager			
MTH	Mother			

Value	Display Name	Definition	Comment/Usage Note	Status
NCH	Natural child			
NON	None			
OAD	Other adult			
OTH	Other			
OWN	Owner			
PAR	Parent			
SCH	Stepchild			
SEL	Self			
SIB	Sibling			
SIS	Sister			
SPO	Spouse			
TRA	Trainer			
UNK	Unknown			
WRD	Ward of court			

HL7-Defined Table 0065 – Specimen Action Code (use in OBR-11)

Value	Display Name	Definition	Comment/Usage Note	Status
A	Add ordered tests to the existing specimen			
G	Generated order; reflex order			
L	Laboratory to obtain specimen from patient			
O	Specimen obtained by service other than laboratory			
P	Pending specimen; order sent prior to delivery			
R	Revised order			
S	Schedule the tests specified below			

HL7-Defined Table 0076 – Message Type [only selected values listed, those that are defined within this Guide] (use in MSH-9, first component)

Value	Display Name	Definition	Comment/Usage Note	Status
ACK	General acknowledgment message		2	
ORU	Unsolicited transmission of an observation message		7	

HL7-Defined Table 0078 – Observation Interpretation (use in OBX-8)

The values shown below are a subset of the HL7-defined values for **Observation Interpretation** that are appropriate for cancer registry reporting.

Value	Display Name	Definition	Comment/Usage Note	Status
<	Off scale low	The result is below the minimum detection limit (the test procedure or equipment is the limiting factor). Synonyms: Below analytical limit, low off scale.		
>	Off scale high	The result is above the maximum quantifiable limit (the test procedure or equipment is the limiting factor). Synonyms: Above analytical limit, high off scale.		
A	Abnormal	The result or observation value is outside the reference range or expected norm (as defined for the respective test procedure).		

Value	Display Name	Definition	Comment/Usage Note	Status
B	Better	The current result or observation value has improved compared to the previous result or observation value (the change is significant as defined in the respective test procedure).		
D	Significant change down	The current result has decreased from the previous result for a quantitative observation (the change is significant as defined in the respective test procedure).		
DET	Detected	The measurement of the specified component/analyte, organism, or clinical sign above the limit of detection of the performed test or procedure.		
E	Equivocal	The test or procedure was successfully performed, but the results are borderline and can neither be declared positive/negative or detected/not detected according to the current established criteria.		
H	High	The result for a quantitative observation is above the upper limit of the reference range (as defined for the respective test procedure).		
HH	Critical high	The result for a quantitative observation is above a reference level at which immediate action should be considered for patient safety (as defined for the respective test procedure).		
IE	Insufficient evidence	There is insufficient evidence that the species in question is a good target for therapy with the drug. A categorical interpretation is not possible.		
IND	Indeterminate	The specified component/analyte, organism, or clinical sign could neither be declared positive/negative nor detected/not detected by the performed test or procedure.		
L	Low	The result for a quantitative observation is below the lower limit of the reference range (as defined for the respective test procedure).		
LL	Critical low	The result for a quantitative observation is below a reference level at which immediate action should be considered for patient safety (as defined for the respective test procedure).		
MS	Moderately susceptible	The patient is considered as carrier based on the testing results. A carrier is an individual who carries an altered form of a gene, which can lead to having a child or offspring in future generations with a genetic disorder.		
N	Normal	The result or observation value is within the reference range or expected norm (as defined for the respective test procedure).		
ND	Not detected	The presence of the specified component/analyte, organism, or clinical sign could not be determined within the limit of detection of the performed test or procedure.		
NEG	Negative	An absence finding of the specified component/analyte, organism, or clinical sign based on the established threshold of the performed test or procedure.		

Value	Display Name	Definition	Comment/Usage Note	Status
NS	Nonsusceptible	A category used for isolates for which only a susceptible interpretive criterion has been designated because of the absence or rare occurrence of resistant strains. Isolates that have MICs above or zone diameters below the value indicated for the susceptible breakpoint should be reported as non-susceptible.		
POS	Positive	A presence finding of the specified component/analyte, organism, or clinical sign based on the established threshold of the performed test or procedure.		
R	Resistant	Bacterial strain inhibited <i>in vitro</i> by a concentration of an antimicrobial agent that is associated with a high likelihood of therapeutic failure.		
S	Susceptible	Bacterial strain inhibited by <i>in vitro</i> concentration of an antimicrobial agent that is associated with a high likelihood of therapeutic success.		
U	Significant change up	The current result has increased from the previous result for a quantitative observation (the change is significant as defined in the respective test procedure).		
VS	Very susceptible	The patient is considered as carrier based on the testing results. A carrier is an individual who carries an altered form of a gene, which can lead to having a child or offspring in future generations with a genetic disorder.		
W	Worse	The current result or observation value has degraded compared to the previous result or observation value (the change is significant as defined in the respective test procedure).		

HL7-Defined Table 0080 – Nature of Abnormal Testing (use in OBX-10)

Value	Display Name	Definition	Comment/Usage Note	Status
A	An age-based population			
N	None – generic normal range			
R	A race-based population			
S	A sex-based population			
SP	Species			
B	Breed			
ST	Strain			

HL7-Defined Table 0085 – Observation Result Status Codes Interpretation (use in OBX-11)

Value	Display Name	Definition	Comment/Usage Note	Status
A	Amended based on adjustments provided by the Placer (Physician) regarding patient demographics (such as age and/or gender or other patient specific information)			
B	Appended Report – Final results reviewed and further information provided for clarity without change to the original result values.			
C	Record coming over is a correction and thus replaces a final result			

Value	Display Name	Definition	Comment/Usage Note	Status
D	Deletes the OBX record			
F	Final results			
I	Specimen in laboratory; results pending			
N	Not asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought.			
O	Order detail description only (no result)			
P	Preliminary results			
R	Results entered — not verified			
S	Partial results. Deprecated. Retained only for backward compatibility as of v2.6.		Deprecated.	
V	Verified — Final results reviewed and confirmed to be correct, no change to result value, normal range or abnormal flag			
X	Results cannot be obtained for this observation			
U	Results status change to final without retransmitting results already sent as “preliminary.” (e.g., radiology changes status from preliminary to final)			
W	Post original as wrong (e.g., transmitted for wrong patient)			

User-Defined Table 0088 – Procedure Codes (use in OBR-44)

The examples below are one-to-one maps. The map direction is from SNOMED CT to CPT.

SNOMED CT	CPT
27083005 Immunoglobulin G subclass measurement (procedure)	82787 Gammaglobulin; immunoglobulin subclasses, (IgG1, 2, 3, or 4), each
252299004 Pyruvate kinase deficiency spot test (procedure)	84220 Pyruvate kinase
252298007 Glucose-6-phosphate dehydrogenase deficiency spot test (procedure)	82960 Glucose-6-phosphate dehydrogenase (G6PD); screen
25459007 Coated particle agglutination inhibition assay (procedure)	86403 Particle agglutination; screen, each antibody
56241004 Bone marrow biopsy, needle or trocar (procedure)	38221 Bone marrow biopsy, needle or trocar
81070005 Bronchoscopy through tracheostomy with biopsy of lung (procedure)	31615 Tracheobronchoscopy through established tracheostomy incision

HL7-Defined Table 0103 – Processing ID (use in MSH-11)

Value	Display Name	Definition	Comment/Usage Note	Status
D	Debugging	Messages used for identification and correction of software errors.		
P	Production	Messages used for communication of live production data.		
T	Training	Messages used for training, where new/updated configurations are utilized to prepare users outside of a production setting.		
N	Non-production testing	Messages used for testing of an interface for structure, content, and conformance between trading partners, using non-production data.		
V	Validation	Messages used for conformance testing by a third party; for example, as part of certification.		

HL7-Defined Table 0104 – Version ID (use in MSH-12)

Value	Display Name	Definition	Comment/Usage Note	Status
2.0	Release 2.0		September 1988	
2.0D	Demo 2.0		October 1988	
2.1	Release 2.1		March 1990	
2.2	Release 2.2		December 1994	
2.3	Release 2.3		March 1997	
2.3.1	Release 2.3.1		May 1999	
2.4	Release 2.4		November 2000	
2.5	Release 2.5		May 2003	
2.5.1	Release 2.5.1		January 2007	
2.6	Release 2.6		July 2007	
2.7	Release 2.7		November 2010	
2.7.1	Release 2.7.1		July 2012	
2.8	Release 2.8		February 2014	
2.8.1	Release 2.8.1		April 2014	
2.8.2	Release 2.8.2		May 2015	
2.9	Draft 2.9		September 2017	N

HL7-Defined Table 0105 – Source of Comment (use in NTE-2)

Value	Display Name	Definition	Comment/Usage Note	Status
L	Ancillary (filler) department is source of comment			
P	Orderer (placer) is source of comment			
O	Other system is source of comment			

HL7-Defined Table 0123 – Result Status (use in OBR-25)

Value	Display Name	Definition	Comment/Usage Note	Status
A	Some, but not all, results available			
C	Corrected, final	A result under an order that has been finalized and corrected		
F	Final results	Final results; results stored and verified	Can only be changed with a corrected result	
I	No results available; specimen received, procedure incomplete			
M	Corrected, not final	A result under an order that has not yet been finalized or corrected		
N	Procedure completed, results pending	No result available; requested procedure done. To indicate that a requested test is performed but results are pending/not yet available.	Usage Note: Transitions/Relationships: OBR-25 Valid preceding state (... to N): O, I, S. Succeeding state (N to ...): P, A, R, F, X OBX-11 No OBX segments can be present where OBX-29 = RSLT	

Value	Display Name	Definition	Comment/Usage Note	Status
P	Preliminary	A verified early result is available; final results not yet obtained		
R	Results stored; not yet verified			
S	No results available; procedure scheduled, but not done			
X	No results available; order canceled	No results available; order canceled.		
Y	No order on record for this test	No order on record for this test.	Usage Note: Used only on queries	
Z	No record of this patient	No record of this patient.	Usage Note: Used only on queries	

HL7-Defined Table 0125 – Value Type (use in OBX-2)

Value	Display Name	Definition	Comment/Usage Note	Status
AUI	Authorization information			
CCD	Charge code and date			
CCP	Channel calibration parameters			
CD	Channel definition			
CF	Coded element with formatted values			
CNE	Coded with no exceptions			
CNN	Composite ID number and name simplified			
CP	Composite price			
CSU	Channel sensitivity and units			
CWE	Coded with exceptions			
CX	Extended composite ID with check digit			
DDI	Daily deductible information			
DIN	Date and institution name			
DLD	Discharge to location and date			
DLN	Driver's license number			
DLT	Delta			
DR	Date/time range			
DT	Date			
DTM	Date/time			
DTN	Day type and number			
ED	Encapsulated data			
EI	Entity identifier			
EIP	Entity identifier pair			
ERL	Error location			
FC	Financial class			
FT	Formatted text			
GTS	General timing specification			
HD	Hierarchic designator			
ICD	Insurance certification definition			
IS	Coded value for user-defined tables		This code has been marked for backward compatibility use only as of V2.9.	B
JCC	Job code/class			
LA1	Location with address variation 1		Data type has been withdrawn from the standard.	B

Value	Display Name	Definition	Comment/Usage Note	Status
LA2	Location with address variation 2		Data type has been withdrawn from the standard.	B
MA	Multiplexed array			
MO	Money			
MOC	Money and charge code			
MOP	Money or percentage			
MSG	Message type			
NA	Numeric array			
NDL	Name with date and location			
NM	Numeric			
NR	Numeric range			
OCD	Occurrence code and date			
OSP	Occurrence span code and date			
PIP	Practitioner institutional privileges			
PL	Person location			
PLN	Practitioner license or other ID number			
PPN	Performing person time stamp			
PRL	Parent result link			
PT	Processing type			
PTA	Policy type and amount			
QIP	Query input parameter list			
QSC	Query selection criteria			
RCD	Row column definition			
RFR	Reference range			
RI	Repeat interval			
RMC	Room coverage			
RP	Reference pointer			
RPT	Repeat pattern			
SCV	Scheduling class value pair			
SN	Structured numeric			
SNM	String of telephone number digits			
SPD	Specialty description			
SRT	Sort order			
ST	String data			
TM	Time			
TX	Text data			
UVC	UB value code and amount			
VH	Visiting hours			
VID	Version identifier			
VR	Value range			
WVI	Channel Identifier			
WVS	Waveform source			
XAD	Extended address			
XCN	Extended composite ID number and name for persons			
XON	Extended composite name and ID number for organizations			
XPN	Extended person name			
XTN	Extended telecommunications number			

User-Defined Table 0131 – Contact Role

To perform conformance on this table, populate this table with local values.

Value	Display Name	Definition	Comment/Usage Note	Status
E	Employer			
C	Emergency contact			
F	Federal agency			
I	Insurance company			
N	Next-of-kin			
S	State agency			
O	Other			
U	Unknown			

HL7-Defined Table 0136 – Yes/No Indicator (use in PID-24,30)

Value	Display Name	Definition	Comment/Usage Note	Status
Y	Yes			
N	No			

User-Defined Table 0171 – Citizenship (use in PID-26 and PID-39) [Locally defined]**User-Defined Table 0172 – Veterans Military Status** (use in PID-27) [Locally defined]**HL7-Defined Table 0177 – Confidentiality Code** (use in ORC-28)

Value	Display Name	Definition	Comment/Usage Note	Status
V	Very restricted			
R	Restricted			
U	Usual control			
EMP	Employee			
UWM	Unwed mother			
VIP	Very important person or celebrity			
PSY	Psychiatric patient			
AID	AIDS patient			
HIV	HIV(+) patient			
ETH	Alcohol/drug treatment patient			

User-Defined Table 0189 – Ethnic Group [values are compliant with the OMB directive.] (use in PID-22)

Value	Display Name	Definition	Comment/Usage Note	Status
H	Hispanic or Latino			
N	Not Hispanic or Latino			
U	Unknown			

HL7-Defined Table 0190 – Address Type (use in all XAD data types; including PID-11)

Value	Display Name	Definition	Comment/Usage Note	Status
BA	Bad address		Retained for backward compatibility only as of v2.6. Refer to XAD.17	
BI	Billing address		Also may be used for the validation/authorization of credit cards	
N	Birth (nee) (birth address, not otherwise specified)		Refers to the birth address, not otherwise specified	
BDL	Birth delivery location (address where birth occurred)		Refers to the address where birth occurred	
F	Country of origin			
C	Current or temporary		Retained for backward compatibility only as of v2.6. Refer to XAD.16	
B	Firm/business		Refers to an address specific to an organization, such as an insurance company or employer, versus an individual's work location or place of employment. It would be specific to a firm or organization that has some sort of business relationship with the subject	
H	Home		Refers to a residence or domicile, literally the place where the subject resides the majority of the time. Generally speaking most people will have a home address and it will represent their primary address. Home address is mutually exclusive of permanent address.	
L	Legal address		Refers to a special case address specific to the status of a subject or legal action involving the subject. For example, prisoners being treated at a health care facility may have home addresses, but their status mandates an address specific to their place of incarceration. Statutes may require the health information specific to a ward of the state be sent to a legal guardian, the courts, or a state or municipal agency regardless of the ward's physical location. In cases involving civil or criminal proceedings, a record may be flagged such that all correspondence is sent to any variety of legal entities.	
M	Mailing		Retained for backward compatibility only as of v2.6. Refer to XAD.18	
O	Office/business		Refers to a work address specific to the subject	
P	Permanent		Refers to a place where the residents know the subject and where correspondence addressed to the subject will eventually reach the subject regardless of their physical location. A permanent address generally reflects a tax jurisdiction. Members of the military, flight attendants, and executives on rotational assignments are examples of those who typically maintain a permanent address. Although mutually exclusive of home address, in some instances, such as the executives mentioned above, it may be synonymous. In such cases upon return from assignment, this address would revert to the home address.	

Value	Display Name	Definition	Comment/Usage Note	Status
RH	Registry home. Refers to the information system, typically managed by a public health agency that stores patient information such as immunization histories or cancer data, regardless of where the patient obtains services.		Refers to the information system, typically managed by a public health agency that stores patient information such as immunization histories or cancer data, regardless of where the patient obtains services	
BR	Residence at birth (home address at time of birth)		Refers to the home address at time of birth	
S	Service location		Refers to the location in which service is rendered. This would be used if reimbursement is based on the location of the service (to take into account the cost of those services).	
SH	Shipping address			
TM	Tube address		Pneumatic tube address (to which letters may be sent). A special transport system to transport small samples/containers and/or normal mail in small carriages on rail or in a tube. (German Rohrpost)	
V	Vacation			

HL7-Defined Table 0191 – Type of Referenced Data (use in ED and RP datatypes)

Value	Display Name	Definition	Comment/Usage Note	Status
AP	Other application data, typically uninterpreted binary data (HL7 v2.3 and later)			
AU	Audio data (HL7 v2.3 and later)			
FT	Formatted text (HL7 v2.2 only)			
IM	Image data (HL7 v2.3 and later)			
multipart	MIME multipart package			
NS	Non-scanned image (HL7 v2.2 only)			
SD	Scanned document (HL7 v2.2 only)			
SI	Scanned image (HL7 v2.2 only)			
TEXT	Machine readable text document (HL7 v2.3.1 and later)			
TX	Machine readable text document (HL7 v2.2 only)			

HL7-Defined Table 0200 – Name Type (use in all XCN, XPN data types; including PID-5, 6, 9)

Value	Display Name	Definition	Comment/Usage Note	Status
A	Assigned		A name assigned to a person. Reasons some organizations assign alternate names may include not knowing the person's name, or to maintain anonymity. Some, but not necessarily all, of the name types that people call "alias" may fit into this category.	
B	Birth name		A name that a person had shortly after being born. Usually for family names but may be used to mark given names at birth that may have changed later. This is not for temporary names assigned at birth while a newborn is not yet named.	
BAD	Bad name		A name that was wrongly used in the past and is now maintained only for the purposes of searching	

Value	Display Name	Definition	Comment/Usage Note	Status
C	Adopted name		A name acquired by adoption	
D	Customary name		Known as/conventional/the one you use. Also may be known as a preferred name.	
F	Fathers name		Fathers Name (Patronymic Name)	
I	Licensing name			
K	Business name		A name used in a Professional or Business context. Also includes writer's pseudonym, artist's name, stage name, street name, etc. An example of use is where a person with multiple proper names (i.e., married) uses one of the particular names in a professional setting.	
L	Official registry name		The formal name as registered in an official (government) registry, but which name might not be commonly used. May correspond to a legal name. For many people, customary name is also their official name.	
M	Maiden name		A name you had just before you got married	
MSK	Masked		There is information on this item available but it has not been provided by the sender due to security, privacy, or other reasons. There may be an alternate mechanism for gaining access to this information. Note: using this null flavor does provide information that may be a breach of confidentiality, even though no detailed data are provided. Its primary purpose is for those circumstances where it is necessary to inform the receiver that the information does exist without providing any detail.	
N	Nickname		Nickname /"Call me" Name/Street Name	
NAV	Temporarily unavailable		Information is not available at this time but it is expected that it will be available later. Includes John or Jane Doe situations	
NB	Newborn name		A name assigned on a temporary basis at birth (i.e., "Baby of Smith")	
NOUSE	No longer to be used		Name not to be used anymore for personal reasons	
P	Name of partner/spouse		Retained for backward compatibility only as of v2.7.	
R	Registered name		(animals only) Retained for backward compatibility only as of v2.7. Use "L" instead – has same meaning	
REL	Religious		e.g., Sister Mary Francis, Brother John	
S	Pseudonym		Coded pseudo-name to ensure anonymity	
T	Indigenous/tribal		Indigenous/tribal/community Name (e.g., Chief Red Cloud)	
TEMP	Temporary name		A temporary name. Note that a name valid time can provide more detailed information.	
U	Unknown		Unknown	

HL7-Defined Table 0201 – Telecommunication Use Code (use in all XTN data types; including PID-13,14)

Value	Display Name	Definition	Comment/Usage Note	Status
PRN	Primary residence number			
ORN	Other residence number			
WPN	Work number			
VHN	Vacation home number			
ASN	Answering service number			

Value	Display Name	Definition	Comment/Usage Note	Status
EMR	Emergency number			
NET	Network (email) address		Retained for backward compatibility as of v2.6	
BPN	Beeper number		Retained for backward compatibility as of v2.6	
PRS	Personal		Not tied to a location or role	

HL7-Defined Table 0202 – Telecommunication Equipment Type (use in all XTN data types; including PID-13, 14)

Value	Display Name	Definition	Comment/Usage Note	Status
PH	Telephone			
FX	Fax			
MD	Modem			
CP	Cellular or mobile phone			
SAT	Satellite phone			
BP	Beeper			
Internet	Internet address			
X.400	X.400 email address			
TDD	Telecommunications device for the deaf			
TTY	Teletypewriter			

User-Defined Table 0203 – Identifier Type [values suggested by HL7] (use in all CX, XCN type codes; including PID-2, 3, 4, 18, 21)

Value	Display Name	Definition	Comment/Usage Note	Status
AC	Accreditation/certification Identifier	Identifier that has been assigned by an accreditation or certification organization in specific fields, indicating a recognized skill	In Ask at Order Entry (AOE) questions; this can be used to identify the ID with the assigning authority. For instance, a credentialed sonographer whose identifier assigned by the credentialing body has been entered can be properly labeled.	N
ACSN	Accession ID	Accession identifier		
AIN	Animal identification number (U.S. official)	A numbering system for the official identification of individual animals in the United States that provides a nationally unique identification number for each animal. The first two numbers on a tag are the numbers assigned to a specific U.S. state.	AIN is the official acronym used by USDA	N
AM	American Express		Deprecated and replaced by BC in v 2.5.	
AMA	American Medical Association (AMA) number	A physician identifier assigned by the AMA.		
AN	Account number	Account An identifier that is unique to an account.		
ANC	Account number creditor	A more precise definition of an account number	Class: Financial Sometimes two distinct account numbers must be transmitted in the	

Value	Display Name	Definition	Comment/Usage Note	Status
			same message, one as the creditor, the other as the debtor.	
AND	Account number debtor	A more precise definition of an account number	Class: Financial Sometimes two distinct account numbers must be transmitted in the same message, one as the creditor, the other as the debtor.	
ANON	Anonymous identifier	An identifier for a living subject whose real identity is protected or suppressed	Justification: For public health reporting purposes, anonymous identifiers are occasionally used for protecting patient identity in reporting certain results. For instance, a state health department may choose to use a scheme for generating an anonymous identifier for reporting a patient that has had a positive human immunodeficiency virus antibody test. Anonymous identifiers can be used in PID 3 by replacing the medical record number or other non-anonymous identifier. The assigning authority for an anonymous identifier would be the state/local health department.	
ANT	Temporary account number	Temporary version of an account number	Class: Financial Use Case: An ancillary system that does not normally assign account numbers and it is the first time to register a patient. This ancillary system will generate a temporary account number that will only be used until an official account number is assigned.	
APRN	Advanced Practice Registered Nurse number	An identifier that is unique to an Advanced Practice Registered Nurse within the jurisdiction of a certifying board		
ASID	Ancestor specimen ID	A unique identifier for the ancestor specimen.	All child, grandchild, etc. specimens of the ancestor specimen share the same Ancestor Specimen ID.	
BA	Bank account number		Class: Financial	
BC	Bank card number	An identifier that is unique to a person's bank card	Class: Financial Replaces AM, DI, DS, MS, and VS beginning in v 2.5.	
BCFN	Birth certificate file number	The identifier used within the jurisdictional vital records office file system as an auxiliary means of accessing the record associated with the birth certificate		N
BCT	Birth certificate	A number associated with a document identifying the event of a person's birth		
BR	Birth registry number	An identifier unique within the Assigning Authority that is the official legal record of a person's birth.		
BRN	Breed registry number			

Value	Display Name	Definition	Comment/Usage Note	Status
BSNR	Primary physician office number		Betriebsstättennummer – for use in the German realm.	
CC	Cost center number		Class: Financial Use Case: needed especially for transmitting information about invoices.	
CONM	Change of Name document	A number associated with a document identifying a person’s legal change of name.		
CY	County number			
CZ	Citizenship card	A number assigned by a person’s country of residence to identify a person’s citizenship.		
DC	Death certificate ID	The identifier assigned to a death certificate, and printed on the death certificate when issued by a jurisdictional vital records office		
DCFN	Death certificate file number	The identifier used within the jurisdictional vital records office file system as an auxiliary means of accessing the record associated with the death certificate		
DDS	Dentist license number	An identifier that is unique to a dentist within the jurisdiction of the licensing board		
DEA	Drug Enforcement Administration registration number	An identifier for an individual or organization relative to controlled substance regulation and transactions	Use case: This is a registration number that identifies an individual or organization relative to controlled substance regulation and transactions. A DEA number has a very precise and widely accepted meaning within the United States. Surprisingly, the U.S. Drug Enforcement Administration does not solely assign DEA numbers in the United States. Hospitals have the authority to issue DEA numbers to their medical residents. These DEA numbers are based on the hospital’s DEA number, but the authority rests with the hospital on the assignment to the residents. Thus, DEA as an Identifier Type is necessary in addition to DEA as an Assigning Authority.	
DFN	Drug furnishing or prescriptive authority number	An identifier issued to a health care provider authorizing the person to write drug orders	Use Case: A nurse practitioner has authorization to furnish or prescribe pharmaceutical substances; this identifier is in component 1.	
DI	Diner’s Club card		Deprecated and replaced by BC in v 2.5.	
DL	Driver’s license number			
DN	Doctor number			
DO	Osteopathic LICENSE number	An identifier that is unique to an osteopath within the jurisdiction of a licensing board		
DP	Diplomatic PASSPORT	A number assigned to a diplomatic passport		

Value	Display Name	Definition	Comment/Usage Note	Status
DPM	Podiatrist license number	An identifier that is unique to a podiatrist within the jurisdiction of the licensing board		
DR	Donor registration number			
DS	Discover card		Deprecated and replaced by BC in v 2.5	
DSG	Diagnostic study group	Unique Identifier that groups several orders that are to be performed together	Example: Radiology studies	N
EI	Employee number	A number that uniquely identifies an employee to an employer		
EN	Employer number			
ESN	Staff enterprise number	An identifier that is unique to a staff member within an enterprise (as identified by the Assigning Authority)		
FDR	Fetal death report ID	The identifier assigned to a fetal death report, and printed on the fetal death report when issued by a jurisdictional vital records office		N
FDRFN	Fetal death report file number	The identifier used within the jurisdictional vital records office file system as an auxiliary means of accessing the record associated with the fetal death report certificate		N
FGN	Filler group number	Unique identifier assigned to a group of orders by the filler application	This is analogous to the Placer Group Number ORC-4, except that it is assigned by the filler.	N
FI	Facility ID			
FILL	Filler identifier	An identifier for a request where the identifier is issued by the person, or service that produces the observations or fulfills the request		
GI	Guarantor internal identifier		Class: Financial	
GIN	Animal group identifier (U.S. official)	An identifier that can be used to unambiguously describe a specific group of animals.	GIN is the official acronym used by USDA	N
GL	General ledger number		Class: Financial	
GN	Guarantor external identifier		Class: Financial	
HC	Health card number			
IND	Indigenous/aboriginal	A number assigned to a member of an indigenous or aboriginal group outside of Canada.		
JHN	Jurisdictional health number		Class: Insurance 2 uses: (a) UK jurisdictional CHI number; (b) Canadian provincial health card number	
LACSN	Laboratory accession ID	A laboratory accession id is used in the laboratory domain.	The concept of accession is used in other domains such as radiology, so the LACSN is used to distinguish a laboratory accession ID from an radiology accession ID	
LANR	Lifelong physician number		Lebenslange Arztnummer – for use in the German realm.	
LI	Labor and industries number			
LN	License number			
LR	Local registry ID			
MA	Patient Medicaid number		Class: Insurance	

Value	Display Name	Definition	Comment/Usage Note	Status
MB	Member number	An identifier for the insured of an insurance policy (this insured always has a subscriber), usually assigned by the insurance carrier.	Use Case: Person is covered by an insurance policy. This person may or may not be the subscriber of the policy.	
MC	Patient's Medicare number		Class: Insurance	
MCD	Practitioner Medicaid number		Class: Insurance	
MCN	Microchip number			
MCR	Practitioner Medicare number		Class: Insurance	
MCT	Marriage certificate	A number associated with a document identifying the event of a person's marriage.		
MD	Medical license number	An identifier that is unique to a medical doctor within the jurisdiction of a licensing board.	Use Case: These license numbers are sometimes used as identifiers. In some states, the same authority issues all three identifiers, e.g., medical, osteopathic, and physician assistant licenses are all issued by one state medical board. For this case, the CX data type requires distinct identifier types to accurately interpret component 1. Additionally, the distinction among these license types is critical in most health care settings (this is not to convey full licensing information, which requires a segment to support all related attributes).	
MI	Military ID number	A number assigned to an individual who has had military duty, but is not currently on active duty. The number is assigned by the DOD or Veterans Affairs (VA).		
MR	Medical record number	An identifier that is unique to a patient within a set of medical records, not necessarily unique within an application.		
MRT	Temporary medical record number	Temporary version of a Medical Record Number	Use Case: An ancillary system that does not normally assign medical record numbers is the first time to register a patient. This ancillary system will generate a temporary medical record number that will only be used until an official medical record number is assigned.	
MS	MasterCard		Deprecated and replaced by BC in v 2.5.	
NBSNR	Secondary physician office number		Nebenbetriebsstättennummer – for use in the German realm.	
NCT	Naturalization certificate	A number associated with a document identifying a person's retention of citizenship in a particular country.		
NE	National employer identifier		In the United States, the Assigning Authority for this value is typically CMS, but it may be used by all providers and insurance companies in HIPAA-related transactions.	

Value	Display Name	Definition	Comment/Usage Note	Status
NH	National Health Plan identifier		Class: Insurance Used for the UK NHS national identifier.	
NI	National unique individual identifier		Class: Insurance In the United States, the Assigning Authority for this value is typically CMS, but it may be used by all providers and insurance companies in HIPAA-related transactions.	
NII	National insurance organization identifier		Class: Insurance In Germany, a national identifier for an insurance company. It is printed on the insurance card (health card). It is not to be confused with the health card number itself. Krankenkassen-ID der KV-Karte	
NIIP	National insurance payor identifier (payor)		Class: Insurance In Germany, the insurance identifier addressed as the payor. Krankenkassen-ID des Rechnungsempfängers Use case: a subdivision issues the card with their identifier, but the main division is going to pay the invoices.	
NNxxx	National person identifier where the xxx is the ISO table 3166 3-character (alphabetic) country code			
NP	Nurse Practitioner number	An identifier that is unique to a nurse practitioner within the jurisdiction of a certifying board		
NPI	National provider identifier		Class: Insurance In the United States, the Assigning Authority for this value is typically CMS, but it may be used by all providers and insurance companies in HIPAA-related transactions.	
OBI	Observation instance identifier	Unique and persistent identifier for an observation instance	For example in the IHE-LCC Profile this is used to identify the OBX-21 of the result for which a clarification is requested using an OML^O59_OML_O59 message style	N
OD	Optometrist license number	A number that is unique to an individual optometrist within the jurisdiction of the licensing board		
PA	Physician Assistant number	An identifier that is unique to a physician assistant within the jurisdiction of a licensing board		
PC	Parole card	A number identifying a person on parole		
PCN	Penitentiary/correctional institution number	A number assigned to an individual who is incarcerated		
PE	Living subject enterprise number	An identifier that is unique to a living subject within an enterprise (as identified by the Assigning Authority)		

Value	Display Name	Definition	Comment/Usage Note	Status
PEN	Pension number			
PGN	Placer group number	Unique identifier assigned to a group of orders by the placer application	This is analogous to the Placer Group Number ORC-4.	N
PHC	Public health case identifier	Identifier assigned to a person during a case investigation as part of a public health event	For example, every person affected by the Norovirus outbreak on a cruise ship will be assigned a case ID for investigation and follow up.	N
PHE	Public health event identifier	Identifier assigned to an event of interest to public health	For example, an outbreak of Norovirus on a cruise ship – this is assigned by a public health jurisdiction at the local, state, or federal level.	N
PHO	Public health official ID	An identifier for a person working at a public health agency (PHA), assigned or issued by the agency	May need to identify a contact in a PHA that approved a test request or is in charge of an investigation.	N
PI	Patient internal identifier	A number that is unique to a patient within an Assigning Authority		
PIN	Premises identifier number (U.S. official)	An identifier that uniquely identifies a geographic location in the United States	The owner of the premises, or a person designated by the owner of the premises, can register his/her location. A premises identification number, or PIN, is then permanently assigned to that location associating it with the mailing address. If there is no mailing address at the property, geographic coordinates—latitude and longitude—can be used instead to describe the location. A premises identification number (PIN) is a unique, 7-digit code that includes both letters and numbers. Example: A123R69	N
PLAC	Placer identifier	An identifier for a request where the identifier is issued by the person or service making the request		
PN	Person number	A number that is unique to a living subject within an Assigning Authority		
PNT	Temporary living subject number	Temporary version of a Living Subject Number		
PPIN	Medicare/CMS performing provider identification number		Class: Insurance Usage Note: Class: Insurance	
PPN	Passport number	A unique number assigned to the document affirming that a person is a citizen of the country	In the United States, this number is issued only by the State Department.	
PRC	Permanent resident card number			
PRN	Provider number	A number that is unique to an individual provider, a provider group, or an organization within an Assigning Authority	Use case: This allows PRN to represent either an individual (a nurse) or a group/organization (orthopedic surgery team).	
PT	Patient external identifier			
QA	QA number			
RI	Resource identifier	A generalized resource identifier	Use Case: An identifier type is needed to accommodate what are commonly known as resources.	

Value	Display Name	Definition	Comment/Usage Note	Status
			The resources can include human (e.g., a respiratory therapist); non-human (e.g., a companion animal); inanimate object (e.g., an exam room); organization (e.g., diabetic education class); or any other physical or logical entity.	
RN	Registered Nurse number	An identifier that is unique to a registered nurse within the jurisdiction of the licensing board		
RPH	Pharmacist license number	An identifier that is unique to a pharmacist within the jurisdiction of the licensing board		
RR	Railroad Retirement number	An identifier for an individual enrolled with the Railroad Retirement Administration. Analogous to, but distinct from, a Social Security Number.		
RRI	Regional registry ID			
RRP	Railroad retirement provider		Class: Insurance	
SAMN	SAMN# accession number	The accession number for the BioSample data repository at the National Center for Biotechnology Information (NCBI)	This accession is a permanent record locator for the BioSample record, which contains metadata about the biological sample.	N
SB	Social beneficiary identifier	An identifier issued by a governmental organization to a person to identify the person if they apply for or receive social services and/or benefits		
SID	Specimen ID	Identifier for a specimen	Used when it is not known if the specimen ID is a unique specimen ID (USID) or an ancestor ID (ASID).	
SL	State license			
SN	Subscriber number	An identifier for a subscriber of an insurance policy which is unique for, and usually assigned by, the insurance carrier	Class: Insurance Use Case: A person is the subscriber of an insurance policy. The person's family may be plan members, but are not the subscriber.	
SNBSN	State assigned NDBS card identifier	The identifier on a Newborn Screening Dried Bloodspot (NDBS) card that is assigned by the state that provided the sample collection cards and to whom this information must be reported	For use either with OBX-5 as CX datatype, where OBX-3 uses LOINC 57716-3^State printed on filter paper card [Identifier] in NBS card^LN, or in SPM-31	N
SNO	Serial number	An identifier affixed to an item by the manufacturer when it is first made, where each item has a different identifier		
SP	Study permit	A number associated with a permit identifying a person who is a resident of a jurisdiction for the purpose of education		
SR	State registry ID			
SRX	SRA accession number	The accession number generated by the Sequence Read Archive (SRA) at the National Center for Biotechnology Information (NCBI)	This provides both the sequence data and metadata on how the sample was sequenced. – This accession is a permanent record	N

Value	Display Name	Definition	Comment/Usage Note	Status
		when sequence data are uploaded to NCBI	locator for the submitted un-assembled sequence data.	
SS	Social Security number			
STN	Shipment tracking number	An identifier assigned to a package being shipped	For example the Fed Ex/UPS/DHS/USPS tracking number	N
TAX	Tax ID number			
TN	Treaty number (Canada)	A number assigned to a member of an indigenous group in Canada	Use Case: First Nation.	
TPR	Temporary permanent resident (Canada)	A number associated with a document identifying a person's temporary permanent resident status		
TRL	Training license number	The license number used during training		N
U	Unspecified identifier			
UDI	Universal device identifier	An identifier assigned to a device using the Unique Device Identification framework as defined by IMDRF (http://imdrf.org)		
UPIN	Medicare/CMS (formerly HCFA) universal physician identification numbers	An identifier for a provider within the CMS/Medicare program. A globally unique identifier for the provider in the Medicare program.	Class: Insurance	
USID	Unique specimen ID	A unique identifier for a specimen		
VN	Visit number			
VP	Visitor permit	A number associated with a document identifying a person as a visitor of a jurisdiction or country		
VS	VISA		Deprecated and replaced by BC in v 2.5	
WC	WIC identifier			
WCN	Workers' comp number			
WP	Work permit	A number associated with a permit for a person who is granted permission to work in a country for a specified time period		
XV	Health plan identifier	National unique health plan identifier required by the U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services (CMS) in the U.S. Realm	Also referred to as HPID (Health Plan Identifier). Usage Note: The code value "XV" is used in CMS-mandated Health Insurance Portability and Accountability Act (HIPAA) transactions.	N
XX	Organization identifier			

User-Defined Table 0204 – Organizational Name Type

To perform conformance on this table, populate with the values that will be used in the implementation. The following are HL7 suggested values.

Value	Display Name	Definition	Comment/Usage Note	Status
A	Alias name			
L	Legal name			
D	Display name			
SL	Stock exchange listing name			

HL7-Defined Table 0207 – Processing Mode (use in MSH-11)

Value	Display Name	Definition	Comment/Usage Note	Status
A	Archive			
R	Restore from archive			
I	Initial load			
T	Current processing, transmitted at intervals (scheduled or on demand)			
Not present	Not present (the default, meaning current processing)			D

User-Defined Table 0212 – Nationality [ISO 3166 suggested by HL7; this table shows selected values only. Note that the table reflects only 3-letter codes. Two-letter and numeric codes also are available.]

A partial list of ISO 3166 country codes set is available at: <ftp://ftp.ripe.net/iso3166-countrycodes.txt> (use in PID-28; also use for country code in all XAD data types)

Value	Description
CAN	Canada
MEX	Mexico
USA	United States
UMI	United States Minor Outlying Islands

User-Defined Table 0288 – Census Tract (use in all XAD; including PID-11)

For information about identifying census tracts, see www.census.gov.

User-Defined Table 0289 – County/Parish (use in all XAD; including PID-11)

A complete list of INCITS 31 codes is available at www.itl.nist.gov.

HL7-Defined Table 0291 – Subtype of Referenced Data (use in ED and RP datatypes)

Value	Display Name	Definition	Comment/Usage Note	Status
BASIC	ISDN PCM audio data			D
DICOM	Digital Imaging and Communications in Medicine			D
FAX	Facsimile data			D
GIF	Graphics interchange format			D
HTML	Hypertext markup language			D
JOT	Electronic ink data (Jot 1.0 standard)			

Value	Display Name	Definition	Comment/Usage Note	Status
JPEG	Joint Photographic Experts Group			D
Octet-stream	Uninterpreted binary data			D
PICT	PICT format image data			
PostScript	PostScript program			D
RTF	Rich text format			D
SGML	Standard generalized markup language (HL7 v2.3.1 and later)			D
TIFF	TIFF image data			D
XML	Extensible markup language (HL7 v2.3.1 and later)			D
x-hl7-cda-level-one	HL7 Clinical Document Architecture Level One document		Retained for backward compatibility only as of v2.6 and CDA R 2. Preferred value is text/xml.	

User-Defined Table 0296 – Primary Language (use in MSH-19, PID-15.) [No HL7 suggested values. Recommend following guidelines in the internet document at: <https://tools.ietf.org/html/rfc5646>]

HL7-Defined Table 0299 – Encoding (use in the ED datatype)

Value	Display Name	Definition	Comment/Usage Note	Status
A	No encoding — data are displayable ASCII characters.			
Hex	Hexadecimal encoding — consecutive pairs of hexadecimal digits represent consecutive single octets.			
Base64	Encoding as defined by MIME (Multipurpose Internet Mail Extensions) standard RFC 1521. Four consecutive ASCII characters represent three consecutive octets of binary data. Base64 utilizes a 65-character subset of US-ASCII, consisting of both the upper and lower case alphabetic characters, digits “0” through “9”, “+”, “/”, and “=”.	Encoding as defined by MIME (Multipurpose Internet Mail Extensions) standard RFC 1521. Four consecutive ASCII characters represent three consecutive octets of binary data. Base64 utilizes a 65-character subset of US-ASCII, consisting of both the upper and lower case alphabetic characters, digits “0” through “9”, “+”, “/”, and “=”.	The Request For Comment (RFC) 1521 standard is available at: http://www.ietf.org/rfc/rfc1521.txt	

HL7-Defined Table 0301 – Universal ID Type

Note: X400, X500, and DNS are not technically universally valid for all time. Names can be de-registered from an existing user and registered to a new user.

Value	Display Name	Definition	Comment/Usage Note	Status
CAP	College of American Pathologist (CAP) accreditation number	Allows the ability to designate organization identifier as a CAP-assigned number (for laboratories)	Use to identify assigning authority IDs, when an OID is not available.	N
CLIA	Clinical Laboratory Improvement Amendments (CLIA)	Clinical Laboratory Improvement Amendments. Allows for the ability to designate organization identifier as a CLIA-assigned	Allows the ability to designate organization identifier as a CLIA-assigned number (for laboratories).	

Value	Display Name	Definition	Comment/Usage Note	Status
		number (for labs)		
CLIP	Clinical Laboratory Improvement Program (CLIP)	Clinical Laboratory Improvement Program. Allows the ability to designate organization identifier as a CLIP assigned number (for laboratories). Used by the U.S. Department of Defense.	Allows the ability to designate organization identifier as a CLIP-assigned number (for laboratories). Used by the U.S. Department of Defense.	
DNS	Domain name system	An Internet host name, in accordance with RFC 1035; or an IP address. Either in ASCII or as integers, with periods between components (“dotted” notation).	An Internet host name, in accordance with RFC 1035; or an IP address. Either in ASCII or as integers, with periods between components (“dotted” notation).	
EUI64	IEEE 64-bit extended unique identifier	IEEE 64-bit Extended Unique Identifier is comprised of a 24-bit company identifier and a 40-bit instance identifier. The value shall be formatted as 16 ASCII HEX digits, for example, “AABBCC1122334455.” The 24-bit company identifier, formally known as Organizationally Unique Identifier (OUI-24), is guaranteed to be globally unique. The 40-bit extensions are assigned by manufacturers. This identifier is often used in equipment interfaces (e.g., “MAC” address format for IPv4 & IPv6).	IEEE 64-bit Extended Unique Identifier is comprised of a 24-bit company identifier and a 40-bit instance identifier. The value shall be formatted as 16 ASCII HEX digits, for example, “AABBCC1122334455.” The 24-bit company identifier, formally known as Organizationally Unique Identifier (OUI-24), is guaranteed to be globally unique. The 40-bit extensions are assigned by manufacturers. This identifier is often used in equipment interfaces (e.g., “MAC” address format for IPv4 & IPv6). OUI-24 values are administered by the IEEE Registration Authority.	
GUID	Globally unique identifier	Same as UUID.	Same as UUID. Retained for backward compatibility only as of v2.7; use UUID instead.	
HCD	CEN health care coding identifier	The CEN health care coding scheme designator	The CEN health care coding scheme designator. Retained for backward compatibility only as of v2.7; does not identify Assigning Authorities.	
HL7	HL7 registration schemes		Retained for backward compatibility only as of v2.7; HL7 assigns ISO OIDs for Assigning Authorities.	
ISO	International Standards Organization (ISO) object identifier	An ISO Object Identifier (OID), in accordance with ISO/IEC 8824. Formatted as decimal digits separated by periods; recommended limit of 64 characters.	An International Standards Organization Object Identifier (OID), in accordance with ISO/IEC 8824. Formatted as decimal digits separated by periods; recommended limit of 64 characters.	
L	Local	These are reserved for locally defined coding schemes.	Locally defined coding entity identifier. Retained for backward compatibility only as of v 2.8.	
L,M,N	Local	These are reserved for locally defined coding schemes.	Locally defined coding entity identifier. Retained for backward compatibility only as of v 2.8.	D
M	Local	These are reserved for locally defined coding schemes.	Locally defined coding entity identifier. Retained for backward compatibility only as of v 2.8.	
N	Local	These are reserved for locally	Locally defined coding entity	

Value	Display Name	Definition	Comment/Usage Note	Status
		defined coding schemes.	identifier. Retained for backward compatibility only as of v 2.8.	
NPI	US National Provider Identifier	Allows the ability to designate organization identifier as a “NPI” assigned number (laboratory, any medical provider, can be a person or an organization)	Use to identify assigning authority IDs, when an OID is not available. Especially important in the CNN datatype. Namespace maintained and published in the United States.	N
Random	Random	Usually a base64 encoded string of random bits. Note: Random IDs are typically used for instance identifiers, rather than an identifier of an Assigning Authority that issues instance identifiers.	Usually a base64 encoded string of random bits. Retained for backward compatibility only as of v2.7; equivalent to a locally defined entity identifier scheme; use L, M, or N instead. Note: Random IDs are typically used for instance identifiers, rather than an identifier of an Assigning Authority that issues instance identifiers. Usage Note: Retained for backward compatibility only as of v2.7; equivalent to a locally defined entity identifier scheme; use L, M, or N instead.	
URI	Uniform Resource Identifier			
UUID	Universal Unique Identifier	The DCE Universal Unique Identifier, in accordance with RFC 4122. Recommended format is 32 hexadecimal digits separated by hyphens, in the digit grouping 8-4-4-4-12.	The DCE Universal Unique Identifier, in accordance with RFC 4122. Recommended format is 32 hexadecimal digits separated by hyphens, in the digit grouping 8-4-4-4-12.	
x400	X.400 MHS identifier	An X.400 MHS identifier. Recommended format is in accordance with RFC 1649.	Recommended format is in accordance with RFC 1649.	
x500	X500 directory name	An X.500 directory name		

User-Defined Table 0305 – Person Location Type (use in the PL datatype)

To perform conformance on this table, populate this table with local values, or use the suggested values.

Value	Display Name	Definition	Comment/Usage Note	Status
C	Clinic			
D	Department			
H	Home			
N	Nursing unit			
O	Provider’s office			
P	Phone			
S	SNF			

User-Defined Table 0338 – Practitioner ID Number Type

To perform conformance on this table, populate this table with local values.

Value	Display Name	Definition	Comment/Usage Note	Status
CY	County number			
DEA	Drug Enforcement Agency number			
GL	General ledger number			
LI	Labor and industries number			
L&I	Labor and industries number		Deprecated as of v 2.5; Use LI instead	D
MCD	Medicaid number			
MCR	Medicare number			
QA	QA number			
SL	State license number			
TAX	Tax ID number			
TRL	Training license number			
UPIN	Unique physician ID number			

User-Defined Table 0347 – State/Province (may be used in the Assigning Jurisdiction component of the CX datatype)

Value	Description	Comment
AB	Alberta (United States and Canada)	
MI	Michigan (United States)	
GA	Georgia (United States)	
...		

HL7-Defined Table 0353 – CWE Statuses (may be used when a valid value is not present for a CWE field or component, but information about the null value is to be transmitted)

Value	Display Name	Definition	Comment/Usage Note	Status
U	Unknown			
UASK	Asked but Unknown			
NAV	Not available			
NA	Not applicable			
NASK	Not asked			

HL7-Defined Table 0354 – Message Style [only selected values used in this Guide are listed] (use in MSH-9, third component)

Value	Display Name	Definition	Comment/Usage Note	Status
ORU_R01	R01			

HL7-Defined Table 0357 – Message Error Condition Codes

Value	Display Name	Definition	Comment/Usage Note	Status
0	Message accepted		Success. Optional, as the AA conveys success. Used for systems that must always return a status code.	

Value	Display Name	Definition	Comment/Usage Note	Status
100	Segment sequence error		Error: The message segments were not in the proper order, or required segments are missing.	
101	Required field missing		Error: A required field is missing from a segment	
102	Data type error		Error: The field contained data of the wrong data type, e.g., an NM field contained "FOO."	
103	Table value not found		Error: A field of data type ID or IS was compared against the corresponding table, and no match was found.	
104	Value too long		Error: a value exceeded the normative length, or the length that the application is able to safely handle.	
198	Non-conformant cardinality	An error has been encountered related to HL7 message content. Message is not conformant with the applicable specification's (base standard, conformance profile or implementation profile) cardinality.	Error: Cardinality is listed as [0..3] and more than 3 of the identified element are present in the message.	N
199	Other HL7 Error	Any other error with the HL7 syntax that is not captured in any of the other error codes in this set.	Error	N
200	Unsupported message type		Rejection: The message type is not supported.	
201	Unsupported event code		Rejection: The event code is not supported.	
202	Unsupported processing ID		Rejection: The processing ID is not supported.	
203	Unsupported version ID		Rejection: The version ID is not supported.	
204	Unknown key identifier	Retained for backward compatibility only: This situation should be reported in ERR-5 (Application Error Code) using code 101 (Unknown Key Identifier) from code system HL70533.	ERR-3 (HL7 Error Code) should be used to convey errors at the structural level and this is an application level error, which should be reported in ERR-5 (Application Error Code).	B
205	Duplicate key identifier	Retained for backward compatibility only: This situation should be reported in ERR-5 (Application Error Code) using code 102 (Duplicate Key Identifier) from code system HL70533.	ERR-3 (HL7 Error Code) should be used to convey errors at the structural level and this is an application level error, which should be reported in ERR-5 (Application Error Code).	B
206	Application record locked	Retained for backward compatibility only: This situation should be reported in ERR-5 (Application Error Code) using code 103 (Application record locked) from code system HL70533.	ERR-3 (HL7 Error Code) should be used to convey errors at the structural level and this is an application level error, which should be reported in ERR-5 (Application Error Code).	B
207	Application error	An application level error has occurred and the detail for that error is identified in ERR-5.	This value is used when no other value in this list is applicable and there is an application error reported in	

Value	Display Name	Definition	Comment/Usage Note	Status
			ERR-5. It is applicable when ERR-3 is required in an implementation guide.	

User-Defined Table 0361 – Sending/Receiving Application (use in MSH-3, MSH-5, FHS-3, FHS-5, BHS-3, BHS-5) [locally defined]

User-Defined Table 0364 – Comment Type (use in NTE-4)

Value	Display Name	Definition	Comment/Usage Note	Status
PI	Patient Instructions			
AI	Ancillary Instructions			
GI	General Instructions			
1R	Primary Reason			
2R	Secondary Reason			
GR	General Reason			
RE	Remark			
DR	Duplicate/Interaction Reason			

User-Defined Table 0396 – Coding System [Only selected values listed] [from HL7 Standard, Version 2.5.1] (Use in OBR-4, 26, OBX-3, 5,17)

For the latest published version of this table, see the page on Table 0396 at

http://www.hl7.org/Special/committees/vocab/table_0396/index.cfm under Tools and Resources.

HL7-Defined Table 0398 – Continuation Style Code

Value	Display Name	Definition	Comment/Usage Note	Status
F	Fragmentation			
I	Interactive continuation			

HL7-Defined Table 0399 – Country Code

Use 3-character (alphabetic) form of ISO 3166-1. More information may be found at

http://www.iso.org/iso/country_codes.htm.

User-Defined Table 0445 – Identity Reliability Code

Value	Display Name	Definition	Comment/Usage Note	Status
US	Unknown/default Social Security number			
UD	Unknown/default date of birth			
UA	Unknown/default address			
AL	Patient/person name is an alias			

HL7-Defined Table 0487 – Specimen Type (Use in OBR-15 and SPM-4) (Replaces HL7-Defined Table 0070 – Specimen Source Codes)

Note that in Cancer Registry reporting using Synoptic Reports, details of the specimen are generally carried in OBX-3/OBX-5 pairs as captured on the CAP Checklists. In these cases, much of the detail carried in this table of Specimen types is redundant, and often will not match the types and details recorded in the checklists and

processed by Cancer registries. The code contents of this table has been abbreviated to only those Specimen type codes that are appropriate for Cancer Registry messaging.

NAACCR Usage: If the laboratory does not specifically code this field, instead of using the “nature of specimen” report in the OBX, then the entry OTH – Source other may be used instead.

Value	Display Name	Definition	Comment/Usage Note	Status
ASP	Aspirate			
BLD	Whole blood			
BON	Bone			
BRSH	Brush		Product; Brush or brushing (these may be two separate entries as in a physical brush or a portion thereof vs. the substance obtained after a surface has been brushed)	
BRUS	Brushing		Product	
FLUID	Fluid		Fluid	
MAR	Marrow		Bone marrow	
MUCOS	Mucosa		Condition	
NEDL	Needle		Device	
OTH	Source, other			
PLAS	Plasma		Blood	
SER	Serum			
SPT	Sputum			
TISS	Tissue			
UR	Urine			
WASH	Wash		Product	
WASI	Washing, e.g. bronchial washing		Product	
WB	Blood, whole		Blood	

HL7-Defined Table 0490 – Specimen Reject Reason

Value	Display Name	Definition	Comment/Usage Note	Status
EX	Expired			
QS	Quantity not sufficient			
RB	Broken container			
RC	Clotting			
RD	Missing collection date			
RA	Missing patient ID number			
RE	Missing patient name			
RH	Hemolysis			
RI	Identification problem			
RM	Labeling			
RN	Contamination			
RP	Missing phlebotomist ID			
RR	Improper storage			
RS	Name misspelling			

HL7-Defined Table 0494 – Specimen Child Role

Value	Display Name	Definition	Comment/Usage Note	Status
A	Aliquot			
C	Component			
M	Modified from original specimen			

User-Defined Table 0507 – Observation Result Handling

Suggested values from HL7. To perform conformance on this table, populate this table with local values.

Value	Display Name	Definition	Comment/Usage Note	Status
F	Film-with-patient			
N	Notify provider when ready			
A	Alert provider when abnormal			
CC	Copies requested			
BCC	Blind copy			

HL7-Defined Table 0516 – Error Severity

Value	Display Name	Definition	Comment/Usage Note	Status
W	Warning	Transaction successful, but there may be issues	Use this severity when parts of the message may not have been stored.	
I	Information	Transaction was successful but includes information	e.g., inform patient	
E	Error	Transaction was unsuccessful		
F	Fatal error	Message not processed due to application or network failure condition		

User-Defined Table 0530 – Organization, Agency, Department (may be used for the Assigning Agency or Department component of the CX datatype)

Suggested HL7 values. To perform conformance on this table, populate this table with local values.

Value	Display Name	Definition	Comment/Usage Note	Status
AE	American Express			
DEA	Drug Enforcement Agency		The U.S. Drug Enforcement Administration does not solely assign DEA numbers in the United States. Hospitals have the authority to issue DEA numbers to their medical residents. These DEA numbers are based on the hospital's DEA number, but the authority rests with the hospital on the assignment to the residents. Thus, DEA as an Assigning Authority is necessary in addition to DEA as an Identifier Type.	
DOD	Department of Defense		In some countries, e.g., the United States, more than one department may issue a military identifier. Hence, the United States is not sufficient as the Assigning Authority.	
MC	MasterCard			
VA	Veterans Affairs			
VI	Visa			

User-Defined Table 0541 – Specimen Type Modifier

The following are the NAACCR values for this table for cancer registry messaging.

Value	Display Name	Definition	Comment/Usage Note	Status
S	Slide		Specimen is an individual identified and so labeled slide prepared from biological samples.	
K	Block		A processed bit of excised tissue prepared for slicing, staining, and slide preparation. Usually uses paraffin or cryogenic processing in its preparation.	

User-Defined Table 9100 – Specimen Source Site

Use this table to populate the values of SPM-8. The below table of codes is replicated in this document by permission and may have been updated after this document was published. Please refer to

http://www.iacr.com.fr/index.php?option=com_content&view=category&layout=blog&id=100&Itemid=577 for the most up-to-date version. In using these codes in SPM-8, the CWE component should be “ICDO3.”

ICD-O-3 Code	Code Description	ICD-O-3 Code	Code Description
C00.0	External lip upper	C41.4	Pelvic bone
C00.1	External lip lower	C41.8	Overlapping lesion of bones, joints and articular cartilage
C00.2	External lip NOS	C41.9	Bone NOS
C00.3	Upper lip, mucosa	C42.0	Blood
C00.4	Lower lip, mucosa	C42.1	Bone marrow
C00.5	Mucosa lip, NOS	C42.2	Spleen
C00.6	Commissure lip	C42.3	Reticuloendothelial system, NOS
C00.8	Overlapping lesion of lip	C42.4	Hematopoietic system, NOS
C01.9	Base of tongue, NOS	C44.0	Skin lip, NOS
C02.0	Dorsal surface tongue, NOS	C44.1	Eyelid NOS
C02.1	Border of tongue	C44.2	External ear
C02.2	Ventral surface of tongue NOS	C44.3	Skin face
C02.3	Anterior 2/3 of tongue NOS	C44.4	Skin scalp, neck
C02.4	Lingual tonsil	C44.5	Skin trunk
C02.8	Overlapping lesion of tongue	C44.6	Skin limb, upper
C02.9	Tongue NOS	C44.7	Skin limb, lower
C03.0	Upper gum	C47.0	Peripheral nerve head, neck
C03.1	Lower gum	C47.1	Peripheral nerve shoulder, arm
C03.9	Gum NOS	C47.2	Peripheral nerve leg
C04.0	Anterior floor of mouth	C47.3	Peripheral nerve thorax (excludes thymus, heart and mediastinum C37. , C38.)
C04.1	Lateral floor of mouth	C47.4	Peripheral nerve abdomen
C04.8	Overlapping lesion of floor of mouth	C47.5	Peripheral nerve pelvis
C04.9	Floor of mouth NOS	C47.6	Peripheral nerve trunk
C05.0	Hard palate	C47.8	Overlapping lesion of peripheral nerves and autonomic nervous system
C05.1	Soft palate NOS (excludes nasopharyngeal surface C11.3)	C47.9	Autonomic nervous system NOS
C05.2	Uvula	C48.0	Retroperitoneum
C05.8	Overlapping lesion of palate	C48.1	Peritoneum
C05.9	Palate NOS	C48.2	Peritoneum NOS
C06.0	Cheek mucosa	C48.8	Overlapping lesion of retroperitoneum and peritoneum
C06.1	Vestibule of mouth	C49.0	Connective tissue head
C06.2	Retromolar area	C49.1	Connective tissue arm
C06.8	Overlapping lesion of other and unspecified parts of mouth	C49.2	Connective tissue leg

ICD-O-3 Code	Code Description	ICD-O-3 Code	Code Description
C06.9	Mouth NOS	C49.3	Connective tissue thorax (excludes thymus, heart and mediastinum C37. , C38.)
C07.9	Parotid gland	C49.4	Connective tissue abdomen
C08.0	Submaxillary gland	C49.5	Connective tissue pelvis
C08.1	Sublingual gland	C49.6	Connective tissue trunk, NOS
C08.8	Overlapping lesion of major salivary glands	C49.8	Overlapping lesion of connective, subcutaneous and other soft tissues
C08.9	Major salivary gland, NOS	C49.9	Connective tissue NOS
C09.0	Tonsillar fossa	C50.0	Nipple
C09.1	Tonsillar pillar	C50.1	Central portion of breast
C09.8	Overlapping lesion of tonsil	C50.2	Upper inner quadrant of breast
C09.9	Tonsil NOS (excludes lingual tonsil C02.4 and Pharyngeal tonsil C11.1)	C50.3	Lower inner quadrant of breast
C10.0	Vallecula	C50.4	Upper outer quadrant of breast
C10.1	Anterior surface of epiglottis	C50.5	Lower outer quadrant of breast
C10.2	Lateral wall oropharynx	C50.6	Axillary tail of breast
C10.3	Posterior wall oropharynx	C50.8	Overlapping lesion of breast
C10.4	Branchial cleft (site of neoplasm)	C50.9	Breast NOS (excludes skin of breast C44.5)
C10.8	Overlapping lesion of oropharynx	C51.0	Labium majus
C10.9	Oropharynx NOS	C51.1	Labium minus
C11.0	Superior wall of nasopharynx	C51.2	Clitoris
C11.1	Posterior wall nasopharynx	C51.8	Overlapping lesion of vulva
C11.2	Lateral wall nasopharynx	C51.9	Vulva, NOS
C11.3	Anterior wall nasopharynx	C52.9	Vagina, NOS
C11.8	Overlapping lesion of nasopharynx	C53.0	Endocervix
C11.9	Nasopharynx NOS	C53.1	Exocervix
C12.9	Pyramidal sinus	C53.8	Overlapping lesion of cervix uteri
C13.0	Postcricoid region	C53.9	Cervix uteri
C13.1	Hypopharyngeal aspect of aryepiglottic fold	C54.0	Isthmus uteri
C13.2	Posterior wall hypopharynx	C54.1	Endometrium
C13.8	Overlapping lesion of hypopharynx	C54.2	Myometrium
C13.9	Hypopharynx, NOS	C54.3	Fundus uteri
C14.0	Pharynx NOS	C54.8	Overlapping lesion of corpus uteri
C14.1	Laryngopharynx	C54.9	Corpus uteri
C14.2	Waldeyer's ring	C55.9	Uterus NOS
C14.8	Overlapping lesion of lip, oral cavity and pharynx	C56.9	Ovary
C15.0	Cervical esophagus	C57.0	Fallopian tube
C15.1	Thoracic esophagus	C57.1	Broad ligament
C15.2	Abdominal esophagus	C57.2	Round ligament
C15.3	Upper third of esophagus	C57.3	Parametrium
C15.4	Middle third of esophagus	C57.4	Uterine adnexa
C15.5	Esophagus lower third	C57.7	Wolffian body
C15.8	Overlapping lesion of esophagus	C57.8	Overlapping lesion of female genital organs
C15.9	Esophagus NOS	C57.9	Female genital tract, NOS
C16.0	Cardia, NOS	C60.0	Prepuce
C16.1	Fundus stomach	C60.1	Glans penis
C16.2	Body stomach	C60.2	Body penis
C16.3	Gastric antrum	C60.8	Overlapping lesion of penis
C16.4	Pylorus	C60.9	Penis NOS
C16.5	Lesser curvature of stomach, NOS (not classifiable to C16.1 to C16.4)	C61.9	Prostate gland
C16.6	Greater curvature of stomach, NOS (not classifiable to C16.0 to C16.4)	C62.0	Undescended testis (site of neoplasm)
C16.8	Overlapping lesion of stomach	C62.1	Descended testis
C16.9	Stomach NOS	C62.9	Testis NOS

ICD-O-3 Code	Code Description	ICD-O-3 Code	Code Description
C17.0	Duodenum	C63.0	Epididymis
C17.1	Jejunum	C63.1	Spermatic cord
C17.2	Ileum (excludes ileocecal valve C18.0)	C63.2	Scrotum, NOS
C17.3	Meckel's diverticulum (site of neoplasm)	C63.7	Tunica vaginalis
C17.8	Overlapping lesion of small intestine	C63.8	Overlapping lesion of male genital organs
C17.9	Small intestine NOS	C63.9	Male genital organs, NOS
C18.0	Cecum	C64.9	Kidney NOS
C18.1	Appendix	C65.9	Renal pelvis
C18.2	Ascending colon	C66.9	Ureter
C18.3	Hepatic flexure of colon	C67.0	Trigone, bladder
C18.4	Transverse colon	C67.1	Dome, bladder
C18.5	Splenic flexure of colon	C67.2	Lateral wall bladder
C18.6	Descending colon	C67.4	Posterior wall bladder
C18.7	Sigmoid colon	C67.6	Ureteric orifice
C18.8	Overlapping lesion of colon	C67.7	Urachus
C18.9	Colon NOS	C67.8	Overlapping lesion of bladder
C19.9	Rectosigmoid junction	C67.9	Bladder NOS
C20.9	Rectum, NOS	C68.0	Urethra
C21.0	Anus, NOS (excludes skin of anus and perianal skin (C44.5))	C68.1	Paraurethral gland
C21.1	Anal canal	C68.8	Overlapping lesion of urinary organs
C21.2	Cloacogenic zone	C68.9	Urinary system, NOS
C21.8	Overlapping lesion of rectum, anus and anal canal	C69.0	Conjunctiva
C22.0	Liver	C69.1	Cornea, NOS
C22.1	Intrahepatic bile duct	C69.2	Retina
C23.9	Gallbladder	C69.3	Choroid
C24.0	Extrahepatic bile duct	C69.4	Ciliary body
C24.1	Ampulla of Vater	C69.5	Lacrimal gland
C24.8	Overlapping lesion of biliary tract	C69.6	Orbit NOS
C24.9	Biliary tract, NOS	C69.8	Overlapping lesion of eye and adnexa
C25.0	Head of pancreas	C69.9	Eye NOS
C25.1	Body pancreas	C70.0	Cerebral meninges
C25.2	Tail pancreas	C70.1	Spinal meninges
C25.3	Pancreatic duct	C70.9	Meninges NOS
C25.4	Islets of Langerhans	C71.0	Cerebrum
C25.7	Neck of pancreas	C71.1	Frontal lobe
C25.8	Overlapping lesion of pancreas	C71.2	Temporal lobe
C25.9	Pancreas NOS	C71.3	Parietal lobe
C26.0	Intestinal tract, NOS	C71.4	Occipital lobe
C26.8	Overlapping lesion of digestive system	C71.5	Ventricle NOS
C26.9	Gastrointestinal tract, NOS	C71.6	Cerebellum, NOS
C30.0	Nasal cavity (excludes Nose, NOS C76.0)	C71.7	Brain stem
C30.1	Middle ear	C71.8	Overlapping lesion of brain
C31.0	Maxillary sinus	C71.9	Brain NOS
C31.1	Ethmoid sinus	C72.0	Spinal cord
C31.2	Frontal sinus	C72.1	Cauda equina
C31.3	Sphenoid sinus	C72.2	Olfactory nerve
C31.8	Overlapping lesion of accessory sinuses	C72.3	Optic nerve
C31.9	Accessory sinus, NOS	C72.4	Acoustic nerve
C32.0	Glottis	C72.5	Cranial nerve, NOS
C32.1	Supraglottis	C72.8	Overlapping lesion of brain and central nervous system
C32.2	Subglottis	C72.9	Nervous system NOS
C32.3	Laryngeal cartilage	C73.9	Thyroid gland
C32.8	Overlapping lesion of larynx	C74.0	Adrenal gland cortex

ICD-O-3 Code	Code Description	ICD-O-3 Code	Code Description
C32.9	Larynx NOS	C74.1	Adrenal gland medulla
C33.9	Trachea	C74.9	Adrenal gland NOS
C34.0	Main bronchus	C75.0	Parathyroid gland
C34.1	Upper lobe, lung	C75.1	Pituitary gland
C34.2	Middle lobe, lung	C75.2	Craniopharyngeal duct
C34.3	Lower lobe, lung	C75.3	Pineal gland
C34.8	Overlapping lesion of lung	C75.4	Carotid body
C34.9	Lung NOS	C75.5	Aortic body
C37.9	Thymus	C75.8	Overlapping lesion of endocrine glands and related structures
C38.0	Heart	C75.9	Endocrine gland, NOS
C38.1	Anterior mediastinum	C76.0	Head, face or neck NOS
C38.2	Posterior mediastinum	C76.1	Thorax NOS
C38.3	Mediastinum NOS	C76.2	Abdomen NOS
C38.4	Pleura NOS	C76.3	Pelvis NOS
C38.8	Overlapping lesion of heart, mediastinum and pleura	C76.4	Upper limb NOS
C39.0	Upper respiratory tract, NOS	C76.5	Lower limb NOS
C39.8	Overlapping lesion of respiratory system and intrathoracic organs	C76.7	Other ill-defined sites
C39.9	Respiratory tract, NOS	C76.8	Overlapping lesion of ill-defined sites
C40.0	Upper limb long bones, joints	C77.0	Lymph node face, head ,neck
C40.1	Upper limb short bones, joints	C77.1	Intrathoracic lymph node
C40.3	Lower limb short bones, joints	C77.2	Intra-abdominal lymph nodes
C40.8	Overlapping lesion of bones, joints and articular cartilage of limbs	C77.3	Lymph node axilla, arm
C40.9	Bone limb, NOS	C77.4	Lymph node inguinal region, leg
C41.0	Skull and facial bone	C77.5	Lymph node pelvic
C41.1	Mandible	C77.8	Lymph nodes of multiple regions
C41.2	Vertebral column (excludes sacrum and coccyx C41.4)	C77.9	Lymph node NOS
C41.3	Rib, sternum, clavicle	C80.9	Unknown primary site

For all other tables mentioned in this Guide, but not enumerated or described here, please refer to the HL7 Standard Version 2.9.

Appendix C. Detailed HL7 Data Type Specifications

This appendix contains the detailed specification of all the HL7 data types that are assigned to fields that are supported for use in Cancer Registry Messaging in this guide. For data types that are not described here for those fields that are Not Supported, please refer to Chapter 2A of the HL7 Standard Version 2.5.1.

Note that a number of the data types in this section are identified new for Version 2.5.1 but are actually replacements for the old CM data types of Version 2.3.1, which have all been removed. As of Version 2.5.1, all of the CM data types were deprecated and replaced with explicit new data types that call out the components, rather than being defined inline with the fields for which they are used.

C.1. CE – coded element

HL7 Component Table – CE – Coded Element

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	ST	O		Identifier	R	
2	199	ST	O		Text	RE	
3	20	ID	O	0396	Name of Coding System	R	
4	20	ST	O		Alternate Identifier	RE	
5	199	ST	O		Alternate Text	RE	
6	20	ID	O	0396	Name of Alternate Coding System	RE	

Definition: This data type transmits codes and the text associated with the code.

Maximum Length: 483

Note: retained for backward compatibility only as of version 2.5. Refer to the CNE and CWE data types.

Example:

```
|F-11380^CREATININE^I9^2148-5^CREATININE^LN|
```

Usage Note on the Alternate components (4, 5, 6)

These three components are defined analogously to components 1, 2, and 3 for the alternate or local coding system. If the alternate text component is absent, and the alternate identifier is present, the alternate text will be taken to be the same as the text component. If the alternate coding system component is absent, it will be taken to mean the locally defined system.

Note: The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.

C.1.1. Identifier (ST)

Definition: Sequence of characters (the code) that uniquely identifies the item being referenced. Different coding schemes will have different elements here.

C.1.2. Text (ST)

Definition: The descriptive or textual name of the identifier, e.g., myocardial infarction or X-ray impression.

C.1.3. Name of Coding System (ID)

Definition: Identifies the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier.

Refer to [HL7-Defined Table 0396 – Coding System](#) in Appendix B for valid values. The table includes ASTM E1238-94, diagnostic, procedure, observation, drug ID, health outcomes and other coding systems.

Some organizations that publish code sets author more than one. The coding system, then, to be unique is a concatenation of the name of the coding authority organization and the name of its code set or table. When an HL7 table is used for a CE data type, the *name of coding system* component is defined as **HL7nnnn** where *nnnn* is the HL7 table number. Similarly, ISO tables will be named **ISOnnnn**, where *nnnn* is the ISO table number.

C.1.4. Alternate Identifier (ST)

Definition: An alternate sequence of characters (the code) that uniquely identifies the item being referenced. See usage note in section introduction.

C.1.5. Alternate Text (ST)

Definition: The descriptive or textual name of the alternate identifier. See usage note in section introduction.

C.1.6. Name of Alternate Coding System (ID)

Definition: Identifies the coding scheme being used in the alternate identifier component. Refer to [HL7-Defined Table 0396 – Coding System](#) in Appendix B for valid values. When an HL7 table is used for a CE data type, the *name of coding system* component is defined as **HL7nnnn** where *nnnn* is the HL7 table number.

C.2. CF – coded element with formatted values

HL7 Component Table – CF – Coded Element with Formatted Values

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	ST	O		Identifier	R	
2	65536	FT	O		Formatted Text	RE	
3	20	ID	O	0396	Name of Coding System	R	
4	20	ST	O		Alternate Identifier	RE	
5	65536	FT	O		Alternate Formatted Text	RE	
6	20	ID	O	0396	Name of Alternate Coding System	RE	

Definition: This data type transmits codes and the formatted text associated with the code. This data type can be used to transmit for the first time the formatted text for the **canned text** portion of a report, for example, a standard radiological description for a normal chest X-ray. The receiving system can store this information and in subsequent messages, only the identifier need be sent. Another potential use of this data type is transmitting master file records that contain formatted text. This data type has six components as follows:

Maximum Length: 65536

The components, primary and alternate, are defined exactly as in the CE data type with the exception of the second and fifth components, which are of the formatted text data type.

Example:

```
OBX||CF|71020^CXR^99CPMC||79989^H\Description:\N\ \.sp\ \ti+4\Heart is not enlarged.
There is no evidence of pneumonia, effusion, pneumothorax or any masses.
 \.sp+3\ \H\Impression:\N\ \.sp\ \ti+4\Negative chest.^99CPMC
```

C.2.1. Identifier (ST)

Definition: Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

C.2.2. Formatted Text (FT)

Definition: Name or description of the item in question with the addition of embedded formatting instructions.

C.2.3. Name of Coding System (ID)

Definition: Contains the name of the coding system employed.
Refer to HL7 Table 0396.

C.2.4. Alternate Identifier (ST)

Definition: Alternate sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. This identifier is the equivalent of component one.

C.2.5. Alternate Formatted Text (FT)

Definition: Name or description of the alternate identifier in question with the addition of embedded formatting instructions.

C.2.6. Name of Alternate Coding System (ID)

Definition: Contains the name of the coding system employed for the alternate identifier.
Refer to [HL7-Defined Table 0396 – Coding System](#) in Appendix B for valid values.

C.3. CNE – coded with no exceptions**HL7 Component Table – CNE – Coded with No Exceptions**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	ST	R		Identifier	R	
2	199	ST	O		Text	RE	
3	20	ID	O	0396	Name of Coding System	R	
4	20	ST	O		Alternate Identifier	RE	
5	199	ST	O		Alternate Text	RE	
6	20	ID	O	0396	Name of Alternate Coding System	RE	
7	10	ST	C		Coding System Version ID	CE	
8	10	ST	O		Alternate Coding System Version ID	CE	
9	199	ST	O		Original Text	RE	

Definition: Specifies a coded element and its associated detail. The CNE data type is used when a required or mandatory coded field is needed. The specified HL7 or externally defined table must be used and may not be extended with local values. Text may not replace the code. A CNE field must have an HL7 defined or external table associated with it. It must be specified in the standard.

Maximum Length: 705

C.3.1. Identifier (ST)

Sequence of characters (the code) that uniquely identifies the item being referenced by the CNE.2. Different coding schemes will have different elements here.

Usage Note: The identifier is required and must be a valid code.

C.3.2. Text (ST)

Definition: The descriptive or textual name of the identifier, e.g., myocardial infarction or X-ray impression. Its data type is string (ST). This is the corresponding text assigned by the coding system to the identifier.

Usage Note: Text description of code is optional, but its use should be encouraged because it makes messages easier to review for accuracy, especially during interface testing and debugging.

C.3.3. *Name of Coding System (ID)*

Each coding system is assigned a unique identifier. This component will serve to identify the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier.

Refer to [HL7-Defined Table 0396 – Coding System](#) in Appendix B for valid values. The table includes ASTM E1238-94, diagnostic, procedure, observation, drug ID, health outcomes, and other coding systems.

Some organizations that publish code sets author more than one. The coding system, then, to be unique is a concatenation of the name of the coding authority organization and the name of its code set or table. When an HL7 table is used for a CNE data type, the **name of coding system** component is defined as **HL7nnnn** where **nnnn** is the HL7 table number. Similarly, ISO tables will be named **ISONnnnn**, where **nnnn** is the ISO table number.

Usage Note: The *Coding system* must either be present and have a value from the set of allowed coding systems or if not present it will be interpreted to have the same meaning as if it had been valued with the code meaning “HL7 coding system.” [HL7-Defined Table 0396 – Coding System](#) in Appendix B for valid values.

C.3.4. *Alternate Identifier (ST)*

Analogous to “Identifier” in component 1.

Usage Notes: The Alternate Identifier is used to represent the local or user-seen code as described. If present, it obeys the same rules of use and interpretation as described for component 1. If both are present, the identifiers in component 4 and component 1 should have exactly the same meaning, i.e., they should be exact synonyms.

C.3.5. *Alternate Text (ST)*

Definition: The descriptive or textual name of the alternate identifier. Analogous to “Text” in component 2. See usage notes in the section introduction for further description.

Usage Notes: If present, component 5 obeys the same rules of use and interpretation as described for component 2.

C.3.6. *Name of Alternate Coding System (ID)*

Definition: Identifies the coding scheme being used in the alternate identifier component. Analogous to “Name of Coding System” in component 3. Refer to [HL7-Defined Table 0396 – Coding System](#) in Appendix B for valid values.

Usage Notes: If present, component 6 obeys the same rules of use and interpretation as described for component 3.

C.3.7. *Coding System Version ID (ST)*

Definition: The version ID for the coding system identified by component 3. It belongs conceptually to components 1–3 and appears here only for reasons of backward compatibility.

Usage Note: If the coding system is any system other than an “HL7 coding system,” version ID must be valued with an actual version ID. If the coding system is “HL7 coding system,” version ID may have an actual value or it may be absent. If version ID is absent, it will be interpreted to have the same value as the HL7 version number in the message header. Text description of code is optional but its use should be encouraged because it makes messages easier to review for accuracy, especially during interface testing and debugging.

C.3.8. *Alternate Coding System Version ID (ST)*

Definition: The version ID for the coding system identified by component 6. It belongs conceptually to the group of Alternate components and appears here only for reasons of backward compatibility.

Usage Notes: If present, component 8 obeys the same rules of use and interpretation as described for component 7.

C.3.9. *Original Text (ST)*

The original text that was available to an automated process or a human before a specific code was assigned.

C.4. CNN – composite ID number and name simplified**HL7 Component Table – CNN – Composite ID Number and Name Simplified**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	15	ST	O		ID Number	RE	
2	50	ST	O		Family Name	R	
3	30	ST	O		Given Name	RE	
4	30	ST	O		Second and Further Given Names or Initials Thereof	RE	
5	20	ST	O		Suffix (e.g., JR or III)	RE	
6	20	ST	O		Prefix (e.g., DR)	RE	
7	5	IS	O	0360	Degree (e.g., MD)	X	
8	4	IS	C	0297	Source Table	CE	
9	20	IS	C	0363	Assigning Authority – Namespace ID	RE	
10	199	ST	C		Assigning Authority – Universal ID	CE	
11	6	ID	C	0301	Assigning Authority – Universal ID Type	CE	

Definition: Specifies a person, using both an identifier and the person’s name

Maximum Length: 406

Note: Restores the original data type CN as was initially implementable in the CM used in sections 4.5.3.32 and 7.4.1.32-(OBR-32) , 4.5.3.33 and 7.4.1.33 – (OBR-33) 4.5.3.34 and 7.4.1.34 – (OBR-34) 4.5.3.35 and 7.4.1.35 – (OBR-35). Components 7 and 8, however, have been promoted to data type IS to be consistent with current practice without violating backward compatibility.

Note that this was formerly the “CN” data type in version 2.3.1; component 9 has been redefined, and components 10 and 11 were added.

C.4.1. ID Number (ST)

Coded ID according to a user-defined table. If the first component is present, either component 8 or 9, or both 10 and 11, must be valued.

C.4.2. Family Name (ST)

This component contains the person’s family name in a string format.

C.4.3. Given Name (ST)

Used to specify a first name.

C.4.4. Second and Further Given Names or Initials Thereof (ST)

Multiple middle names may be included by separating them with spaces.

C.4.5. Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

C.4.6. Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

C.4.7. Degree (IS)

Used to specify an educational degree (e.g., MD). Refer to User-Defined Table 0360 – Degree for suggested values.

C.4.8. Source Table (IS)

Refer to User-Defined Table 0297 – CN ID source for suggested values. Used to delineate the first component. If component 1 is valued, either component 8, or 9, or both 10 and 11, must be valued.

C.4.9. Assigning Authority – Namespace ID (IS)

See section [Assigning Authority \(HD\)](#) for definition. Refer to User-Defined Table 0363 – Assigning Authority for suggested values. Assigning Authority is normally expressed as an HD data type, but has been flattened to three components here (CNS.9, CNS.10, and CNS.11) in this data type so that it may be fully expressed. Also note that if additional components are added to the HD data type in the future, adjustment will need to be made accordingly to this data type.

For Cancer Registry reporting, the State or Provincial license number for a Physician should be transmitted. When this is transmitted, the Namespace ID used in HD here, or also in CNN and related data types, should be populated with a string following the pattern “xy_PHYSICIANLICENSE” where “xy” is the two-letter state or province code.

If component 1 is valued, either component 8 or 9, or both 10 and 11, must be valued.

C.4.10. Assigning Authority – Universal ID (ST)

See section [Assigning Authority \(HD\)](#) for definition.

If CNN.11 is valued, this component must be valued. If component 1 is valued, either component 8 or 9, or both 10 and 11, must be valued.

C.4.11. Assigning Authority – Universal ID Type (ID)

See section [Assigning Authority \(HD\)](#) for definition. If this component is a known UID, refer to [HL7-Defined Table 0301 – Universal ID Type](#) for valid values.

If CNN.10 is valued, this component must be valued. If component 1 is valued, either component 8 or 9, or both 10 and 11, must be valued.

C.5. CQ – composite quantity with units**HL7 Component Table – CQ –Composite Quantity with Units**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	16	NM	O		Quantity	R	
2	483	CE	O		Units	RE	

Maximum Length: 500

Note: CQ cannot be legally expressed when embedded within another data type. Its use is constrained to a segment field. Future use of this data type will be avoided because the same data can usually be sent as two separate fields, one with the value, and one with the units as a CE data type.

Examples:

```
|123.7^kg|           kilograms is an ISO unit
|150^lb&&ANSI+|     weight in pounds is a customary U.S. unit defined within ANSI+.
```

C.5.1. Quantity (NM)

Definition: This component specifies the numeric quantity or amount of an entity.

C.5.2. Units (CE)

Definition: This component species the units in which the quantity is expressed. Field-by-field, default units may be defined within the specifications. When the quantity is measured in the default units, the units need not be transmitted. If the quantity is recorded in units different from the default, the units must be transmitted.

C.6. CWE – coded with exceptions

HL7 Component Table – CWE – Coded with Exceptions

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	ST	O		Identifier	R	
2	199	ST	O		Text	RE	
3	20	ID	O	0396	Name of Coding System	R	
4	20	ST	O		Alternate Identifier	RE	
5	199	ST	O		Alternate Text	RE	
6	20	ID	O	0396	Name of Alternate Coding System	RE	
7	10	ST	C		Coding System Version ID	CE	
8	10	ST	O		Alternate Coding System Version ID	CE	
9	199	ST	O		Original Text	RE	

Definition: Specifies a coded element and its associated detail. The CWE data type is used when (1) more than one table may be applicable **or** (2) the specified HL7 or externally defined table may be extended with local values **or** (3) when text is in place, the code may be omitted. The CWE data type is similar to the CE data type with the addition of being able to communicate the coding system versions for each coded triplet. It also allows communication of the original text, which was the basis for the coding.

Maximum Length: 705

Usage Notes: This is a field that is generally sent using a code, but where the code may be omitted in exceptional instances or by site agreement. Exceptional instances arise when the coding system being used does not have a code to describe the concept in the text.

Components 1–3 and 7 are used in one of three ways:

Coded: The identifier contains a valid code from a coding system. The coding system must either be present and have a value from the set of allowed coding systems, or if not present, it will be interpreted to have the same meaning as if it had been valued with the code meaning “HL7 coding system.” Refer to HL7 Table 0396 for valid values. The table includes ASTM E1238-94, diagnostic, procedure, observation, drug ID, and health outcomes coding systems. If the coding system is any system other than “HL7 coding system,” version ID must be valued with an actual version ID. If the coding system is “HL7 coding system,” version ID may have an actual value or it may be absent. If version ID is absent, it will be interpreted to have the same value as the HL7 version number in the message header. Text description is optional, but its use should be encouraged to aid in readability of the message during testing and debugging.

Example 1a: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as a CWE value, and the value is taken from SNOMED International.

```
OBX|1|CWE|883-9^ABO Group^LN|1|F-D1250^Type O^SNM3^^^3.4|||N||F
```

Example 1b: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as a CWE value, and the value is taken from a (currently hypothetical) HL7 table.

```
OBX|1|CWE|883-9^ABO Group^LN|1|O^Type O^HL74875^^^2.5.1|||N||F
```

Uncoded: Text is valued, the identifier has no value, and coding system and version ID follow the same rules as discussed for option 1.

Example 2: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as a CWE value, and the value is sent as text because the correct clinical value, “Wesnerian” was not found in the set of allowed values.

```
OBX|1|CWE|883-9^ABO Group^LN|1|^Wesnerian^SNM3^^^3.4|||A||F
```

Data missing: The name of the coding system is “HL7 CWE Status,” version ID is either a real version, or if not present it has the same meaning as the version in the message header, and the identifier takes its value from one of the allowed CWE field statuses. The codes for the allowed CWE field statuses are

shown below and will be maintained in a table as part of the HL7 vocabulary. Text description of code is optional.

Example 3: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as an LCE value, and no value can be sent because the test was not done.

```
OBX|1|CWE|883-9^ABO Group^LN|1|NAV^Not Available^HL70353^^^2.5.1|||N||F
```

Component 9:

This is the original text that was available to an automated process or a human before a specific code was assigned. This field is optional.

Components 3–6 and 8:

Components 3–6 and 8 are optional. They are used to represent the local or user seen code. If present, components 3–6 and 8 obey the same rules of use and interpretation as described for components 1–3 and 7 (of the CWE data type). If both are present, the identifiers in component 4 and component 1 should have exactly the same meaning; i.e., they should be exact synonyms.

Example 4: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as an CWE value, and the value is taken from SNOMED International. The user-seen fields are being used to represent a local coding system (99LAB) used in the sending system.

```
OBX|1|CWE|883-9^ABO Group^LN|1|F-D1250^Type O^SNM3^O^O Type
Blood^99LAB^3.4^|||||F
```

Summary of CWE usage notes with table of status values for various states without values:

The CWE data type should be used for coded fields that are optional or where it is permissible to send text for items that are not yet a part of the approved value set. In the normal situation, the identifier is valued with the code from the value set. If the value of the field is known, but is not part of the value set, then the value is sent as text, and the identifier has no value. If the field has an unknown status, then third form of the field is used (see **Data missing** above), and the appropriate status for the field is selected from the table of allowed statuses. When no code exists, refer to [HL7-Defined Table 0353 – CWE Statuses](#) for valid values.

Where a text modifier might accompany a code, the “field” in the HL7 message would be of data type CWE and would be allowed to repeat. The first instance of the field would be used, as per option 1; i.e., the identifier would have a valid code. The second instance of the repeating field would be used, as per option 2, i.e., the text description would take the value of the free text modifier.

C.6.1. Identifier (ST)

Definition: Sequence of characters (the code) that uniquely identifies the item being referenced. Different coding schemes will have different elements here.

C.6.2. Text (ST)

Definition: The descriptive or textual name of the identifier, e.g., myocardial infarction or X-ray impression.

C.6.3. Name of Coding System (ID)

Definition: Identifies the coding scheme being used in the identifier component.

The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier.

Refer to [HL7-Defined Table 0396 – Coding System](#) in Appendix B for valid values. The table includes ASTM E1238-94, diagnostic, procedure, observation, drug ID, health outcomes and other coding systems.

Some organizations that publish code sets author more than one. The coding system, then, to be unique is a concatenation of the name of the coding authority organization and the name of its code set or table. When an HL7 table is used for a CE data type, the **name of coding system** component is defined as **HL7nnnn** where **nnnn** is the HL7 table number. Similarly, ISO tables will be named **ISONnnnn**, where **nnnn** is the ISO table number.

C.6.4. Alternate Identifier (ST)

Definition: An alternate sequence of characters (the code) that uniquely identifies the item being referenced. Analogous to “Identifier” in component 1. See usage note in section introduction.

C.6.5. Alternate Text (ST)

Definition: The descriptive or textual name of the alternate identifier. Analogous to “Text” in component 2. See usage note in section introduction.

C.6.6. Name of Alternate Coding System (ID)

Definition: Identifies the coding scheme being used in the alternate identifier component. Analogous to “Name of Coding System” above. See usage note in section introduction.

C.6.7. Coding System Version ID (ST)

This is the version ID for the coding system identified by components 1–3. It belongs conceptually to the group of components 1–3 and appears here only for reasons of backward compatibility.

C.6.8. Alternate Coding System Version ID (ST)

This is the version ID for the coding system identified by components 4–6. It belongs conceptually to the group of alternate components (See usage note in section introduction) and appears here only for reasons of backward compatibility.

C.6.9. Original Text (ST)

The original text that was available to an automated process or a human before a specific code was assigned.

C.7. CX – extended composite ID with check digit**HL7 Component Table – CX – Extended Composite ID with Check Digit**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	15	ST	R		ID Number	R	
2	1	ST	O		Check Digit	X	
3	3	ID	O	0061	Check Digit Scheme	X	
4	227	HD	O	0363	Assigning Authority	R	
5	5	ID	O	0203	Identifier Type Code	RE	
6	227	HD	O		Assigning Facility	RE	
7	8	DT	O		Effective Date	RE	
8	8	DT	O		Expiration Date	RE	
9	705	CWE	O		Assigning Jurisdiction	RE	
10	705	CWE	O		Assigning Agency or Department	RE	

Definition: This data type is used for specifying an identifier with its associated administrative detail.

Maximum Length: 1913

Note: The check digit and check digit scheme are null if ID is alphanumeric.

Example:

```
|1234567^4^M11^ADT01^MR^Good Health Hospital|
```

C.7.1. ID Number (ST)

Definition: The value of the identifier itself.

C.7.2. Check Digit (ST)

The check digit in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.

C.7.3. Check Digit Scheme (ID)

Definition: Contains the code identifying the check digit scheme employed.

Refer to [HL7-Defined Table 0061 – Check Digit Scheme](#) for valid values.

The algorithm for calculating a Mod10 check digit is as follows:

Assume you have the identifier 12345. Take the odd digit positions, counting from the right, i.e., 531, multiply this number by 2 to get 1062. Take the even digit positions, starting from the right (i.e., 42), prepend these to the 1062 to get 421062. Add all of these six digits together to get 15. Subtract this number from the next highest multiple of 10, i.e., 20 minus 15 equals 5. The Mod10 check digit is 5. The Mod10 check digit for 401 is 0; for 9999, it is 4; for 99999999, it is 8.

The algorithm for calculating a Mod11 check digit is as follows:

Terms

d	=	digit of number starting from units digit, followed by 10's position, followed by 100's position, etc.
w	=	weight of digit position starting with the units position, followed by 10's position, followed by 100's position etc. Values for w = 2, 3, 4, 5, 6, 7, 2, 3, 4, 5, 6, 7, etc. (repeats for each group of 6 digits)
c	=	check digit

Calculation

(Step 1) m	=	sum of (d * w) for positions 1, 2, etc. starting with units digit for d = digit value starting with units position to highest order for w = weight value from 2 to 7 for every six positions starting with units digit
(Step 2) c1	=	m mod 11
(Step 3) if c1	=	0 then reset c1 = 1
(Step 4)	=	(11 - c1) mod 10

Example:

If the number is 1234567, then the mod 11 check digit = 4

The calculations are:

$$\begin{aligned}
 M &= (7*2) + (6*3) + (5*4) + (4*5) + (3*6) + (2*7) + (1*2) \\
 &= 14 + 18 + 20 + 20 + 18 + 14 + 2 \\
 &= 106 \\
 c1 &= 106 \text{ mod } 11 \\
 &= 7 \\
 c &= (11 - c1) \text{ mod } 10 \\
 &= 4 \text{ mod } 10 \\
 &= 4
 \end{aligned}$$

Other variants of these check digit algorithms exist and may be used by local bilateral site agreement.

Note: The check digit and code identifying check digit scheme are null if ID is alphanumeric.

C.7.4. Assigning Authority (HD)

The assigning authority is a unique name of the system (or organization or agency or department) that creates the data. Refer to [User-Defined Table 0363 – Assigning Authority](#) for suggested values.

The reader is referred to the CX.9 and the CX.10 if there is a need to transmit values with semantic meaning for an assigning jurisdiction or assigning department or agency in addition to, or instead of, an assigning authority. However, all three components may be valued. If, in so doing, it is discovered that the values in CX.9 and/or CX.10 conflict with CX.4, the user would look to the Message Profile or other implementation agreement for a statement as to which takes precedence.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementers may continue to *use* User-Defined Table 0300 – Namespace ID *for* the first sub-component.

C.7.5. Identifier Type Code (ID)

A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the “Assigning Authority” component. Refer to [User-Defined Table 0203 – Identifier Type](#) for suggested values.

C.7.6. Assigning Facility (HD)

Definition: The place or location identifier where the identifier was first assigned to the patient. This component is not an inherent part of the identifier, but rather part of the history of the identifier: As part of this data type, its existence is a convenience for certain intercommunicating systems.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component), may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.7.7. Effective Date (DT)

Definition: The first date, if known, on which the identifier is valid and active.

C.7.8. Expiration Date (DT)

Definition: The last date, if known, on which the identifier is valid and active.

C.7.9. Assigning Jurisdiction (CWE)

Definition: The geopolitical body that assigned the identifier in component 1.

- Refer to [HL7-Defined Table 0399 – Country Code](#) for valid values if the administrative unit under whose jurisdiction the identifier was issued is a country.
- Refer to [User-Defined Table 0347 – State/Province](#) for suggested values if the administrative unit under whose jurisdiction the identifier was issued is a state or province. This table is country specific. In the United States, postal codes may be used.
- Refer to [User-Defined Table 0289 – County/Parish](#) for suggested values if the administrative unit under whose jurisdiction the identifier was issued is a county or parish.

The reader is referred to the CX.4, if there is a need to transmit this information as an OID.

C.7.10. Assigning Agency or Department (CWE)

Definition: The agency or department that assigned the identifier in component 1.

Refer to [User-Defined Table – 0530 Organizations, Agency, Department](#) for suggested values if the administrative unit under whose jurisdiction the identifier was issued is an organization, agency, or department. This is populated with site-specific assigning authorities. It also should contain national or international codes when CX-5 Identifier Type may be assigned by more than one authority within a governmental or organizational unit. For example, a federal government may have two departments that assign a military identifier, its Veterans Affairs department and its department of defense. It is **not** recommended to include values for such entities as the Social Security Administration, Immigration and Naturalization Service (INS), or Centers for Medicare & Medicaid Services because they are included in the identifier type table. In these cases, the name of the country plus the identifier type yields the correct interpretation of the identifier in component 1. Likewise, entries like department of motor vehicles and licensing boards are **not** recommended for inclusion because the combination of state and identifier type yields the correct interpretation of the identifier in component 1. This approach is not to be confused with the detailed information provided in the chapter 15 segments that have provisions for specifying the precise granting body and issuing body information needed in personnel management messages.

Example 1: <Identifier> plus <Visa> yields a unique identifier.

Example 2: <identifier> plus <state> plus <DLN> yields a unique driver’s license number.

Example 3: <identifier> plus <country> plus <INS> yields a unique immigration number.

The reader is referred to the CX.4, if there is a need to transmit this information as an OID.

C.8. DLD – discharge to location and date

HL7 Component Table – DLD – Discharge Location and Date

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	IS	R	0113	Discharge Location	R	
2	26	TS	O		Effective Date	RE	

Definition: Specifies the health care facility to which the patient was discharged and the date.

Maximum Length: 47

Note: Replaces the CM data type used in section 3.4.3.37 PV1-37, as of version 2.5.

C.8.1. Discharge Location (IS)

Definition: Specifies the health care facility to which the patient was discharged. Refer to User-Defined Table 0113 – Discharged to Location for suggested values.

C.8.2. Effective Date (TS)

Definition: Specifies the date on which the patient was discharged to a health care facility.

C.9. DR – date/time range

HL7 Component Table – DR – Date/Time Range

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	26	TS	O		Range Start Date/Time	RE	
2	26	TS	O		Range End Date/Time	RE	

Maximum Length: 53

Note: DR cannot be legally expressed when embedded within another data type. Its use is constrained to a segment field.

C.9.1. Range Start Date/Time (TS)

Definition: The first component contains the earliest date/time (time stamp) in the specified range.

C.9.2. Range End Date/Time (TS)

The second component contains the latest date/time in the specified range. Note that the TS (time stamp) data type allows the specification of precision.

C.10. DT – date

HL7 Component Table – DT – Date

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	8				Date		

Definition: Specifies the century and year with optional precision to month and day.

Maximum Length: 8

As of version 2.3, the number of digits populated specifies the precision using the format specification YYYY[MM[DD]]. Thus:

- only the first four digits are used to specify a precision of “year”
- the first six are used to specify a precision of “month”
- the first eight are used to specify a precision of “day”

Examples:

```
|19880704|
|199503|
```

Prior to version 2.3, this data type was specified in the format YYYYMMDD. As of version 2.3, month and days are no longer required. By site-specific agreement, YYYYMMDD may be used where backward compatibility must be maintained.

C.11. DTM – date/time

HL7 Component Table – DTM – Date/Time

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	24				Date/Time		

Definition: Specifies a point in time using a 24-hour clock notation.

Maximum Length: 24

The number of characters populated (excluding the time zone specification) specifies the precision.

Format: YYYY[MM[DD][HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]

Thus:

- only the first four are used to specify a precision of “year”
- the first six are used to specify a precision of “month”
- the first eight are used to specify a precision of “day”
- the first 10 are used to specify a precision of “hour”
- the first 12 are used to specify a precision of “minute”
- the first 14 are used to specify a precision of “second”
- the first 16 are used to specify a precision of “one tenth of a second”
- the first 19 are used to specify a precision of “one ten thousandths of a second”

Example:

```
|199904| specifies April 1999.
```

The time zone (+/-ZZZZ) is represented as +/-HHMM offset from Co-ordinated Universal Time (UTC) (formerly Greenwich Mean Time (GMT)), where +0000 or -0000 both represent UTC (without offset). The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

Note that if the time zone is not included, the time zone defaults to that of the local time zone of the sender. Also note that a DTM or TS valued field with the HHMM part set to “0000” represents midnight of the night extending from the previous day to the day given by the YYYYMMDD part (see example below).

Examples:

Example	Description
19760704010159-0500	1:01:59 on July 4, 1976, in the Eastern Standard Time zone (USA)
19760704010159-0400	1:01:59 on July 4, 1976, in the Eastern Daylight Saving Time zone (USA)
198807050000	Midnight of the night extending from July 4 to July 5, 1988, in the local time zone of the sender.
19880705	Same as prior example, but precision extends only to the day. Could be used for a birthdate, if the time of birth is unknown.
19981004010159+010	1:01:59 on October 4, 1998, in Amsterdam, NL. (Time zone=+0100).

The HL7 Standard strongly recommends that all systems routinely send the time zone offset but does not require it. All HL7 systems are required to accept the time zone offset, but its implementation is application specific. For many applications the time of interest is the local time of the sender. For example, an application in the Eastern Standard Time zone receiving notification of an admission that takes place at 11:00 p.m. in San Francisco on December 11 would prefer to treat the admission as having occurred on December 11 rather than advancing the date to December 12.

Note: The time zone [+/-ZZZZ], when used, is restricted to legally defined time zones and is represented in HHMM format.

One exception to this rule would be a clinical system that processed patient data collected in a clinic and a nearby hospital that happens to be in a different time zone. Such applications may choose to convert the data to a common representation. Similar concerns apply to the transitions to and from daylight saving time. HL7 supports such requirements by requiring that the time zone information be present when the information is sent. It does not, however, specify which of the treatments discussed here will be applied by the receiving system.

C.12. ED – encapsulated data**HL7 Component Table – ED – Encapsulated Data**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	227	HD	O		Source Application	RE	
2	9	ID	R	0191	Type of Data	R	
3	18	ID	O	0291	Data Subtype	RE	
4	6	ID	R	0299	Encoding	R	
5	6553 6	TX	R		Data	R	

Definition: This data type transmits encapsulated data from a source system to a destination system. It contains the identity of the source system, the type of data, the encoding method of the data, and the data itself. This data type is similar to the RP (reference pointer) data type except that instead of pointing to the data on another system, it contains the data which is to be sent to that system.

Maximum Length: 65536

C.12.1. Source Application (HD)

A unique name that identifies the system that was the source of the data. Identical format and restrictions as in reference pointer (see the HL7 Standard version 2.5.1, Chapter 2A, Section 2A.65, RP Reference Pointer).

C.12.2. Type of Data (ID)

Identical to “type of data” component in the reference pointer (RP) data type. See HL7 Standard version 2.5.1, Chapter 2A, Section 2A.65, RP Reference Pointer.

Refer to [HL7-Defined Table 0191 – Type of Referenced Data](#) for valid values.

C.12.3. Data Subtype (ID)

Identical to “subtype” component in the reference pointer (RP) data type. See Section HL7 Standard version 2.5.1, Chapter 2A, Section 2A.65, RP Reference Pointer.

Refer to [HL7-Defined Table 0291 – Subtype of Referenced Data](#) for valid values.

C.12.4. Encoding (ID)

The type of encoding used to represent successive octets of binary data as displayable ASCII characters. Refer to [HL7-Defined Table 0299 – Encoding](#) for valid values.

C.12.5. Data (TX)

Displayable ASCII characters that constitute the data to be sent from source application to destination application. The characters are limited to the legal characters of the ST data type, as defined in Section C32, “*ST – string data*,” and, if encoded binary, are encoded according to the method of Section C12.2, Type of Data (ID).

If the encoding component (see Section C12.4 Encoding (ID)) equals “A” (none), then the data component must be scanned before transmission for HL7 delimiter characters, and any found must be escaped by using the HL7 escape sequences defined in Section 2.7, Use of Escape Sequences in Text Fields. On the receiving application, the data field must be de-escaped after being parsed.

If the encoding component ED.4 does not equal “A,” then, after encoding, the (encoded) data must be scanned for HL7 delimiter characters, and any found must be escaped by using the HL7 escape sequences. Only then can the component be added to the HL7 segment/message. On the receiving application, the data field must be de-escaped after being parsed out of the message before being decoded. This can be expressed as “encode,” “escape,” “parse,” “de-escape,” or “decode.”

C.13. EI – entity identifier

HL7 Component Table – EI – Entity Identifier

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	199	ST	O		Entity Identifier	R	
2	20	IS	O	0363	Namespace ID	RE	
3	199	ST	C		Universal ID	CE	
4	6	ID	C	0301	Universal ID Type	CE	

Definition: The entity identifier defines a given entity within a specified series of identifiers.

Maximum Length: 427

The EI is appropriate for, but not limited to, machine- or software-generated identifiers. The generated identifier goes in the first component. The remaining components, 2 through 4, are known as the assigning authority; they identify the machine/system responsible for generating the identifier in component 1.

The specified series, the assigning authority, is defined by components 2 through 4. The assigning authority is of the hierarchic designator (HD) data type, but it is defined as three separate components in the EI data type, rather than as a single component as would normally be the case. This is to maintain backward compatibility with the EI’s use as a component in several existing data fields. Otherwise, components 2 through 4 are as defined in Section C.19, [HD – Hierarchic Designator](#). Hierarchic designators (HD) are unique across a given HL7 implementation.

C.13.1. Entity Identifier (ST)

The first component, <entity identifier>, is usually defined to be unique within the series of identifiers created by the <assigning authority>, defined by a hierarchic designator, represented by components 2 through 4. See Section C.19, [HD – Hierarchic Designator](#).

C.13.2. Namespace ID (IS)

See Section [Namespace ID \(IS\)](#) for definition.

The assigning authority is a unique identifier of the system (or organization or agency or department) that creates the data. Refer to User-Defined Table 0363 – Assigning Authority for suggested values.

Note: When the HD is used as a part of another data type, in this case as part of the EI data type, this table may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementers may continue to use [User-Defined Table 0300 – Namespace ID](#) for the first component

C.13.3. Universal ID (ST)

See Section [Universal ID \(ST\)](#) for definition.

C.13.4. Universal ID Type (ID)

Refer to [HL7-Defined Table 0301 – Universal ID Type](#) for valid values. See Section [Universal ID Type \(ID\)](#),” for definition.

C.14. EIP – entity identifier pair**HL7 Component Table – EIP – Entity Identifier Pair**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	427	EI	O		Placer Assigned Identifier	RE	
2	427	EI	O		Filler Assigned Identifier	RE	

Definition: Specifies an identifier assigned to an entity by either the placer or the filler system. If both components are populated, the identifiers must refer to the same entity.

Maximum Length: 855

Note: Replaces the CM data type used in sections 4.5.1.8 – ORC-8, 4.5.3.29 – OBR-29, 7.3.1.29 – OBR-29, as of version 2.5.

C.14.1. Placer Assigned Identifier (EI)

Definition: Specifies an identifier assigned to an entity by the placer system.

For example, the component might be used to convey the following:

- placer order number of the parent order
- the specimen identifier as assigned by the placer
- a location identifier assigned (or used by) the placer

C.14.2. Filler Assigned Identifier (EI)

Definition: Specifies an identifier assigned to an entity by the filler system.

For example, the component might convey the following:

- filler order number of the parent order
- the specimen identifier as assigned by the filler
- a location identifier assigned (or used by) the filler

C.15. ELD – error location and description**HL7 Component Table – ELD – Error Location and Description**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	3	ST	O		Segment ID	R	
2	2	NM	O		Segment Sequence	R	
3	2	NM	O		Field Position	RE	
4	483	CE	O	0357	Code Identifying Error	R	

Definition: Specifies the segment that contains an error and describes the nature of the error.

Maximum Length: 493

Note: Replaces the CM data type used in 2.16.5.1 ERR-1 as of version 2.5. Retained for backward compatibility only as of version 2.5. Refer to ERR segment.

C.15.1. Segment ID (ST)

Definition: The segment containing the error in another message

C.15.2. Segment sequence (NM)

Definition: Specifies the specific occurrence if the segment specified in component 1 occurs more than once in the message.

C.15.3. Field Position (NM)

Definition: Ordinal position of the data field within the segment. For systems that do not use the HL7 Encoding Rules, the data item number may be used for the third component.

C.15.4. Code Identifying Error (CE)

Definition: A code that describes the nature of the error. Refer to [HL7-Defined Table 0357 – Message Error Condition Codes](#) for valid values.

C.16. ERL – error location**HL7 Component Table – ERL – Error Location**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	3	ST	R		Segment ID	R	
2	2	NM	R		Segment Sequence	R	
3	2	NM	O		Field Position	RE	
4	2	NM	O		Field Repetition	RE	
5	2	NM	O		Component Number	RE	
6	2	NM	O		Sub-Component Number	RE	

Definition: This data type identifies the segment and its constituent where an error has occurred.

Maximum Length: 18

C.16.1. Segment ID (ST)

Definition: Specifies the 3-letter name for the segment.

C.16.2. Segment Sequence (NM)

Definition: Identifies the segment occurrence within the message.

C.16.3. Field Position (NM)

Definition: Identifies the number of the field within the segment. The first field is assigned a number of 1. The Field number should not be specified when referring to the entire segment.

C.16.4. Field Repetition (NM)

Definition: Identifies the repetition number of the field. The first repetition is counted as 1. If a Field Position is specified, but Field Repetition is not, Field Repetition should be assumed to be 1. If a Field Position is not specified, Field Repetition should not be specified.

C.16.5. Component Number (NM)

Definition: Identifies the number of the component within the field. The first component is assigned a number of 1. Component number should not be specified when referring to the entire field.

C.16.6. Sub-Component Number (NM)

Definition: Identifies the number of the sub-component within the component. The first sub-component is assigned a number of 1. Sub-component number should not be specified when referring to the entire component.

C.17. FN – family name**HL7 Component Table – FN – Family Name**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	50	ST	R		Surname	R	
2	20	ST	O		Own Surname Prefix	RE	
3	50	ST	O		Own Surname	RE	
4	20	ST	O		Surname Prefix From Partner/Spouse	RE	
5	50	ST	O		Surname From Partner/Spouse	RE	

Definition: This data type allows full specification of the surname of a person. Where appropriate, it differentiates the person's own surname from that of the person's partner or spouse, in cases where the person's name may contain elements from either name. It also permits messages to distinguish the surname prefix (such as "van" or "de") from the surname root.

Maximum Length: 194

Note: Appears ONLY in the PPN, XCN and XPN.

C.17.1. Surname (ST)

The atomic element of the person's family name. In most Western usage, this is the person's last name.

C.17.2. Own Surname Prefix (ST)

Internationalization usage for Germanic languages. This component is optional. An example of a <surname prefix> is the "van" in "Ludwig van Beethoven." Because the <surname prefix> does not sort completely alphabetically, it is reasonable to specify it as a separate sub-component of the PN and extended PN data types (XPN and XCN).

Note: Subcomponents <own surname prefix>, <own surname>, <surname prefix from partner/spouse> and <surname from partner/spouse> decompose complex Germanic names such as "Martha de Mum-van Beethoven." If these subcomponents are valued, the <surname> subcomponent should still be fully valued for backward compatibility, i.e., ^de Mum-van Beethoven&de&Mum&van&Beethoven^. Also, for clarity, the <last name prefix> has been renamed to <own surname prefix>.

C.17.3. Own Surname (ST)

The portion of the surname (in most Western usage, the last name) that is derived from the person's own surname, as distinguished from any portion that is derived from the surname of the person's partner or spouse. This component is optional.

If the person's surname has legally changed to become (or incorporate) the surname of the person's partner or spouse, this is the person's surname immediately prior to such change. Often this is the person's "maiden name."

C.17.4. Surname Prefix from Partner/Spouse (ST)

Internationalization usage for Germanic languages. This component is optional. An example of a <surname prefix> is the “van” in “Ludwig van Beethoven.” Because the <surname prefix> does not sort completely alphabetically, it is reasonable to specify it as a separate sub-component of the PN and extended PN data types (XPN and XCN).

Note: Subcomponents <own surname prefix>, <own surname>, <surname prefix from partner/spouse> and <surname from partner/spouse> decompose complex Germanic names such as “Martha de Mum-van Beethoven.” If these subcomponents are valued, the <surname> subcomponent should still be fully valued for backward compatibility, i.e., ^de Mum-van Beethoven&de&Mum&van&Beethoven^. Also, for clarity, the <last name prefix> has been renamed to <own surname prefix>.

C.17.5. Surname from Partner/Spouse (ST)

The portion of the person’s surname (in most Western usage, the last name) that is derived from the surname of the person’s partner or spouse, as distinguished from the part derived from the person’s own surname. This component is optional.

If no portion of the person’s surname is derived from the surname of the person’s partner or spouse, this component is not valued. Otherwise, if the surname of the partner or spouse has legally changed to become (or incorporate) the person’s surname, this is the surname of the partner or spouse immediately prior to such change.

C.18. FT – formatted text data**HL7 Component Table – FT – Formatted Text Data**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	65536				Coded Value for HL7-Defined Tables		

Maximum Length: 65536

This data type is derived from the string data type by allowing the addition of embedded formatting instructions. These instructions are limited to those that are intrinsic and independent of the circumstances under which the field is being used. The actual instructions and their representation are described elsewhere in this chapter. *The FT field is of arbitrary length (up to 64k)* and may contain formatting commands enclosed in escape characters.

Example:

```
|\.sp\(\skip one vertical line)|
```

For additional examples of formatting commands see [Section 2.7](#), “Use of Escape Sequences in Text Fields.”

To include alternative character sets, use the appropriate escape sequence. See Section 2.15.9.18, “Character set” and Section 2.15.9.20, “Alternate character set handling.”

C.19. HD – Hierarchic Designator**HL7 Component Table – HD – Hierarchic Designator**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	IS	O	0300	Namespace ID	RE	
2	199	ST	C		Universal ID	CE	
3	6	ID	C	0301	Universal ID Type	CE	

Definition: The basic definition of the HD is that it identifies an (administrative or system or application or other) entity that has responsibility for managing or assigning a defined set of instance identifiers (such as placer or filler number, patient identifiers, provider identifiers, etc.). This entity could be a particular healthcare application, such as a registration system that assigns patient identifiers; a governmental entity, such as a

licensing authority that assigns professional identifiers or drivers' license numbers; or a facility where such identifiers are assigned.

Maximum Length: 227

The HD is designed to be a more powerful and more general replacement for the application identifier of HL7 versions 2.1 and 2.2. It adds two additional components, the <universal ID> and the <universal ID type> to the former application ID (which is renamed more generically to be the namespace ID).

In the case where an HD identifies an entity that assigns/creates instance identifiers, such as a particular patient registration system, it defines an "assigning authority." In the case where an HD identifies a location where instance identifiers are given out (although they may be created by another entity at another location), such as a particular "department of motor vehicles office location," it defines an "assigning facility." These two different uses of the HD appear in many of the extended data types.

The "assigning authority" defined by the HD is similar in its role to the coding system (and version) part of the coded element data types: Both identify a set of more discrete instance identifiers. The difference is that the set of HD-defined discrete instances contains identifiers of "real-world" things, such as patient or clinical orders, while the coded element-defined set of discrete instances contains concept identifiers (codes).

The HD is designed to be used either as a local identifier (with only the <namespace ID> valued) or a publicly assigned identifier, a UID (<universal ID> and <universal ID type> both valued). Syntactically, the HD is a group of two identifiers: a local identifier defined by the first component and a universal identifier defined by the second and third components. HDs that have defined third components (defined UID types) must have a second component that is unique within the series of IDs defined by that component.

Note: The HD is used in fields that in earlier versions of HL7 used the IS data type. Thus, a single component HD (only the first component valued) will look like a simple IS data type for older systems expecting a single component in the place of the HD data type.

If the first component for the HD data type is present, the second and third components are optional. If the third component is present, then the second must also be present (although in this case the first is optional). The second and third components must either both be valued (both non-null), or both be not valued (both null).

This means that if all three components of the HD are valued, the entity identified by the first component is the same as the entity identified by components two and three taken together. However, implementers may choose, by site agreement, to specify that if all three components of the HD are valued, the first component defines a member in the set defined by the second and third components.

Example 1: ISO examples with only the 2nd and 3rd components valued:

```
|^1.2.344.24.1.1.3^ISO|  
|^1.2.34.4.1.5.1.5.1,1.13143143.131.3131.1^ISO|
```

The syntax of the second component is defined by the ISO standard for object identifiers, not by HL7 (for which the second component is of the ST data type). Thus the periods (".") and comma (",") in the second component are part of the ISO syntax, but are legal by the definition of the HL7 ST data type.

Example 2: A GUID example

```
|^14344.14144321.4122344.14434.654^GUID|
```

Example 3: An internet example

```
|^falcon.iupui.edu^DNS|
```

Example 4: a RANDOM UID

```
|^40C983F09183B0295822009258A3290582^RANDOM|
```

Local examples:

Example 5: Local use only: a HD that looks like an IS data type

```
|LAB1|  
|RX.PIMS.SystemB.KP.CA.SCA|
```

Note that the syntax of the first component is not defined by HL7, but by the site according to its own needs: The only requirement is that the first component's structure is allowed by the HL7 string (ST) data type, which is used for values by the IS data type.

Example 6: Local identifier using components 2 and 3 only

```
|^RX.PIMS.SystemB.CA.SCA^M|
```

An alternate way to encode the previous example, illustrating the use of the third component value of “M” (see above [HL7-Defined Table 0301 – Universal ID Type](#)) to identify a locally defined identifier set. The second component has the same value as the previous example but is now defined to be a member of a set of allowable values defined by a site for the identifier set “M.”

Example 7: Local identifier with 2nd and 3rd components populated.

```
|PathLab^PL.UCF.UC^L|
```

The “PathLab” application is identified by the namespace component, but it is also identified by the 2nd and 3rd components (i.e., by the locally defined UID system “L”). The two identifiers are equivalent.

This is a more complex HD in which the middle component, which is locally defined, is itself structured. As with the ISO example earlier, the middle component’s structure is not defined by HL7 but by the site according to its own needs: the only requirement is that the middle component’s structure is allowed by the HL7 string (ST) data type.

Example 8: local identifier and universal ID types:

```
|LAB1^1.2.3.3.4.6.7^ISO|
```

A HD with an ISO “object Identifier” as a UID and a locally defined system name. Both the first component and the second and third (taken together) refer to the same entity. This example shows that the local value and the universal ID value may be transmitted with a single HD field.

C.19.1. Namespace ID (IS)

User-Defined Table 0300 – Namespace ID is used as the HL7 identifier for the user-defined table of values for this component.

For Cancer Registry reporting, the State or Provincial license number for a Physician should be transmitted. When this is transmitted, the Namespace ID used in HD here, or also in CNN and related data types, should be populated with a string following the pattern “xy_PHYSICIANLICENSE” where “xy” is the two-letter state or province code. Note this is used also in User-Defined Table – 0363 Namespace ID.

Note: When the HD is used in a given segment (either as a field or as a component of another data type), this table may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.19.2. Universal ID (ST)

The HD’s second component, <universal ID> (UID), is a string formatted according to the scheme defined by the third component, <universal ID type> (UID type). The UID is intended to be unique over time within the UID type. It is rigorously defined. Each UID must belong to one of the specifically enumerated schemes for constructing UIDs (defined by the UID type). The UID (second component) must follow the syntactic rules of the particular universal identifier scheme (defined by the third component). Note that these syntactic rules are not defined within HL7 but are defined by the rules of the particular universal identifier scheme (defined by the third component). Conditionality predicate: If the Namespace ID is not valued, then this component must be valued.

C.19.3. Universal ID Type (ID)

The third component governs the interpretation of the second component of the HD. If the third component is a known UID refer to [HL7-Defined Table 0301 – Universal ID Type](#) for valid values, then the second component is a universal ID of that type. Conditionality predicate: If the Universal ID is valued, then this component must be valued.

C.20. ID – coded value for HL7 defined tables**HL7 Component Table – ID – String Data**

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
					Coded Value for HL7-Defined Tables		

Maximum Length: Varies – dependent on length of longest code in code set.

The value of such a field follows the formatting rules for an ST field, except that it is drawn from a table of legal values. There shall be an HL7 table number associated with ID data types. An example of an ID field is OBR-25-*result status*. This data type should be used only for HL7 tables. The reverse is not true, because in some circumstances it is more appropriate to use the CNE or CWE data type for HL7 tables.

C.21. IS – coded value for user-defined tables**HL7 Component Table – IS – String Data**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	20				Coded Value for User-Defined Tables		

Maximum Length: 20

The value of such a field follows the formatting rules for a ST field, except that it is drawn from a site-defined (or user-defined) table of legal values. There shall be an HL7 table number associated with IS data types. This data type should be used only for user-defined tables. The reverse is not true, because in some circumstances, it is more appropriate to use the CWE data type for user-defined tables.

C.22. MSG – message type**HL7 Component Table – MSG – Message Type**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	3	ID	R	0076	Message Code	R	
2	3	ID	R	0003	Trigger Event	R	
3	7	ID	R	0354	Message Structure	R	

Definition: This field contains the message type, trigger event, and the message structure ID for the message.

Maximum Length: 15.

Note: Replaces the CM data type used in 2.16.9.9 MSH-9 as of version 2.5.

C.22.1. Message Code (ID)

Definition: Specifies the message type code.

This table contains values such as ACK, ADT, ORM, ORU etc.

See [Section 2.5.1](#) – Messages, for further discussion.

C.22.2. Trigger Event (ID)

Definition: Specifies the trigger event code. Refer to HL7 Table – Event Type for valid values.

This table contains values like A01, O01, R01 etc.

See the HL7 Standard version 2.5.1 Section 2.2.1 – Trigger Events for further discussion.

C.22.3. Message Structure (ID)

Definition: Specifies the abstract message structure code. Refer to HL7 Table 0354 – Message Structure in for valid values.

C.23. NDL – name with date and location**HL7 Component Table – NDL – Name with Date and Location**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	406	CNN	O		Name	R	
2	26	TS	O		Start Date/time	RE	
3	26	TS	O		End Date/time	RE	
4	20	IS	O	0302	Point of Care	X	
5	20	IS	O	0303	Room	X	
6	20	IS	O	0304	Bed	X	
7	227	HD	O		Facility	X	
8	20	IS	O	0306	Location Status	X	
9	20	IS	O	0305	Patient Location Type	X	
10	20	IS	O	0307	Building	X	
11	20	IS	O	0308	Floor	X	

Definition: Specifies the name of the person performing a service, when the person performed the service and where the person performed the service.

Maximum Length: 835

Note: Replaces the CM data type used in sections 4.5.3.32 and 7.4.1.32-(OBR-32), 4.5.3.33 and 7.4.1.33 – (OBR-33) 4.5.3.34 and 7.4.1.34 – (OBR-34) 4.5.3.35 and 7.4.1.35 – (OBR-35) as of version 2.5.

C.23.1. Name (CNN)

Definition: This component specifies the name of the person performing a service.

C.23.2. Start Date/Time (TS)

Definition: This component specifies the starting date and time for when the person is performing the service.

C.23.3. End Date/time (TS)

Definition: This component specifies the ending date and time for when the person is performing the service.

C.23.4. Point of Care (IS)

Definition: This component specifies the code for the point where patient care is administered. It is conditional on NDL. 9 Person Location Type (e.g., nursing unit or department or clinic). After floor, it is the most general patient location designation. Refer to User-Defined Table 0302 – Point of Care for suggested values.

C.23.5. Room (IS)

Definition: Patient room. After point of care, it is the most general location designation. Refer to User-Defined Table 0303 – Room for suggested values.

C.23.6. Bed (IS)

Definition: This component specifies the code for the patient's bed. After room, it is the most general location designation. Refer to User-Defined Table 0304 – Bed for suggested values.

C.23.7. Facility (HD)

Definition: This component is subject to site interpretation but generally describes the highest level physical designation of an institution, medical center, or enterprise. It is the most general location designation.

C.23.8. Location Status (IS)

Definition: This component specifies the code for the status or availability of the location. For example, it may convey bed status. Refer to User-Defined Table 0306 – Location Status for suggested values.

C.23.9. Location Type (IS)

Definition: Location type is the categorization of the location defined by facility, building, floor, point of care, room, or bed. Although not a required field, when used, it may be the only populated field. Usually includes

values such as nursing unit, department, clinic, SNF, physician's office. Refer to [User-Defined Table 0305 – Person Location Type](#) for suggested values.

C.23.10. Building (IS)

Definition: This component specifies the code for the building where the person is located. After facility, it is the most general location designation. Refer to User-Defined Table 0307 – Building for suggested values.

C.23.11. Floor (IS)

Definition: This component specifies the code for the floor where the person is located. After building, it is the most general location designation. Refer to User-Defined Table 0308 – Floor for suggested values.

C.24. NM – numeric

HL7 Component Table – NM – Numeric

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	16				Numeric		

Definition: A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.

Maximum Length: 16

Examples:

|999|
|-123.792|

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, “01.20” and “1.2,” are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

C.25. PL – person location

HL7 Component Table – PL– Person Location

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	IS	O	0302	Point of Care	RE	
2	20	IS	O	0303	Room	X	
3	20	IS	O	0304	Bed	X	
4	227	HD	O		Facility	RE	
5	20	IS	O	0306	Location Status	RE	
6	20	IS	C	0305	Person Location Type	RE	
7	20	IS	O	0307	Building	X	
8	20	IS	O	0308	Floor	X	
9	199	ST	O		Location Description	RE	
10	427	EI	O		Comprehensive Location Identifier	RE	
11	227	HD	O		Assigning Authority for Location	RE	

Definition: This data type is used to specify a patient location within a health care institution. Which components are valued depends on the needs of the site. For example for a patient treated at home, only the person location type is valued. It is most commonly used for specifying patient locations, but may refer to other types of persons within a health care setting.

Maximum Length: 1230

Note: This data type contains several location identifiers that should be thought of in the following order from the most general to the most specific: facility, building, floor, point of care, room, bed.
Additional data about any location defined by these components can be added in the following components: person location type, location description, and location status.

Example: Nursing Unit

A nursing unit at Community Hospital: 4 East, room 136, bed B

4E^136^B^CommunityHospital^^N^^^

Example: Clinic

A clinic at University Hospitals: Internal Medicine Clinic located in the Briones building, 3rd floor.

InternalMedicine^^^UniversityHospitals^^C^Briones^3^

Example: Home

The patient was treated at his home.

^^^^H^^^

C.25.1. Point of Care (IS)

Definition: This component specifies the code for the point where patient care is administered. It is conditional on PL.6 Person Location Type (e.g., nursing unit or department or clinic). After floor, it is the most general patient location designation. Refer to User-Defined Table 0302 – Point of Care for suggested values.

C.25.2. Room (IS)

Definition: This component specifies the code for the patient’s room. After point of care, it is the most general person location designation. Refer to User-Defined Table 0303 – Room for suggested values.

C.25.3. Bed (IS)

Definition: This component specifies the code for the patient’s bed. After room, it is the most general person location designation. Refer to User-Defined Table 0304 – Bed for suggested values.

C.25.4. Facility (HD)

Definition: This component is subject to site interpretation but generally describes the highest level physical designation of an institution, medical center or enterprise. It is the most general person location designation.

(See Section C.19, [HD – Hierarchic Designator](#) for discussion of data type.)

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be redefined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.25.5. Location Status (IS)

Definition: This component specifies the code for the status or availability of the location. For example, it may convey bed status. Refer to User-Defined Table 0306 – Location Status for suggested values.

C.25.6. Person Location Type (IS)

Definition: Person location type is the categorization of the person’s location defined by facility, building, floor, point of care, room or bed. Although not a required field, when used, it may be the only populated field. It usually includes values such as nursing unit, department, clinic, SNF, physician’s office. Refer to [User-Defined Table 0305 – Person Location Type](#) for suggested values.

C.25.7. Building (IS)

Definition: This component specifies the code for the building where the person is located. After facility, it is the most general person location designation. Refer to User-Defined Table 0307 – Building for suggested values.

C.25.8. Floor (IS)

Definition: This component specifies the code for the floor where the person is located. After building, it is the most general person location designation. Refer to User-Defined Table 0308 – Floor for suggested values.

C.25.9. Location Description (ST)

Definition: This component describes the location in free text.

C.25.10. Comprehensive Location Identifier (EI)

Definition: The unique identifier that represents the physical location as a whole, without regard for the individual components. This accommodates sites that may have a different method of defining physical units or who may code at a less granular level. For example, point of care, room, and bed may be one indivisible code.

C.25.11. Assigning Authority for Location (HD)

Definition: The entity that creates the data for the individual physical location components. If populated, it should be the authority for all components populated. Refer to User-Defined Table 0363 – Assigning Authority for suggested values for the first sub-component of the HD component, <namespace ID>.

This component makes it possible for codes to be differentiated when the field in which this data type is used repeats.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementors may continue to use User-Defined Table 0300 – Namespace ID for the first sub-component.

C.26. PRL – Parent Result Link**HL7 Component Table – PRL – Parent Result Link**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	483	CE	R		Parent Observation Identifier	R	Defined in the OBX-3 of the parent result.
2	20	ST	O		Parent Observation Sub-identifier	RE	Defined in the OBX-4 of the parent result.
3	250	TX	O		Parent Observation Value Descriptor	RE	Taken from the OBX-5 of the parent result.

Definition: Uniquely identifies the parent result's OBX segment related to the current order, together with the information in OBR-29-parent.

Usage Note: This data type is applied only to OBR-26 – Parent Result where it serves to make information available for other types of linkages (e.g., toxicology). This important information, together with the information in OBR-29-parent, uniquely identifies the parent result's OBX segment related to this order. The value of this OBX segment in the parent result is the organism or chemical species about which this battery reports. For example, if the current battery is an antimicrobial susceptibility, the parent results identified OBX contains a result that identifies the organism on which the susceptibility was run. This indirect linkage is preferred because the name of the organism in the parent result may undergo several preliminary values prior to finalization.

We emphasize that this field does not take the entire result field from the parent. It is meant only for the text name of the organism or chemical subspecies identified. This field is included only to provide a method for linking back to the parent result for those systems that could not generate unambiguous Observation IDs and sub-IDs.

This field is present only when the parent result is identified by OBR-29-parent and the parent spawns child orders for each of many results. See Chapter 7 for more details about this linkage.

Maximum Length: 755

Note: Replaces the CM data type used in sections 4.5.3.26 – OBR-26 and 7.4.1.26 – OBR-26 as of version 2.5.

C.26.1. Parent Observation Identifier (CE)

Definition: Contains the unique identifier of the parent observation as defined in the OBX-3 of the parent result. The value is the same as the OBX-3 of the parent.

C.26.2. Parent Observation Sub-identifier (ST)

Definition: Contains the sub-ID of the parent result as defined in the OBX-4 of the parent result. The value is the same as the OBX-4 of the parent.

C.26.3. Parent Observation Value Descriptor (TX)

Definition: Contains a descriptor of the parent observation value as specified in the OBX-5 of the parent result.

As an example, the third component may be used to record the name of the microorganism identified by the parent result directly. The organism in this case should be identified exactly as it is in the parent culture.

C.27. PT – processing type

HL7 Component Table – PT – Processing Type

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	1	ID	O	0103	Processing ID	R	
2	1	ID	O	0207	Processing Mode	RE	

Definition: This data type indicates whether to process a message as defined in HL7 Application (level 7) Processing rules.

Maximum Length: 3

C.27.1. Processing ID (ID)

A value that defines whether the message is part of a production, training, or debugging system. Refer to [HL7-Defined Table 0103 – Processing ID](#) for valid values.

C.27.2. Processing Mode (ID)

A value that defines whether the message is part of an archival process or an initial load. Refer to [HL7-Defined Table 0207 – Processing Mode](#) for valid values.

C.28. SAD – street address

HL7 Component Table – SAD – Street Address

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	120	ST	O		Street or Mailing Address	R	
2	50	ST	O		Street Name	RE	
3	12	ST	O		Dwelling Number	RE	

Definition: This data type specifies an entity’s street address and associated detail.

Maximum Length: 184

Note: Appears ONLY in the XAD data type

C.28.1. Street or Mailing Address (ST)

Definition: This component specifies the street or mailing address of a person or institution. When referencing an institution, this first component is used to specify the institution name. When used in connection with a person, this component specifies the first line of the address.

C.28.2. Street Name (ST)**C.28.3. Dwelling Number (ST)****C.29. SI – sequence ID****HL7 Component Table – SI – Sequence ID**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	4				Sequence ID		

Definition: A non-negative integer in the form of a NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it appears.

Maximum Length: 4. This allows a number between 0 and 9999 to be specified.

C.30. SN – structured numeric**HL7 Component Table – SN – Structured Numeric**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	2	ST	O		Comparator	RE	
2	15	NM	O		Num1	R	
3	1	ST	O		Separator/Suffix	RE	
4	15	NM	O		Num2	RE	

Definition: The structured numeric data type is used to unambiguously express numeric clinical results along with qualifications. This enables receiving systems to store the numeric database queries. The corresponding sets of values indicated with the <comparator> and <separator/suffix> components are intended to be the authoritative and complete set of values. If additional values are needed for the <comparator> and <separator/suffix> components, they should be submitted to HL7 for inclusion in the Standard.

If <num1> and <num2> are both non-null, then the separator/suffix must be non-null. If the separator is “-”, the data range is inclusive; e.g., <num1> – <num2> defines a range of numbers x, such that: <num1> <=x<= <num2>.

Maximum Length: 36

C.30.1. Comparator (ST)

Defined as greater than, less than, greater than or equal, less than or equal, equal, and not equal, respectively (= “>” or “<” or “>=” or “<=” or “=” or “<>”).

If this component is not valued, it defaults to equal (“=”).

C.30.2. Num1 (NM)

A number.

C.30.3. Separator/Suffix (ST)

“-” or “+” or “/” or “.” or “:”

Examples:

|>^100| (greater than 100)

^100^-^200	(equal to range of 100 through 200)
^1^:^228	(ratio of 1 to 128, e.g., the results of a serological test)
^2^+	(categorical response, e.g., occult blood positivity)

C.30.4. Num2 (NM)

A number or null depending on the measurement.

C.31. SPS – specimen source**HL7 Component Table – SPS – Specimen Source**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	705	CWE	O		Specimen Source Name or Code	RE	
2	705	CWE	O	0371	Additives	X	
3	200	TX	O		Specimen Collection Method	RE	
4	705	CWE	O	0163	Body Site	X	
5	705	CWE	O	0495	Site Modifier	X	
6	705	CWE	O		Collection Method Modifier Code	X	
7	705	CWE	O	0369	Specimen Role	X	

Definition: This data type identifies the site where the specimen should be obtained or where the service should be performed.

Maximum Length: 4436 OBR

Note: Replaces the CM data type used in 4.5.3.15 OBR-15, 7.4.1.15 OBR-15, 13.4.3.6 SAC-6 and 13.4.9.3 TCC-3 as of version 2.5. This data type is retained for backward compatibility only as on version 2.5. Specimen Source Name or Code (CWE)

Definition: contains the specimen source name or code (as a CWE data type component). (Even in the case of observations whose name implies the source, a source may be required, e.g., blood culture-heart blood.)

A nationally recognized coding system is to be used for this field. Valid coding sources for this field include:

- [HL7-Defined Table 0487 – Specimen Type](#) (replaces HL7 table 0070 – Specimen source codes). Note that the listed table 0487 in this document includes only the values recommended for cancer reporting.
- SNOMED

C.31.1. Additives (CWE)

Definition: identifies an additive introduced to the specimen before or at the time of collection. Refer to HL7 Table 0371 – Additive in Chapter 7 for valid values. The table’s values are taken from NCCLS AUTO4. The value set can be extended with user specific values.

C.31.2. Specimen Collection Method (TX)

Definition: describes the method of collection when that information is a part of the order. When the method of collection is logically an observation result, it should be included as a result segment (i.e., OBX segment).

C.31.3. Body Site (CWE)

Definition: This component specifies the body site from which the specimen was obtained. Refer to HL7 Table 0163 – Body Site for allowed values.

C.31.4. Site Modifier (CWE)

Definition: modifies body site. For example, the site could be antecubital fossa, and the site modifier “right.” Refer to HL7 Table 0495 – Body Site Modifier for allowed values.

C.31.5. Collection Method Modifier Code (CWE)

Definition: Indicates whether the specimen is frozen as part of the collection method. Suggested values are F (Frozen); R (Refrigerated). If the component is blank, the specimen is assumed to be at room temperature.

C.31.6. Specimen Role (CWE)

Definition: indicates the role of the sample. Refer to User-Defined Table 0369 – Specimen Role for suggested values. Each of these values is normally identifiable by the systems and its components and can influence processing and data management related to the specimen.

C.32. ST – string data**HL7 Component Table – ST – String Data**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	199				String Data		

Maximum Length: 199

String data is left justified with trailing blanks optional. Any displayable (printable) ACSII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined escape characters and defined delimiter characters.

Example:

```
|almost any data at all|
```

To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence.

Usage note: The ST data type is intended for short strings (e.g., less than 200 characters). For longer strings, the TX or FT data types should be used.

Alternate character set note: ST – string data also may be used to express other character sets.

C.33. TM – time**HL7 Component Table – TM –Time**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	16				Time		

Definition: Specifies the hour of the day with optional minutes, seconds, fraction of second, using a 24-hour clock notation and time zone.

Maximum Length: 16

As of version 2.3, the number of characters populated (excluding the time zone specification) specifies the precision.

Format: HH[MM[SS[.S[S[S[S]]]]]][+/-ZZZZ]

Thus:

the first two are used to specify a precision of “hour”

the first four are used to specify a precision of “minute”

the first six are used to specify a precision of “second”

the first eight are used to specify a precision of “one tenth of a second”

the first eleven are used to specify a precision of “one ten thousandth of a second”

Example:

```
|0630| specifies 6:30 AM
```

The fractional seconds could be sent by a transmitter who requires greater precision than whole seconds. Fractional representations of minutes, hours, or other higher order units of time are not permitted.

Note: The time zone [+/-ZZZZ], when used, is restricted to legally defined time zones and is represented in HHMM format.

The time zone of the sender may be sent optionally as an offset from the coordinated universal time (previously known as Greenwich Mean Time). Where the time zone is not present in a particular TM field but is included as part of the date/time field in the MSH segment, the MSH value will be used as the default time zone. Otherwise, the time is understood to refer to the local time of the sender.

Examples:

Time	Description
0000	midnight
235959+1100	1 second before midnight in a time zone 11 hours ahead of Universal Coordinated Time (i.e., East of Greenwich).
0800	8:00 a.m., local time of the sender.
093544.2312	44.2312 seconds after 9:35 a.m., local time of sender.
13	1:00 p.m. (with a precision of hours), local time of sender.

Prior to version 2.3, this data type was specified in the format HHMM[SS[.SSSS]][+/-ZZZZ]. As of version 2.3, minutes are no longer required. By site-specific agreement, HHMM[SS[.SSSS]][+/-ZZZZ] may be used where backward compatibility must be maintained.

C.34. TS – time stamp

HL7 Component Table – TS – Time Stamp

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	24	DT M	R		Time	R	
2	1	ID	B	0529	Degree of Precision	X	

Definition: Specifies a point in time.

Maximum Length: 26

Format: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]^<degree of precision>

C.34.1. Time (DTM)

Definition: The point in time.

C.34.2. Degree of Precision (ID)

Retained only for purposes of backward compatibility as of version 2.3. Refer to component 1 for the current method of designating degree of precision.

Definition: Indicates the degree of precision of the time stamp (Y = year, L = month, D = day, H = hour, M = minute, S = second). Refer to HL7 Table 0529 – Precision for valid value.

Note that the Degree of Precision is either the same as or overrides the precision indicated by the first component. It may not indicate greater precision. In the following example, the second component overrides the first and indicates a lesser precision, April 1999.

```
|199904011200^L|
```

Refer to HL7 table 0529 – Precision for valid values.

C.35. TX – text data**HL7 Component Table – TX – Text Data**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
					Text Data		

Definition: String data meant for user display (on a terminal or printer). Such data would not necessarily be left justified because leading spaces may contribute greatly to the clarity of the presentation to the user. Because this type of data is intended for display, it may contain certain escape character sequences designed to control the display. Leading spaces should be included. Trailing spaces should be removed.

Example:

| leading spaces are allowed. |

Because TX data is intended for display purposes, the repeat delimiter, when used with a TX data field, implies a series of repeating lines to be displayed on a printer or terminal. Therefore, the repeat delimiters are regarded as paragraph terminators or hard carriage returns (e.g., they would display as though a CR/LF were inserted in the text (DOS type system) or as though a LF were inserted into the text (UNIX style system)).

A receiving system would word-wrap the text between repeat delimiters to fit it into an arbitrarily sized display window but start any line beginning with a repeat delimiter on a new line.

Maximum Length: 65536

To include alternative character sets, use the appropriate escape sequence.

C.36. VID – version identifier**HL7 Component Table – VID – Version Identifier**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	5	ID	O	0104	Version ID	R	
2	483	CE	O	0399	Internationalization Code	RE	
3	483	CE	O		International Version ID	X	

Maximum Length: 973

C.36.1. Version ID (ID)

Used to identify the HL7 version. Refer to [HL7-Defined Table 0104 – Version ID](#) in section 2.15.9.12 for valid values.

C.36.2. Internationalization Code (CE)

Used to identify the international affiliate country code. The values to be used are those of ISO 3166 -1:1977. The ISO 3166 table has three separate forms of the country code: HL7 specifies that the 3-character (alphabetic) form be used for the country code.

Refer to [HL7-Defined Table 0399 – Country Code](#) in section 2.15.9.17 for the 3-character codes as defined by ISO 3166 table.

C.36.3. International Version ID (CE)

This field component identifies international affiliate's version; it is especially important when the international affiliate has more than a single local version associated with a single U.S. version.

C.37. XAD – extended address**HL7 Component Table – XAD – Extended Address**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	184	SAD	O		Street Address	RE	
2	120	ST	O		Other Designation	RE	
3	50	ST	O		City	RE	
4	50	ST	O		State or Province	RE	
5	12	ST	O		Zip or Postal Code	RE	
6	3	ID	O	0399	Country	RE	
7	3	ID	O	0190	Address Type	RE	
8	50	ST	O		Other Geographic Designation	X	
9	20	IS	O	0289	County/Parish Code	RE	
10	20	IS	O	0288	Census Tract	X	
11	1	ID	O	0465	Address Representation Code	X	
12	53	DR	B		Address Validity Range	X	deprecated as of v 2.5
13	26	TS	O		Effective Date	X	
14	26	TS	O		Expiration Date	X	

Definition: This data type specifies the address of a person, place or organization plus associated information.

Maximum Length: 631

Note: Replaces the AD data type as of version 2.3.

Example: United States

```
|1000 Hospital Lane^Ste. 123^Ann Arbor ^MI^99999^USA^B^^WA^|
```

This would be formatted for postal purposes as

```
1000 Hospital Lane
Ste. 123
Ann Arbor MI 99999
```

Example: Australia

```
|14th Floor^1000 Hospital Lane^Sidney^QLD^9999|
```

This would be formatted for postal purposes using the same rules as for the American example as

```
14th Floor
1000 Hospital Lane
Sidney QLD 9999
```

International note: Countries typically have a standard method of formatting addresses. This data type does not specify the formatting usages, only the components of a postal address.

C.37.1. Street Address (SAD)

See [Section C.28. SAD – Street Address](#) for a description of components.

C.37.2. Other Designation (ST)

Second line of address. In U.S. usage, it qualifies address. Examples: Suite 555 or Fourth Floor. When referencing an institution, this component specifies the street address.

C.37.3. City (ST)

Definition: This component specifies the city, or district or place where the addressee is located depending upon the national convention for formatting addresses for postal usage.

C.37.4. State or Province (ST)

Definition: This component specifies the state or province where the addressee is located. State or province should be represented by the official postal service codes for that country.

C.37.5. ZIP or Postal Code (ST)

Definition: This component specifies the ZIP or postal code where the addressee is located. ZIP or postal codes should be represented by the official codes for that country. In the United States, the ZIP code takes the form 99999[-9999]; the Canadian postal code takes the form A9A9A9, and the Australian Postcode takes the form 9999.

C.37.6. Country (ID)

Definition: This component specifies the country where the addressee is located. HL7 specifies that the 3-character (alphabetic) form of ISO 3166 be used for the country code. Refer to HL7 Table 0399 – Country Code in Section 2.15.9.17 for valid values.

C.37.7. Address Type (ID)

Definition: This component specifies the kind or type of address. Refer to [HL7-Defined Table 0190 – Address Type](#) for valid values.

C.37.8. Other Geographic Designation (ST)

Definition: This component specifies any other geographic designation. It includes county, bioregion, SMSA, etc.

C.37.9. County/Parish Code (IS)

A code that represents the county in which the specified address resides. [User-Defined Table 0289 – County/Parish](#) is used as the HL7 identifier for the user-defined table of values for this component. When this component is used to represent the county (or parish), component 8 <other geographic designation> should not duplicate it (i.e., the use of <other geographic designation> to represent the county is allowed only for the purpose of backward compatibility, and should be discouraged in this and future versions of HL7).

Allowable values: codes defined by government.

C.37.10. Census Tract (IS)

A code that represents the census tract in which the specified address resides. [User-Defined Table 0288 – Census Tract](#) is used as the HL7 identifier for the user-defined table of values for this component.

Allowable Values: codes defined by government.

C.37.11. Address Representation Code (ID)

Different <name/address types> and representations of the same name/address should be described by repeating this field, with different values of the <name/address type> and/or <name/address representation> component.

Note: Also note that this new component remains in “alphabetic” representation with each repetition of the fields using these data types (i.e., even though the address may be represented in an ideographic character set, this component will remain represented in an alphabetic character set).

Refer to HL7 table 0465 – Name/Address Representation for valid values.

In general, this component provides an indication of the representation provided by the data item. It does not necessarily specify the character sets used. Thus, even though the representation might provide an indication of what to expect, the sender is still free to encode the contents using whatever character set is desired. This component provides only hints for the receiver, so it can make choices regarding what it has been sent and what it is capable of displaying.

C.37.12. Address Validity Range (DR)

This component cannot be fully expressed. Identified as version 2.4 erratum. Retained for backward compatibility only as of version 2.5. Refer to Effective Date and Expiration Date components.

This component contains the start and end date/times, which define the period in which this address was valid.

C.37.13. Effective Date (TS)

Definition: The first date, if known, on which the address is valid and active.

C.37.14. Expiration Date (TS)

Definition: The last date, if known, on which the address is valid and active.

C.38. XCN – extended composite ID number and name for persons**HL7 Component Table – XCN – Extended Composite ID Number and Name for Persons**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	15	ST	O		ID Number	RE	
2	194	FN	O		Family Name	R	
3	30	ST	O		Given Name	RE	
4	30	ST	O		Second and Further Given Names or Initials Thereof	RE	
5	20	ST	O		Suffix (e.g., JR or III)	RE	
6	20	ST	O		Prefix (e.g., DR)	RE	
7	5	IS	B	0360	Degree (e.g., MD)	X	deprecated as of v 2.5
8	4	IS	C	0297	Source Table	CE	
9	227	HD	O	0363	Assigning Authority	RE	
10	1	ID	O	0200	Name Type Code	RE	
11	1	ST	O		Identifier Check Digit	X	
12	3	ID	C	0061	Check Digit Scheme	X	
13	5	ID	O	0203	Identifier Type Code	RE	
14	227	HD	O		Assigning Facility	RE	
15	1	ID	O	0465	Name Representation Code	X	
16	483	CE	O	0448	Name Context	X	
17	53	DR	B		Name Validity Range	X	
18	1	ID	O	0444	Name Assembly Order	X	
19	26	TS	O		Effective Date	X	
20	26	TS	O		Expiration Date	X	
21	199	ST	O		Professional Suffix	X	
22	705	CWE	O		Assigning Jurisdiction	X	
23	705	CWE	O		Assigning Agency or Department	X	

Maximum Length: 3002

Note: Replaces CN data type as of version 2.3.

This data type is used extensively appearing in the PV1, ORC, RXO, RXE, OBR and SCH segments, as well as others, where there is a need to specify the ID number and name of a person.

Example: Without assigning authority and assigning facility

```
|1234567^Everyman^Adam^A^III^DR^PHD^ADT01^^L^4^M11^MR|
```

Examples: With assigning authority and assigning facility

Dr. Harold Hippocrates' provider ID was assigned by the Provider Master and was first issued at Good Health Hospital within the Community Health and Hospitals System. Because IS table values (first component of the HD) were not used for assigning authority and assigning facility, components 2 and 3 of the HD data type are populated and demoted to sub-components as follows:

```
12188^Hippocrates^Harold^H^IV^Dr^MD^^&Provider Master.Community Health and  
Hospitals&L^L^9^M10^DN^&Good Health Hospital.Community Health and Hospitals&L^A
```

Ludwig van Beethoven's medical record number was assigned by the Master Patient Index and was first issued at Fairview Hospital within the University Hospitals System.

```
10535^van Beethoven&van^Ludwig^A^III^Dr^PHD^^&MPI.Community Health and  
Hospitals&L^L^3^M10^MR^& Good Health Hospital.Community Health and Hospitals&L^A
```

C.38.1. ID Number (ST)

This string refers to the coded ID according to a user-defined table, defined by component 9. If the first component is present, either the source table or the assigning authority must be valued.

C.38.2. Family Name (FN)

This component allows full specification of the surname of a person. Where appropriate, it differentiates the person's own surname from that of the person's partner or spouse, in cases where the person's name may contain elements from either name. It also permits messages to distinguish the surname prefix (such as "van" or "de") from the surname root. See section [C.17, FN – family name](#).

C.38.3. Given Name (ST)

First name.

C.38.4. Second and Further Given Names or Initials Thereof (ST)

Multiple middle names may be included by separating them with spaces.

C.38.5. Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

C.38.6. Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

C.38.7. Degree (IS)

Retained for backward compatibility only as of version 2.5. See Professional Suffix component.

Used to specify an educational degree (e.g., MD). Refer to User-Defined Table 0360 – Degree for suggested values.

C.38.8. Source Table (IS)

User-Defined Table 0297 – CN ID source is used as the HL7 identifier for the user-defined table of values for this component. Used to delineate the first component. Populate if Assigning Authority or Assigning Facility is not populated and ID Number is populated.

C.38.9. Assigning Authority (HD)

The assigning authority is a unique identifier of the system (or organization or agency of department) that creates the data. User-Defined Table 0363 – Assigning Authority is used as the HL7 identifier for the user-defined table of values for the first sub-component of the HD component, <namespace ID>.

For Cancer Registry reporting, the State or Provincial license number for a Physician should be transmitted. When this is transmitted, the Namespace ID used in HD here, or also in CNN and related data types, should be populated with a string following the pattern "xy_PHYSICIANLICENSE" where "xy" is the two-letter state or province code.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementers may continue to use User-Defined Table 0300 – Namespace ID for the first sub-component.

C.38.10. Name Type Code (ID)

A code that represents the type of name. Refer to [HL7-Defined Table 0200 – Name Type](#) for valid values.

C.38.11. Identifier Check Digit (ST)

The check digit in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.

C.38.12. Check Digit Scheme (ID)

Definition: Contains the code identifying the check digit scheme employed.

Refer to [HL7-Defined Table 0061 – Check Digit Scheme](#) for valid values.

C.38.13. Identifier Type Code (IS)

A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the <assigning authority> component. Refer to [User-Defined Table 0203 – Identifier Type](#) for suggested values.

C.38.14. Assigning Facility (HD)

The place or location identifier where the identifier was first assigned to the person. This component is not an inherent part of the identifier, but rather part of the history of the identifier: As part of this data type, its existence is a convenience for certain intercommunicating systems.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.38.15. Name Representation Code (ID)

Different <name/address types> and representations of the same <name/address> should be described by repeating this field, with different values of the <name/address type> and/or <name/address representation> component.

Note: This new component remains in “alphabetic” representation with each repetition of the field using these data types (i.e., even though the name may be represented in an ideographic character set, this component will remain represented in an alphabetic character set).

Refer to HL7 Table 0465 – Name/Address Representation for valid values.

In general, this component provides an indication of the representation provided by the data item. It does not necessarily specify the character sets used. Thus, even though the representation might provide an indication of what to expect, the sender is still free to encode the contents using whatever character set is desired. This component provides only hints for the receiver, so it can make choices regarding what it has been sent and what it is capable of displaying.

C.38.16. Name Context (CE)

This component is used to designate the context in which a name is used. The main use case is in Australian health care for indigenous patients who prefer to use different names when attending different health care institutions. Another use case occurs in the United States where health practitioners can be licensed under slightly different names and the reporting of the correct name is vital for administrative purposes. Refer to User-Defined Table 0448 – Name Context for suggested values.

C.38.17. Name Validity Range (DR)

Retained for backward compatibility only as of version 2.5. Refer to XCN.19 Effective Date and XCN.20 Expiration Date instead. This component cannot be fully expressed and has been identified as version 2.4 erratum.

This component contains the start and end date/times that define the period during which this name was valid. See Section 2.A.20 of the HL7 Standard for description of subcomponents of DR.

C.38.18. Name Assembly Order (ID)

A code that represents the preferred display order of the components of this person’s name. Refer to HL7 Table 0444 – Name Assembly Order for valid values.

C.38.19. Effective Date (TS)

Definition: The first date, if known, on which the address is valid and active.

C.38.20. Expiration Date (TS)

Definition: The last date, if known, on which the address is valid and active.

C.38.21. Professional Suffix (ST)

Definition: Used to specify an abbreviation, or a string of abbreviations denoting qualifications that support the person's profession, (e.g., licenses, certificates, degrees, affiliations with professional societies, etc.). The Professional Suffix normally follows the Family Name when the Person Name is used for display purposes. Please note that this component is an unformatted string and is used for display purposes only. Detailed information regarding the contents of Professional Suffix is obtained using appropriate segments in Chapter 15, Personnel Management.

C.38.22. Assigning Jurisdiction (CWE)

Definition: The geopolitical body that assigned the identifier in component 1.

C.38.23. Assigning Agency or Department (CWE)

Definition: The agency or department that assigned the identifier in component 1.

C.39. XON – extended composite name and identification number for organizations**Component Table – XON – Extended Composite Name and Identification Number for Organizations**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	50	ST	O		Organization Name	R	
2	20	IS	O	0204	Organization Name Type Code	RE	
3	4	NM	B		ID Number	X	Use the Organization Identifier component instead
4	1	NM	O		Check Digit	X	
5	3	ID	O	0061	Check Digit Scheme	X	
6	227	HD	O	0363	Assigning Authority	RE	
7	5	ID	O	0203	Identifier Type Code	RE	
8	227	HD	O		Assigning Facility	RE	
9	1	ID	O	0465	Name Representation Code	X	
10	20	ST	O		Organization Identifier	R	

Maximum Length: 567

This data type is used in fields (e.g., PV2-23, NK1-13, and OBR-44) to specify the name and ID number of an organization.

Example 1:

The ID for Good Health Hospital was assigned by the Community Health and Hospitals enterprise's Hospital Master and was first issued at the Central Offices.

```
Good Health Hospital^L^716^9^M10^&Hospital Master.Community Health and
Hospitals&L^XX^&Central Offices.Community Health and Hospitals&L^A
```

Example 2:

Good Health Hospital has another ID that was issued by CMS. Assigning Authority, CMS, values only the first HD component, an IS data type and assigning facility is not relevant. This information might be transmitted accordingly:

```
Good Health Hospital^L^4544^3^M10^CMS^XX^^A
```

C.39.1. XON-1 Organization Name (ST-50, Required)

Definition: The name of the specified organization.

C.39.2. XON-2 Organization Name Type Code (IS-20, Required or empty)

Definition: A code that represents the type of name, i.e., legal name, display name. Refer to [User-Defined Table 0204 – Organizational Name Type](#) for suggested values.

C.39.3. XON-3 ID Number (NM-4, Not supported)

This component has been retained for backward compatibility only as of version 2.5. It is recommended to use component 10 Organization identifier that accommodates alphanumeric identifiers.

C.39.4. XON-4 Check Digit (NM-1, Not supported)

Definition: The check digit in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.

This component is Not Supported in NAACCR Cancer Registry messaging.

C.39.5. XON-5 Check Digit Scheme (ID-3, Not supported)

Definition: Contains the code identifying the check digit scheme employed.

The check digit scheme codes are defined in [HL7-Defined Table 0061 – Check Digit Scheme](#).

This component is Not Supported in NAACCR Cancer Registry messaging.

C.39.6. XON-6 Assigning Authority (HD, Required or empty)

Definition: The assigning authority is a unique identifier of the system (or organization or agency or department) that creates the data. Assigning authorities are unique across a given HL7 implementation. Refer to User-Defined Table 0363 – Assigning Authority for suggested values.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementers may continue to use User-Defined Table 0300 – Namespace ID for the first sub-component.

C.39.7. XON-7 Identifier Type Code (ID-5, Required or empty)

Definition: A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the “Assigning authority” component. Refer to [User-Defined Table 0203 – Identifier Type](#) for suggested values.

This component is Not Supported in NAACCR Cancer Registry messaging.

C.39.8. XON-8 Assigning Facility ID (HD, Required or empty)

Definition: The place or location identifier where the identifier was first assigned to the person. This component is not an inherent part of the identifier but rather part of the history of the identifier: As part of this data type, its existence is a convenience for certain intercommunicating systems.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.39.9. XON-9 Name Representation Code (ID-1, Not supported)

Definition: Different <name/address types> and representations of the same <name/address> should be described by repeating of this field, with different values of the <name/address type> and/or <name/address representation> component.

Note: This new component remains in “alphabetic” representation with each repetition of the field using these data types, i.e., even though the name may be represented in an ideographic character set, this component will remain represented in an alphabetic character set.

Refer to HL7 Table 0465 – Name/Address Representation Code for valid values.

In general, this component provides an indication of the representation provided by the data item. It does not necessarily specify the character sets used. Thus, even though the representation might provide an indication of what to expect, the sender is still free to encode the contents using whatever character set is desired. This component provides only hints for the receiver, so it can make choices regarding what it has been sent and what it is capable of displaying.

This component is Not Supported in NAACCR Cancer Registry messaging.

C.39.10. XON-10 Organization Identifier (ST-20, Required)

Definition: This component contains the sequence of characters (the code) that uniquely identifies the item being referenced by XON.1 Organization Name. This component replaces XON.3 ID Number as of version 2.5.

Note: The check digit and code identifying check digit scheme are null if Organization identifier is alphanumeric.

For Cancer Registry reporting, national identifiers or provincial identifiers shall be used for this field. In the United States, this shall be the CLIA identifier if the organization is a laboratory. In the United States, this shall be the NPI number if it is a hospital or physician office. In Canada, the local jurisdictional authority may mandate the use of certain identifiers for pathology laboratories; please contact the local authority for guidance.

C.40. XPN – extended person name**HL7 Component Table – XPN– Extended Person Name**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	194	FN	O		Family Name	R	
2	30	ST	O		Given Name	RE	
3	30	ST	O		Second and Further Given Names or Initials Thereof	RE	
4	20	ST	O		Suffix (e.g., JR or III)	RE	
5	20	ST	O		Prefix (e.g., DR)	RE	
6	6	IS	B	0360	Degree (e.g., MD)	X	
7	1	ID	O	0200	Name Type Code	RE	
8	1	ID	O	0465	Name Representation Code	X	
9	483	CE	O	0448	Name Context	X	
10	53	DR	B		Name Validity Range	X	
11	1	ID	O	0444	Name Assembly Order	X	
12	26	TS	O		Effective Date	X	
13	26	TS	O		Expiration Date	X	
14	199	ST	O		Professional Suffix	X	

Maximum Length: 1103

Note: Replaces PN data type as of version 2.3.

Internationalization note: In countries using ideographic or syllabic (phonetic) character sets, it is sometimes necessary to send the name in one or both of these formats, as well as an alphabetic format. The switching between the different character sets can be accomplished using a character set such as JIS X 0202 – ISO 2022, which provides an escape sequence for switching among different character sets and among single-byte and multi-byte character representations. When the name field is repeated, the different repetitions of the name may be represented by these different character sets. The details are as follows.

HL7 supports the following standards for Japanese characters:

- JIS X 0201 for ISO-IR 13 (Japanese Katakana)
- JIS X 0201 for ISO-IR 14 (Japanese Romaji)
- JIS X 0208 for ISO-IR 87 (Japanese Kanji, Hiragana and Katakana)
- JIS X 0212 for ISO-IR 159 (supplementary Japanese Kanji)

HL7 supports the following standards for European characters:

- ISO 8859 (1-9) for ISO-IR 100, 101, 109, 110, 144,127, 126, 138 and 148.

Character sets are referenced in HL7 as ASCII, 8859/1,8859/2, ISO IR14, ISO IR87, and ISO IR159. DICOM uses codes laid out in ISO 2375, of the form “ISO-IR xxx.” HL7 supports this naming as well, to facilitate interoperability.

HL7 uses the Basic G0 Set of the International Reference Version of ISO 646:1990 (ISO IR-6) as the default character repertoire for character strings. This is a single-byte character set, identical to ASCII.

Each repetition of an XPN, XON, XCN, or XAD field is assumed to begin with the default character set. If another character set is to be used, the HL7 defined escape sequence used to announce that character set must be at the beginning of the repetition, and the HL7 defined escape sequence used to start the default character set must be at the end of the repetition. Note also that several character sets may be intermixed within a single repetition as long as the repetition ends with a return to the default character set.

An application must specify which character sets it supports in the field “MSH-18 Character Sets” and which character set handling scheme it supports in the field MSH-20-Alternate character set handling scheme. It is assumed that the sending and receiving applications are aware of how to map character set names (i.e., ISO-IR xxx) to escape sequences.

For example, in many Japanese messages there is a mix of Romaji (i.e., Roman characters), Katakana (phonetic representation of foreign words), Hiragana (phonetic representation of Japanese words), and Kanji (pictographs). Such a message would require that four character sets be specified in the MSH.

References for Internationalization of Name

	Reference	Description
1.	“Understanding Japanese Information Processing” by Ken Lunde, O’Reilly Press	
2.	NEMA PS3.5 – DICOM Part 5: Data Structure and Semantics	
3.	ANSI X3.4:1986	ASCII character set
4.	ISO 646:1990	Information Processing – ISO 7-bit coded character set for information interchange
5.	ISO/IEC 2022:1994	Information Technology – Character code structure and extension techniques
6.	ISO 2375:1986	Data Processing – Procedure for the registration of escape sequences
7.	ISO 6429:1990	Information Processing – Control functions for 7-bit and 8-bit coded character sets
8.	ISO 8859 (1-9)	Information Processing – 8-bit single-byte coded graphic character sets – parts 1-9
9.	ENV 41 503:1990	Information systems interconnection – European graphic character repertoires and their coding
10.	ENV 41 508:1990	Information systems interconnection – East European graphic character repertoires and their coding
11.	JIS X 0201-1976	Code for Information Exchange
12.	JIS X 0212-1990	Code of the supplementary Japanese Graphic Character set for information interchange
13.	JIS X 0208-1990	Code for the Japanese Graphic Character set for information interchange
14.	RFC 1468	Japanese Character Encoding for Internet Messages

Character Repertoires supported by DICOM are defined in Part 5, section 6.1. The DICOM Standard is available free on the Internet at <http://medical.nema.org/>.

Examples of names requiring only one iteration of the field where the XPN is applied:

Example 1: Adam A. Everyman III PhD

|Everyman^Adam^A^III^DR^^L^^^^^^PHD|

Example 2: Ludwig van Beethoven

|Beethoven&van^Ludwig^^^^L|

Example 3: Hermann Egon Mayer zur alten Schildesche

|Mayer^Hermann^Egon^zur alten Schildesche|

Example 4: Sister Margot

|^Margot^^Sister^^C|

Example 5: Dr Harold Henry Hippocrates, AO, MBBS, ASCTS. A physician who holds an Honorarium, an academic degree and a board certificate. Professional suffixes are displayed as concatenated. (AO = Order of Australia (Honorarium), MBBS = Bachelor of Medicine and Bachelor of Surgery, ASCTS = Australian Society of Cardiothoracic Surgeons

|Hippocrates^Harold^Henry^^Dr^L^^^^^^ AO.MBBS.ASCTS|

Example 6: Nancy N. Nightingale, RN, PHN, BSN, MSN. A registered nurse who is a Public Health Nurse with 2 academic degrees, BSN and MSN.

|Nightingale^Nancy^N^^^^^^^RN, PHN, BSN, MSN|

Example 7: H. Horrace Helper Jr., RN, CNP. A registered nurse who is a certified nurse practitioner.

|Helper^H^Horrace^Jr^^^^^^^ RN, CNP|

Example 8: Mevrouw Irma Jongeneel de Haas. An individual whose birth name (geboortenaam) is de Haas and whose partner's name is Jongeneel.

| Jongeneel-de Haas&de&Haas&&Jongeneel^Irma^^Mevrouw^^L |

Examples of names requiring more than one iteration of the field where the XPN is applied:

Example 9: Herr Prof. Dr. med. Joachim W. Dudeck

|Dudeck^Joachim^W.^Dr.med.^L^^^^^^ MD ~Dudeck^J.W.^Herr Prof.Dr.^D|

Example 10: Herr Dr. Otto Graf Lambsdorff mdB a.D. According to German law “Adelstitel” like “Graf” or “Baron” belongs to the family name and therefore must be encoded in the family name field separated by blanks.

|Graf Lambsdorff&Graf&Lambsdorff^Otto^^Dr.^L~Graf
Lambsdorff&Graf&Lambsdorff^Otto^^mdB a.D.^Herr Dr.^D|

Example 11: Walter Kemper genannt (named) Mölleken

|Kemper^Walter^^^^L~Mölleken^Walter^^^^A|

Example 12: Herr Dr. med. Dr. h.c. Egon Maier

|Maier^Egon^^Dr.med. Dr.h.c.^L^^^^^^MD~Maier^Egon^^Herr Dr.med. Dr.h.c.^D|

Example 13: Herr Dipl.Ing. Egon Maier

|Maier^Egon^^^^L^^^^^^ DIPL~Maier^Egon^^Herr Dipl.Ing.^D|

Example 14: Frau Gerda Müller geb. Maier, verheiratet seit 16.2.2000

|Müller^Gerda^^Frau^^L^^^^^20000216~Maier^Gerda^^Frau^^M|

Example 15: President Adam A Everyman III, president from 1997 until 2001, aka Sonny Everyman

|Everyman^Adam^A.^III^President^^L~^^Mr.
President^^D^^^^19970816^20010320~Everyman^Sonny^^^^A|

Example 16: Michio Kimura. This example doesn’t use title and degrees, but shows the repetition of this name for different purposes.

|Kimura^Michio^^^^L^I~Kimura^Michio^^^^L^P~ Kimura^Michio^^^^L^A|

C.40.1. Family Name (FN)

This component allows full specification of the surname of a person. Where appropriate, it differentiates the person’s own surname from that of the person’s partner or spouse, in cases where the person’s name may

contain elements from either name. It also permits messages to distinguish the surname prefix (such as “van” or “de”) from the surname root.

C.40.2. Given Name (ST)

First name.

C.40.3. Second and Further Given Names or Initials Thereof (ST)

Multiple middle names may be included by separating them with spaces.

C.40.4. Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

C.40.5. Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

C.40.6. Degree (IS)

Retained for backward compatibility only as of version 2.5. See Professional Suffix component.

Used to specify an educational degree (e.g., MD). Refer to User-Defined Table 0360 – Degree for suggested values.

C.40.7. Name Type Code (ID)

A code that represents the type of name. Refer to [HL7-Defined Table 0200 – Name Type](#) for valid values.

Note: The content of Legal Name is country specific. In the United States, the legal name is the same as the current married name.

C.40.8. Name Representation Code (ID)

Different <name/address types> and representations of the same <name/address> should be described by repeating of this field, with different values of the <name/address type> and/or <name/address representation> component.

Note: This new component remains in “alphabetic” representation with each repetition of the field using these data types, i.e., even though the name may be represented in an ideographic character set, this component will remain represented in an alphabetic character set.

Refer to HL7 Table 0465 – Name/Address Representation for valid values.

In general, this component provides an indication of the representation provided by the data item. It does not necessarily specify the character sets used. Thus, even though the representation might provide an indication of what to expect, the sender is still free to encode the contents using whatever character set is desired. This component provides only hints for the receiver, so it can make choices regarding what it has been sent and what it is capable of displaying.

C.40.9. Name Context (CE)

This component is used to designate the context in which a name is used. The main use case is in Australian health care for indigenous patients who prefer to use different names when attending different health care institutions. Another use case occurs in the United States where health practitioners can be licensed under slightly different names and the reporting of the correct name is vital for administrative purposes. Refer to User-Defined Table 0448 – Name Context for suggested values.

C.40.10. Name Validity Range (DR)

This component cannot be fully expressed. Identified as version 2.4 erratum. Retained for backward compatibility only as of version 2.5. Refer to Effective Date and Expiration Date components.

This component contains the start and end date/times, which define the period during which this name was valid. See *Section C.9 DR – Date Range* for description of subcomponents.

C.40.11. Name Assembly Order (ID)

A code that represents the preferred display order of the components of this person's name. Refer to HL7 0444 – Name Assembly Order for valid values.

C.40.12. Effective date (TS)

Definition: The first date, if known, on which the person's name is valid and active.

C.40.13. Expiration date (TS)

Definition: The last date, if known, on which the person's name is valid and active.

C.40.14. Professional Suffix (ST)

Definition: Used to specify an abbreviation, or a string of abbreviations denoting qualifications that support the person's profession, (e.g., licenses, certificates, degrees, affiliations with professional societies, etc.). The Professional Suffix normally follows the Family Name when the Person Name is used for display purposes. Please note that this component is an unformatted string and is used for display purposes only. Detailed information regarding the contents of Professional Suffix is obtained using appropriate segments in the HL7 Standard Version 2.5.1, Chapter 15, Personnel Management.

C41. XTN – Extended Telecommunication Number**HL7 Component Table – XTN – Extended Telecommunication Number**

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	199	ST	B		Telephone Number	CE	deprecated as of 2.3
2	3	ID	O	0201	Telecommunication Use Code	RE	
3	8	ID	O	0202	Telecommunication Equipment Type	RE	
4	199	ST	O		Email Address	RE	
5	3	NM	O		Country Code	RE	
6	5	NM	O		Area/City Code	RE	
7	9	NM	O		Local Number	RE	
8	5	NM	O		Extension	RE	
9	199	ST	O		Any Text	RE	
10	4	ST	O		Extension Prefix	RE	
11	6	ST	O		Speed Dial Code	RE	
12	199	ST	C		Unformatted Telephone number	RE	

Maximum Length: 850

Note: Components 5 through 9 reiterate the basic function of the first component in a delimited form that allows the expression of both local and international telephone numbers. As of 2.3, the recommended form for the telephone number is to use the delimited form rather than the unstructured form supported by the first component (which is left in for backward compatibility only).

Note: Replaces TN data type as of version 2.3

Example: A fax number

^ORN^FX^^^734^6777777

C.41.1. Telephone Number (ST)

This component has been retained for backward compatibility only as of version 2.3.

Definition: Specifies the telephone number in a predetermined format that includes an optional extension, beeper number and comment.

Format: [NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

Note: Because this component has been deprecated a new data type has not been defined to replace the formatted ST.

Note for reporting to Cancer Registries: This component should not be used unless it is not in any way possible to populate components 6-8 for the phone number.

C.41.2. Telecommunication Use Code (ID)

A code that represents a specific use of a telecommunication number. Refer to [HL7-Defined Table 0201 – Telecommunication Use Code](#) for valid values.

C.41.3. Telecommunication Equipment Type (ID)

A code that represents the type of telecommunication equipment. Refer to [HL7-Defined Table 0202 – Telecommunication Equipment Type](#) for valid values.

C.41.4. Email Address (ST)

Internationalization note: To make this data type interoperate with CEN's Telecommunication data attribute group, NAACCR allows use of the second component for email addresses. The presence of an email address is specified by the addition of the value *NET* to the Phone Use Code table, and the type of Internet address is specified with the values *Internet* and *X.400* to the Phone Equipment Type table. When used for an Internet address, the first component of the XTN data type will be null. If the @-sign is being used as a subcomponent delimiter, the HL7 subcomponent escape sequence may be used when encoding an Internet address.

C.41.5. Country Code (NM)

C.41.6. Area/City Code (NM)

C.41.7. Phone Number (NM)

C.41.8. Extension (NM)

C.41.9. Any Text (ST)

Definition: Contains comments with respect to the telephone number.

Example: |^^^^^^^^Do not use after 5PM|

C.41.10. Extension Prefix (ST)

The characters established within a company's internal telephone system network used as a prefix to the Extension component for internal dialing. Note that the use of Extension Prefix requires that the Extension component be valued and that digits, as well as special characters (e.g., *, #) may be used.

C.41.11. Speed Dial Code (ST)

The characters established within a company's internal telephone system used in place of the (external) telephone number to facilitate calling because its length is shorter than that of the telephone number. Note that digits, as well as special characters (e.g., *, #), may be used.

C.41.12. Unformatted Telephone Number (ST)

Definition: An expression of the telephone number as an unparseable string.

The phone number was entered as free text and sending system does not know how to parse it.

Example: |^^^^^^^^^^^^1-800-Dentist|

Appendix D. Summary Table

NAACCR OPT: R – required; RE – required or empty; O – optional; C – Conditional on the trigger event or on some other field(s); CE – Conditional or empty; X – not used with this trigger event, may be skipped; B – left in for backward compatibility with previous version of HL7.

“Note” column contains usage notes and references to vocabulary from which values are drawn; also includes constants where applicable.

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
MSH	1	00001	Field separator	ST	R					
MSH	2	00002	Encoding characters	ST	R					
MSH	3	00003	Sending application	HD	RE					
MSH	3.1		Namespace ID	IS	RE					Values: Table 0300
MSH	3.2		Universal ID (CLIA number)	ST	CE					
MSH	3.3		Universal ID type	ID	CE					Values: Table 0301
MSH	4	00004	Sending facility	HD	R	7010, 7020	Path Lab Name	4		
MSH	4.1		Namespace ID	IS	RE	7020	Path Lab Name	4		Values: Table 0300
MSH	4.2		Universal ID (CLIA number)	ST	CE	7010	Reporting Facility ID	3		
MSH	4.3		Universal ID type	ID	CE					Values: Table 0301
MSH	5	00005	Receiving application	HD	RE					
MSH	5.1		Namespace ID	IS	RE					Values: Table 0300
MSH	5.2		Universal ID (CLIA number)	ST	CE					
MSH	5.3		Universal ID type	ID	CE					Values: Table 0301
MSH	6	00006	Receiving facility	HD	RE					
MSH	6.1		Namespace ID	IS	RE					Values: Table 0300
MSH	6.2		Universal ID (CLIA number)	ST	CE					
MSH	6.3		Universal ID type	ID	CE					Values: Table 0301
MSH	7	00007	Date/Time of message	TS	R	7490	E-Path Date/Time Stamp	63		
MSH	8	00008	Security	ST	X					
MSH	9	00009	Message type	MSG	R					“ORU^R01^ORU_R01”
MSH	9.1		Message code	ID	R					Values: Table 0076
MSH	9.2		Trigger event	ID	R					Values: Table 0003
MSH	9.3		Message structure	ID	R					Values: Table 0354
MSH	10	00010	Message control ID	ST	R	7500	Message Control ID	65		
MSH	11	00011	Processing ID	PT	R	7510	Processing ID	66		
MSH	11.1		Processing ID	ID	R	7510	Processing ID	66		Values: Table 0103
MSH	11.2		Processing code	ID	RE					Values: Table 0207
MSH	12	00012	Version ID	VID	R					“2.5.1”
MSH	12.1		Version ID	ID	R					Values: Table 0104

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
MSH	12.2		Internationalization code	CE	RE					
MSH	12.2.1		Identifier	ST	R					Values: Table 0399
MSH	12.2.2		Text	ST	RE					
MSH	12.2.3		Name of coding system	ID	R					“HL70399” or “ISO3166_1”
MSH	12.2.4		Alternate identifier	ST	RE					
MSH	12.2.5		Alternate text	ST	RE					
MSH	12.2.6		Name of alternate coding system	ID	RE					Values: Table 0396
MSH	12.3		International version ID	CE	X					
MSH	13	00013	Sequence number	NM	RE					
MSH	14	00014	Continuation pointer	ST	CE					
MSH	15	00015	Accept acknowledgment type	ID	X					
MSH	16	00016	Application acknowledgment type	ID	X					
MSH	17	00017	Country code	ID	RE					Values: Table 0399
MSH	18	00692	Character set	ID	X				3	
MSH	19	00693	Principal language of message	CE	RE					
MSH	19.1		Identifier	ST	R					Values from ISO 639
MSH	19.2		Text	ST	RE					
MSH	19.3		Name of coding system	ID	R					Values: “ISO639” or value from Table 0396
MSH	19.4		Alternate identifier	ST	RE					
MSH	19.5		Alternate text	ST	RE					
MSH	19.6		Name of alternate coding system	ID	RE					Values: Table 0396
MSH	20	01317	Alternate character set handling scheme	ID	X					
MSH	21	01598	Message profile identifier	EI	RE				3	
MSH	21.1		Entity identifier	ST	R					
MSH	21.2		Namespace ID	IS	RE					Values: Table 0300
MSH	21.3		Universal ID	ST	CE					
MSH	21.4		Universal ID type	ID	CE					Values: Table 0301
SFT	1	01834	Software vendor organization	XON	R				1	
SFT	1.1		Organization name	ST	RE					
SFT	1.2		Organization name type code	IS	RE					Values: Table 0204
SFT	1.3		ID number	NM	X					
SFT	1.4		Check digit	NM	X					
SFT	1.5		Code identifying the check digit scheme	ID	X					
SFT	1.6		Assigning authority	HD	RE					
SFT	1.6.1		Namespace ID	IS	RE					Values: Table 0300
SFT	1.6.2		Universal ID (CLIA number)	ST	CE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
SFT	1.6.3		Universal ID type	ID	CE					Values: "CLIA" or value from Table 0301
SFT	1.7		Identifier type code	ID	RE					Values: Table 0203
SFT	1.8		Assigning facility	HD	RE					
SFT	1.8.1		Namespace ID	IS	RE					Values: Table 0300
SFT	1.8.2		Universal ID (CLIA number)	ST	CE					
SFT	1.8.3		Universal ID type	ID	CE					Values: Table 0301
SFT	1.9		Name representation code	ID	X					
SFT	1.10		Organization identifier	ST	RE					
SFT	2	01835	Software certified version or release number	ST	R				1	
SFT	3	01836	Software product name	ST	R				1	
SFT	4	01837	Software binary ID	ST	R				1	
SFT	5	01838	Software product information	TX	RE				1	
SFT	6	01839	Software install date	TS	RE				1	
DSC	1	00014	Continuation pointer	ST	RE					
DSC	2	01354	Continuation style	ID	RE					Values: Table 0398
MSA	1	00018	Acknowledgment code	ID	R					Values: Table 0008
MSA	2	00010	Message control ID	ST	R					
MSA	3	00020	Text message	ST	CE					
MSA	4	00021	Expected sequence number	NM	RE					
MSA	5	00022	Delayed acknowledgment type		W					Withdrawn from HL7 standard as of version 2.5
MSA	6	00023	Error condition	CE	CE					Values: Table 0357
MSA	6.1		Identifier	ST	R					Values: Table 0357
MSA	6.2		Text	ST	RE					
MSA	6.3		Name of coding system	ID	R					"HL70357"
MSA	6.4		Alternate identifier	ST	RE					
MSA	6.5		Alternate text	ST	RE					
MSA	6.6		Name of alternate coding system	ID	RE					Values: Table 0396
ERR	1	00024	Error code and location	ELD	X					
ERR	2	01812	Error location	ERL	RE					
ERR	2.1		Segment ID	ST	R					
ERR	2.2		Segment sequence	NM	R					
ERR	2.3		Field position	NM	RE					
ERR	2.4		Field repetition	NM	RE					
ERR	2.5		Component number	NM	RE					
ERR	2.6		Sub-component number	NM	RE					
ERR	3	01813	HL7 error code	CWE	R					Values: Table 0357

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
ERR	3.1		Identifier	ST	R					Values: Table 0357
ERR	3.2		Text	ST	RE					
ERR	3.3		Name of coding system	ID	R					“HL70357”
ERR	3.4		Alternate identifier	ST	RE					
ERR	3.5		Alternate text	ST	RE					
ERR	3.6		Name of alternate coding system	ID	RE					Values: Table 0396
ERR	3.7		Coding system version ID	ST	CE					
ERR	3.8		Alternate coding system version ID	ST	CE					
ERR	3.9		Original text	ST	RE					
ERR	4	01814	Severity	ID	R					Values: Table 0516
ERR	5	01815	Application error code	CWE	X					
ERR	6	01816	Application error parameter	ST	X					
ERR	7	01817	Diagnostic information	TX	RE					
ERR	8	01818	User message	TX	RE					
ERR	9	01819	Inform person indicator	IS	X					
ERR	10	01820	Override type	CWE	X					
ERR	11	01821	Override reason code	CWE	X					
ERR	12	01822	Help desk contact point	XTN	RE					
ERR	12.1		Telephone number	ST	X					
ERR	12.2		Telecommunication use code	ID	RE					Values: Table 0201
ERR	12.3		Telecommunication equipment type	ID	RE					Values: Table 0202
ERR	12.4		Email address	ST	RE					
ERR	12.5		Country code	NM	RE					
ERR	12.6		Area/city code	NM	RE					
ERR	12.7		Phone number	NM	RE					
ERR	12.8		Extension	NM	RE					
ERR	12.9		Any text	ST	RE					
ERR	12.10		Extension prefix	ST	RE					
ERR	12.11		Speed dial code	ST	RE					
ERR	12.12		Unformatted telephone number	ST	RE					
PID	1	00104	Set ID – PID	SI	R					
PID	2	00105	Patient ID (external)	CX	RE					
PID	2.1		ID number	ST	R					
PID	2.2		Check digit	ST	X					
PID	2.3		Code identifying check digit schema	ID	X					
PID	2.4		Assigning Authority	HD	R					
PID	2.4.1		Assigning authority.Namespace ID	IS	RE					Values: Table 0363
PID	2.4.2		Assigning authority.Universal ID	ST	CE					
PID	2.4.3		Assigning authority.Universal ID type	ID	CE					Values: Table 0301

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	2.5		Identifier type code	ID	RE					Values: Table 0203
PID	2.6		Assigning facility	HD	RE					
PID	2.6.1		Assigning facility.Namespace ID	IS	RE					Values: Table 0363
PID	2.6.2		Assigning facility.Universal ID	ST	CE					
PID	2.6.3		Assigning facility.Universal ID type	ID	CE					Values: Table 0301
PID	2.7		Effective Date	DT	RE					
PID	2.8		Expiration Date	DT	RE					
PID	2.9		Assigning jurisdiction	CWE	RE					
PID	2.9.1		Identifier	ST	R					
PID	2.9.2		Text	ST	RE					
PID	2.9.3		Name of coding system	ID	R					Values: Table 0396
PID	2.9.4		Alternate identifier	ST	RE					
PID	2.9.5		Alternate text	ST	RE					
PID	2.9.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	2.9.7		Coding system version ID	ST	CE					
PID	2.9.8		Alternate coding system version ID	ST	CE					
PID	2.9.9		Original text	ST	RE					
PID	2.10		Assigning agency or department	CWE	RE					
PID	2.10.1		Identifier	ST	R					
PID	2.10.2		Text	ST	RE					
PID	2.10.3		Name of coding system	ID	R					Values: Table 0396
PID	2.10.4		Alternate identifier	ST	RE					
PID	2.10.5		Alternate text	ST	RE					
PID	2.10.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	2.10.7		Coding system version ID	ST	CE					
PID	2.10.8		Alternate coding system version ID	ST	CE					
PID	2.10.9		Original text	ST	RE					
PID	3	00106	Patient identifier list	CX	R	2300, 2320	Social Security Number, Medical Record Number	20, 22	8	
PID	3.1		ID number	ST	R	2300	Medical Record Number	22		
PID	3.2		Check digit	ST	X					
PID	3.3		Code identifying check digit schema	ID	X					
PID	3.4		Assigning authority	HD	R					
PID	3.4.1		Assigning authority.Namespace ID	IS	RE					Values: Table 0363
PID	3.4.2		Assigning authority.Universal ID	ST	CE					
PID	3.4.3		Assigning authority.Universal ID type	ID	CE					Values: Table 0301
PID	3.5		Identifier type code	ID	RE					Values: Table 0203

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	3.6		Assigning facility	HD	RE					
PID	3.6.1		Assigning facility.Namespace ID	IS	RE					Values: Table 0363
PID	3.6.2		Assigning facility.Universal ID	ST	CE					
PID	3.6.3		Assigning facility.Universal ID type	ID	CE					Values: Table 0301
PID	3.7		Effective Date	DT	RE					
PID	3.8		Expiration Date	DT	RE					
PID	3.9		Assigning jurisdiction	CWE	RE					
PID	3.9.1		Identifier	ST	R					
PID	3.9.2		Text	ST	RE					
PID	3.9.3		Name of coding system	ID	R					Values: Table 0396
PID	3.9.4		Alternate identifier	ST	RE					
PID	3.9.5		Alternate text	ST	RE					
PID	3.9.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	3.9.7		Coding system version ID	ST	CE					
PID	3.9.8		Alternate coding system version ID	ST	CE					
PID	3.9.9		Original text	ST	RE					
PID	3.10		Assigning agency or department	CWE	RE					
PID	3.10.1		Identifier	ST	R					
PID	3.10.2		Text	ST	RE					
PID	3.10.3		Name of coding system	ID	R					Values: Table 0396
PID	3.10.4		Alternate identifier	ST	RE					
PID	3.10.5		Alternate text	ST	RE					
PID	3.10.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	3.10.7		Coding system version ID	ST	CE					
PID	3.10.8		Alternate coding system version ID	ST	CE					
PID	3.10.9		Original text	ST	RE					
PID	Repeat									
PID	3.1		ID number	ST	RE	2320	Social Security Number	20		
PID	3.2		Check digit	ST	X					
PID	3.3		Code identifying check digit schema	ID	X					
PID	3.4		Assigning authority	HD	R					
PID	3.4.1		Assigning authority.Namespace ID	IS	RE					Values: Table 0363
PID	3.4.2		Assigning authority.Universal ID	ST	CE					
PID	3.4.3		Assigning authority.Universal ID type	ID	CE					Values: Table 0301
PID	3.5		Identifier type code	ID	RE					Values: Table 0203
PID	3.6		Assigning facility	HD	RE					
PID	3.6.1		Assigning facility.Namespace ID	IS	RE					Values: Table 0363
PID	3.6.2		Assigning facility.Universal ID	ST	CE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	3.6.3		Assigning facility.Universal ID type	ID	CE					Values: Table 0301
PID	3.7		Effective date	DT	RE					
PID	3.8		Expiration date	DT	RE					
PID	3.9		Assigning jurisdiction	CWE	RE					
PID	3.9.1		Identifier	ST	R					
PID	3.9.2		Text	ST	RE					
PID	3.9.3		Name of coding system	ID	R					Values: Table 0396
PID	3.9.4		Alternate identifier	ST	RE					
PID	3.9.5		Alternate text	ST	RE					
PID	3.9.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	3.9.7		Coding system version ID	ST	CE					
PID	3.9.8		Alternate coding system version ID	ST	CE					
PID	3.9.9		Original text	ST	RE					
PID	3.10		Assigning agency or department	CWE	RE					
PID	3.10.1		Identifier	ST	R					
PID	3.10.2		Text	ST	RE					
PID	3.10.3		Name of coding system	ID	R					Values: Table 0396
PID	3.10.4		Alternate identifier	ST	RE					
PID	3.10.5		Alternate text	ST	RE					
PID	3.10.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	3.10.7		Coding system version ID	ST	CE					
PID	3.10.8		Alternate coding system version ID	ST	CE					
PID	3.10.9		Original text	ST	RE					
PID	Repeat									
PID	3.1		ID number	ST	RE					
PID	3.2		Check digit	ST	X					
PID	3.3		Code identifying check digit schema	ID	X					
PID	3.4		Assigning authority	HD	R					
PID	3.4.1		Assigning authority.Namespace ID	IS	RE					Values: Table 0363
PID	3.4.2		Assigning authority.Universal ID	ST	CE					
PID	3.4.3		Assigning authority.Universal ID type	ID	CE					Values: Table 0301
PID	3.5		Identifier type code	ID	RE					Values: Table 0203
PID	3.6		Assigning facility	HD	RE					
PID	3.6.1		Assigning facility.Namespace ID	IS	RE					Values: Table 0363
PID	3.6.2		Assigning facility.Universal ID	ST	CE					
PID	3.6.3		Assigning facility.Universal ID type	ID	CE					Values: Table 0301
PID	3.7		Effective date	DT	RE					
PID	3.8		Expiration date	DT	RE					
PID	3.9		Assigning jurisdiction	CWE	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	3.9.1		Identifier	ST	R					
PID	3.9.2		Text	ST	RE					
PID	3.9.3		Name of coding system	ID	R					Values: Table 0396
PID	3.9.4		Alternate identifier	ST	RE					
PID	3.9.5		Alternate text	ST	RE					
PID	3.9.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	3.9.7		Coding system version ID	ST	CE					
PID	3.9.8		Alternate coding system version ID	ST	CE					
PID	3.9.9		Original text	ST	RE					
PID	3.10		Assigning agency or department	CWE	RE					
PID	3.10.1		Identifier	ST	R					
PID	3.10.2		Text	ST	RE					
PID	3.10.3		Name of coding system	ID	R					Values: Table 0396
PID	3.10.4		Alternate identifier	ST	RE					
PID	3.10.5		Alternate text	ST	RE					
PID	3.10.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	3.10.7		Coding system version ID	ST	CE					
PID	3.10.8		Alternate coding system version ID	ST	CE					
PID	3.10.9		Original Text	ST	RE					
PID	4	00107	Alternate patient ID – PID	CX	X				8	
PID	5	00108	Patient name	XPN	R	2230, 2240, 2250	Name--Last, Name--First, and Name--Middle	10-12	8	
PID	5.1		Family name	FN	R	2230	Name--Last	10		
PID	5.1.1		Surname	ST	R	2230	Name--Last	10		
PID	5.1.2		Own surname prefix	ST	RE					
PID	5.1.3		Own surname	ST	RE					
PID	5.1.4		Surname prefix from partner/spouse	ST	RE					
PID	5.1.5		Surname from partner/spouse	ST	RE					
PID	5.2		Given name	ST	RE	2240	Name--First	11		
PID	5.3		Middle initial or name	ST	RE	2250	Name--Middle	12		
PID	5.4		Suffix	ST	RE					
PID	5.5		Prefix	ST	RE					
PID	5.6		Degree	ST	X					
PID	5.7		Name type code	ID	RE					Values: Table 0200
PID	5.8		Name representation code	ID	X					
PID	5.9		Name context	CE	X					
PID	5.10		Name validity range	DR	X					
PID	5.11		Name assembly order	ID	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	5.12		Effective date	TS	X					
PID	5.13		Expiration date	TS	X					
PID	5.14		Professional suffix	ST	X					
PID	6	00109	Mother's maiden name	XPN	X					
PID	7	00110	Date/time of birth	TS	RE	240	Birth Date	18		
PID	8	00111	Sex	IS	RE	220	Sex	21		Values: Table 0001
PID	9	00112	Patient alias	XPN	RE	2280	Name-Alias		8	
PID	9.1		Family name	FN	R					
PID	9.1.1		Surname	ST	R					
PID	9.1.2		Own surname prefix	ST	RE					
PID	9.1.3		Own surname	ST	RE					
PID	9.1.4		Surname prefix from partner/spouse	ST	RE					
PID	9.1.5		Surname from partner/spouse	ST	RE					
PID	9.2		Given name	ST	RE					
PID	9.3		Middle initial or name	ST	RE					
PID	9.4		Suffix	ST	RE					
PID	9.5		Prefix	ST	RE					
PID	9.6		Degree	ST	X					
PID	9.7		Name type code	ID	RE					Values: Table 0200
PID	9.8		Name representation code	ID	X					
PID	9.9		Name context	CE	X					
PID	9.10		Name validity range	DR	X					
PID	9.11		Name assembly order	ID	X					
PID	9.12		Effective date	TS	X					
PID	9.13		Expiration date	TS	X					
PID	9.14		Professional suffix	ST	X					
PID	10	00113	Race	CE	RE	160	Race 1	67	6	
PID	10.1		Identifier	ST	R	160	Race 1	67		Values: Table 0005
PID	10.2		Text	ST	RE					
PID	10.3		Name of coding system	ST	R					"HL70005"
PID	10.4		Alternate identifier	ST	RE					
PID	10.5		Alternate text	ST	RE					
PID	10.6		Name of alternate coding system	ST	RE					Values: Table 0396

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	11	00114	Patient address	XAD	RE	70, 80, 100, 2330, 7520	Addr at DX--City, Addr at DX--State, Addr at DX--Postal Code, and Addr at DX--No & Street, Address Type Code	14-16, 13, 68	4	
PID	11.1		Street address	SAD	RE	2330	Addr at DX--No & Street	13		
PID	11.1.1		Street or mailing address	ST	R	2330	Addr at DX--No & Street	13		
PID	11.1.2		Street name	ST	RE					
PID	11.1.3		Dwelling number	ST	RE					
PID	11.2		Other designation	ST	RE	2330	Addr at DX--No & Street	13		
PID	11.3		City	ST	RE	70	Addr at DX--City	14		
PID	11.4		State or province	ST	RE	80	Addr at DX--State	15		
PID	11.5		ZIP or postal code	ST	RE	100	Addr at DX--Postal Code	16		
PID	11.6		Country	ID	RE					Values: Table 0399 or ISO3166-1
PID	11.7		Address type	ID	RE	7520	Address Type Code	68		Values: Table 0190
PID	11.8		Other geographic designation	ST	X					
PID	11.9		County/parish code	IS	RE					Values: Table 0289
PID	11.10		Census tract	IS	X					
PID	11.11		Address representation code	ID	X					
PID	11.12		Address validity range	DR	X					
PID	11.13		Effective date	TS	X					
PID	11.14		Expiration date	TS	X					
PID	12	00115	County code	IS	X					
PID	13	00116	Phone number – home	XTN	RE	2360	Telephone	17	8	
PID	13.1		Telephone number	ST	CE	2360	Telephone	17		
PID	13.2		Telecommunication use code	ID	RE					Values: Table 0201
PID	13.3		Telecommunication equipment type	ID	RE					Values: Table 0202
PID	13.4		Email address	ST	RE					
PID	13.5		Country code	NM	RE					
PID	13.6		Area/city code	NM	RE	2360	Telephone	17		
PID	13.7		Phone number	NM	RE	2360	Telephone	17		
PID	13.8		Extension	NM	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	13.9		Any text	ST	RE					
PID	13.10		Extension prefix	ST	RE					
PID	13.11		Speed dial code	ST	RE					
PID	13.12		Unformatted telephone number	ST	RE					
PID	14	00117	Phone number – business	XTN	RE				4	
PID	14.1		Telephone number	ST	CE					
PID	14.2		Telecommunication use code	ID	RE					Values: Table 0201
PID	14.3		Telecommunication equipment type	ID	RE					Values: Table 0202
PID	14.4		Email address	ST	RE					
PID	14.5		Country code	NM	RE					
PID	14.6		Area/city code	NM	RE					
PID	14.7		Phone number	NM	RE					
PID	14.8		Extension	NM	RE					
PID	14.9		Any text	ST	RE					
PID	14.10		Extension prefix	ST	RE					
PID	14.11		Speed dial code	ST	RE					
PID	14.12		Unformatted telephone number	ST	RE					
PID	15	00118	Primary language	CE	RE					
PID	15.1		Identifier	ST	R					Values: Table 0296 or ISO639
PID	15.2		Text	ST	RE					
PID	15.3		Name of coding system	ID	R					Values: Table 0396 ; Table 0296 ; or ISO639
PID	15.4		Alternate identifier	ST	RE					
PID	15.5		Alternate text	ST	RE					
PID	15.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	16	00119	Marital status	CE	RE	150	Marital Status			
PID	16.1		Identifier	ST	R	150	Marital Status			Values : Table 0002
PID	16.2		Text	ST	RE					
PID	16.3		Name of coding system	ID	R					Values: Table 0002
PID	16.4		Alternate identifier	ST	RE					
PID	16.5		Alternate text	ST	RE					
PID	16.6		Name of Alternate coding system	ID	RE					Values: Table 0396
PID	17	00120	Religion	CE	RE	260	Religion			
PID	17.1		Identifier	ST	R	260	Religion			Values: Table 0006
PID	17.2		Text	ST	RE					
PID	17.3		Name of coding system	ID	R					Values: Table 0006
PID	17.4		Alternate identifier	ST	RE					
PID	17.5		Alternate text	ST	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	17.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	18	00121	Patient account number	CX	CE					
PID	18.1		ID number	ST	RE					
PID	18.2		Check digit	ST	X					
PID	18.3		Code identifying check digit schema	ID	X					
PID	18.4		Assigning authority	HD	R					
PID	18.4.1		Assigning authority.Namespace ID	IS	RE					Values: Table 0363
PID	18.4.2		Assigning authority.Universal ID	ST	CE					
PID	18.4.3		Assigning authority.Universal ID type	ID	CE					Values: Table 0301
PID	18.5		Identifier type code	ID	RE					Values: Table 0203
PID	18.6		Assigning facility	HD	RE					
PID	18.6.1		Assigning facility.Namespace ID	IS	RE					Values: Table 0363
PID	18.6.2		Assigning facility.Universal ID	ST	CE					
PID	18.6.3		Assigning facility.Universal ID type	ID	CE					Values: Table 0301
PID	18.7		Effective date	DT	RE					
PID	18.8		Expiration date	DT	RE					
PID	18.9		Assigning jurisdiction	CWE	RE					
PID	18.9.1		Identifier	ST	R					
PID	18.9.2		Text	ST	RE					
PID	18.9.3		Name of coding system	ID	R					Values: Table 0396
PID	18.9.4		Alternate identifier	ST	RE					
PID	18.9.5		Alternate text	ST	RE					
PID	18.9.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	18.9.7		Coding system version ID	ST	CE					
PID	18.9.8		Alternate coding system version ID	ST	CE					
PID	18.9.9		Original text	ST	RE					
PID	18.10		Assigning agency or department	CWE	RE					
PID	18.10.1		Identifier	ST	R					
PID	18.10.2		Text	ST	RE					
PID	18.10.3		Name of coding system	ID	R					Values: Table 0396
PID	18.10.4		Alternate identifier	ST	RE					
PID	18.10.5		Alternate text	ST	RE					
PID	18.10.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	18.10.7		Coding system version ID	ST	CE					
PID	18.10.8		Alternate coding system version ID	ST	CE					
PID	18.10.9		Original text	ST	RE					
PID	19	00122	SSN number – patient	ST	CE					
PID	20	00123	Driver’s license number – patient	DLN	X					
PID	21	00124	Mother’s identifier	CX	X				2	

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PID	22	00125	Ethnic group	CE	RE	190	Spanish/Hispanic Origin	78	4	
PID	22.1		Identifier	ST	R	190	Spanish/Hispanic Origin	78		Values: Table 0189
PID	22.2		Text	ST	RE					
PID	22.3		Name of coding system	ID	R					"HL70189"
PID	22.4		Alternate identifier	ST	RE					
PID	22.5		Alternate text	ST	RE					
PID	22.6		Name of Alternate coding system	ID	RE					Values: Table 0396
PID	23	00126	Birth place	ST	RE					
PID	24	00127	Multiple birth indicator	ID	X					
PID	25	00128	Birth order	NM	X					
PID	26	00129	Citizenship	CE	X					
PID	27	00130	Veterans military status	CE	X					
PID	28	00739	Nationality	CE	X					
PID	29	00740	Patient death date and time	TS	RE					
PID	30	00741	Patient death indicator	ID	RE	1760	Vital Status			Values: Table 0136
PID	31	01535	Identity unknown indicator	ID	RE					Values: Table 0136
PID	32	01536	Identity reliability code	IS	RE					Values: Table 0445
PID	33	01537	Last update date/time	TS	X					
PID	34	01538	Last update facility	HD	X					
PID	35	01539	Species code	CE	X					
PID	36	01540	Breed code	CE	X					
PID	37	01541	Strain	ST	X					
PID	38	01542	Production class code	CE	X					
PID	39	01840	Tribal citizenship	CWE	RE					
PID	39.1		Identifier	ST	R					Values: Table 0171
PID	39.2		Text	ST	RE					
PID	39.3		Name of coding system	ID	R					"HL70171"
PID	39.4		Alternate identifier	ST	RE					
PID	39.5		Alternate text	ST	RE					
PID	39.6		Name of alternate coding system	ID	RE					Values: Table 0396
PID	39.7		Coding system version ID	ST	CE					
PID	39.8		Alternate coding system version ID	ST	CE					
PID	39.9		Original text	ST	RE					
NK1	1	00190	Set ID – NK1+	SI	R					
NK1	2	00191	Name	XPN	RE				4	
NK1	2.1		Family name	FN	R					
NK1	2.1.1		Surname	ST	R					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
NK1	2.1.2		Own surname prefix	ST	RE					
NK1	2.1.3		Own surname	ST	RE					
NK1	2.1.4		Surname prefix from partner/spouse	ST	RE					
NK1	2.1.5		Surname from partner/spouse	ST	RE					
NK1	2.2		Given name	ST	RE					
NK1	2.3		Middle initial or name	ST	RE					
NK1	2.4		Suffix	ST	RE					
NK1	2.5		Prefix	ST	RE					
NK1	2.6		Degree	ST	X					
NK1	2.7		Name type code	ID	RE					Values: Table 0200
NK1	2.8		Name representation code	ID	X					
NK1	2.9		Name context	CE	X					
NK1	2.10		Name validity range	DR	X					
NK1	2.11		Name assembly order	ID	X					
NK1	2.12		Effective date	TS	X					
NK1	2.13		Expiration date	TS	X					
NK1	2.14		Professional suffix	ST	X					
NK1	3	00192	Relationship	CE	RE					
NK1	3.1		Identifier	ST	R					Values: Table 0063
NK1	3.2		Text	ST	RE					
NK1	3.3		Name of coding system	ID	R					"HL70063"
NK1	3.4		Alternate identifier	ST	RE					
NK1	3.5		Alternate text	ST	RE					
NK1	3.6		Name of alternate coding system	ID	RE					Values: Table 0396
NK1	4	00193	Address	XAD	RE				4	
NK1	4.1		Street address	SAD	RE					
NK1	4.1.1		Street or mailing address	ST	R					
NK1	4.1.2		Street name	ST	RE					
NK1	4.1.3		Dwelling number	ST	RE					
NK1	4.2		Other designation	ST	RE					
NK1	4.3		City	ST	RE					
NK1	4.4		State or province	ST	RE					
NK1	4.5		ZIP or postal code	ST	RE					
NK1	4.6		Country	ID	RE					Values: Table 0399 or ISO3166-1
NK1	4.7		Address type	ID	RE					Values: Table 0190
NK1	4.8		Other geographic designation	ST	X					
NK1	4.9		County/parish code	IS	RE					Values: Table 0289
NK1	4.10		Census tract	IS	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
NK1	4.11		Address representation code	ID	X					
NK1	4.12		Address validity range	DR	X					
NK1	4.13		Effective date	TS	X					
NK1	4.14		Expiration date	TS	X					
NK1	5	00194	Phone number	XTN	RE				4	
NK1	5.1		Telephone number	ST	CE					
NK1	5.2		Telecommunication use code	ID	RE					Values: Table 0201
NK1	5.3		Telecommunication equipment type	ID	RE					Values: Table 0202
NK1	5.4		Email address	ST	RE					
NK1	5.5		Country code	NM	RE					
NK1	5.6		Area/city code	NM	RE					
NK1	5.7		Phone number	NM	RE					
NK1	5.8		Extension	NM	RE					
NK1	5.9		Any text	ST	RE					
NK1	5.10		Extension prefix	ST	RE					
NK1	5.11		Speed dial code	ST	RE					
NK1	5.12		Unformatted telephone number	ST	RE					
NK1	6	00195	Business phone number	XTN	X					
NK1	7	00196	Contact role	CE	X					
NK1	8	00197	Start date	DT	X					
NK1	9	00198	End date	DT	X					
NK1	10	00199	Next of kin/AP job title	ST	X					
NK1	11	00200	Next of kin/AP job code/class	JCC	X					
NK1	12	00201	Next of kin/AP employee number	CX	X					
NK1	13	00202	Organization name – NK1	XON	X					
NK1	14	00119	Marital status	CE	X					
NK1	15	00111	Sex	IS	X					
NK1	16	00110	Date/time of birth	TS	X					
NK1	17	00755	Living dependency	IS	X					
NK1	18	00145	Ambulatory status	IS	X					
NK1	19	00129	Citizenship	CE	X					
NK1	20	00118	Primary language	CE	X					
NK1	21	00742	Living arrangement	IS	X					
NK1	22	00743	Publicity code	CE	X					
NK1	23	00744	Protection indicator	ID	X					
NK1	24	00745	Student indicator	IS	X					
NK1	25	00120	Religion	CE	X					
NK1	26	00746	Mother's maiden name	XPN	X					
NK1	27	00739	Nationality	CE	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
NK1	28	00125	Ethnic group	CE	X					
NK1	29	00747	Contact reason	CE	X					
NK1	30	00748	Contact person's name	XPN	X					
NK1	31	00749	Contact person's telephone number	XTN	X					
NK1	32	00750	Contact person's address	XAD	X					
NK1	33	00751	Next of kin/AP's identifiers	CX	X					
NK1	34	00752	Job status	IS	X					
NK1	35	00113	Race	CE	X					
NK1	36	00753	Handicap	IS	X					
NK1	37	00754	Contact person social security #	ST	X					
NK1	38	01905	Next of kin birth place	ST	X					
NK1	39	00146	VIP indicator	IS	X					
PV1	1	00131	Set ID – PV1	SI	RE					
PV1	2	00132	Patient class	IS	R					Values: Table 0004
PV1	3	00133	Assigned patient location	PL	X					
PV1	4	00134	Admission type	IS	X					
PV1	5	00135	Preadmit number	CX	X					
PV1	6	00136	Prior patient location	PL	X					
PV1	7	00137	Attending doctor	XCN	RE				2	
PV1	7.1		ID number	ST	RE	2460	Physician Managing	69		
PV1	7.2		Family name	FN	R					
PV1	7.2.1		Surname	ST	R					
PV1	7.2.2		Own surname prefix	ST	RE					
PV1	7.2.3		Own surname	ST	RE					
PV1	7.2.4		Surname prefix from partner/spouse	ST	RE					
PV1	7.2.5		Surname from partner/spouse	ST	RE					
PV1	7.2.1		Surname	ST	R					
PV1	7.2.2		Own surname prefix	ST	RE					
PV1	7.2.3		Own surname	ST	RE					
PV1	7.2.4		Surname prefix from partner/spouse	ST	RE					
PV1	7.2.5		Surname from partner/spouse	ST	RE					
PV1	7.3		Given name	ST	RE					
PV1	7.4		Second and further given names or initials thereof	ST	RE					
PV1	7.5		Suffix	ST	RE					
PV1	7.6		Prefix	ST	RE					
PV1	7.7		Degree	IS	X					
PV1	7.8		Source table	IS	CE					Values: Table 0297

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PV1	7.9		Assigning authority	HD	RE					
PV1	7.9.1		Namespace ID	IS	RE					Values: Table 0363
PV1	7.9.2		Universal ID	ST	CE					
PV1	7.9.3		Universal ID type	ID	CE					Values: Table 0301
PV1	7.10		Name type code	ID	RE					Values: Table 0200
PV1	7.11		Identifier check digit	ST	X					
PV1	7.12		Code identifying check digit scheme	ID	X					
PV1	7.13		Identifier type code	ID	RE					Values: Table 0203
PV1	7.14		Assigning facility	HD	RE					
PV1	7.14.1		Namespace ID	IS	RE					Values: Table 0363
PV1	7.14.2		Universal ID	ST	CE					
PV1	7.14.3		Universal ID type	ID	CE					Values: Table 0301
PV1	7.15		Name representation code	ID	X					
PV1	7.16		Name context	CE	X					
PV1	7.17		Name validity range	DR	X					
PV1	7.18		Name assembly order	ID	X					
PV1	7.19		Effective date	TS	X					
PV1	7.20		Expiration date	TS	X					
PV1	7.21		Professional suffix	ST	X					
PV1	7.22		Assigning jurisdiction	CWE	X					
PV1	7.23		Assigning agency or department	CWE	X					
PV1	8	00138	Referring doctor	XCN	RE				2	
PV1	8.1		ID number	ST	RE	2470	Physician Follow-up	70		
PV1	8.2		Family name	FN	R					
PV1	8.2.1		Surname	ST	R					
PV1	8.2.2		Own surname prefix	ST	RE					
PV1	8.2.3		Own surname	ST	RE					
PV1	8.2.4		Surname prefix from partner/spouse	ST	RE					
PV1	8.2.5		Surname from partner/spouse	ST	RE					
PV1	8.3		Given name	ST	RE					
PV1	8.4		Second and further given names or initials thereof	ST	RE					
PV1	8.5		Suffix	ST	RE					
PV1	8.6		Prefix	ST	RE					
PV1	8.7		Degree	IS	X					
PV1	8.8		Source table	IS	CE					Values: Table 0297
PV1	8.9		Assigning authority	HD	RE					
PV1	8.9.1		Namespace ID	IS	RE					Values: Table 0363

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PV1	8.9.2		Universal ID	ST	CE					
PV1	8.9.3		Universal ID type	ID	CE					Values: Table 0301
PV1	8.10		Name type code	ID	RE					Values: Table 0200
PV1	8.11		Identifier check digit	ST	X					
PV1	8.12		Code identifying check digit scheme	ID	X					
PV1	8.13		Identifier type code	ID	RE					Values: Table 0203
PV1	8.14		Assigning facility	HD	RE					
PV1	8.14.1		Namespace ID	IS	RE					Values: Table 0363
PV1	8.14.2		Universal ID	ST	CE					
PV1	8.14.3		Universal ID type	ID	CE					Values: Table 0301
PV1	8.15		Name representation code	ID	X					
PV1	8.16		Name context	CE	X					
PV1	8.17		Name validity range	DR	X					
PV1	8.18		Name assembly order	ID	X					
PV1	8.19		Effective date	TS	X					
PV1	8.20		Expiration date	TS	X					
PV1	8.21		Professional suffix	ST	X					
PV1	8.22		Assigning jurisdiction	CWE	X					
PV1	8.23		Assigning agency or department	CWE	X					
PV1	9	00139	Consulting doctor	XCN	RE				2	
PV1	9.1		ID Number	ST	RE					
PV1	9.2		Family name	FN	R					
PV1	9.2.1		Surname	ST	R					
PV1	9.2.2		Own surname prefix	ST	RE					
PV1	9.2.3		Own surname	ST	RE					
PV1	9.2.4		Surname prefix from partner/spouse	ST	RE					
PV1	9.2.5		Surname from partner/spouse	ST	RE					
PV1	9.3		Given name	ST	RE					
PV1	9.4		Second and further given names or initials thereof	ST	RE					
PV1	9.5		Suffix	ST	RE					
PV1	9.6		Prefix	ST	RE					
PV1	9.7		Degree	IS	X					
PV1	9.8		Source table	IS	CE					Values: Table 0297
PV1	9.9		Assigning authority	HD	RE					
PV1	9.9.1		Namespace ID	IS	RE					Values: Table 0363
PV1	9.9.2		Universal ID	ST	CE					
PV1	9.9.3		Universal ID type	ID	CE					Values: Table 0301
PV1	9.10		Name type code	ID	RE					Values: Table 0200

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PV1	9.11		Identifier check digit	ST	X					
PV1	9.12		Code identifying check digit scheme	ID	X					
PV1	9.13		Identifier type code	ID	RE					Values: Table 0203
PV1	9.14		Assigning facility	HD	RE					
PV1	9.14.1		Namespace ID	IS	RE					Values: Table 0363
PV1	9.14.2		Universal ID	ST	CE					
PV1	9.14.3		Universal ID type	ID	CE					Values: Table 0301
PV1	9.15		Name representation code	ID	X					
PV1	9.16		Name context	CE	X					
PV1	9.17		Name validity range	DR	X					
PV1	9.18		Name assembly order	ID	X					
PV1	9.19		Effective date	TS	X					
PV1	9.20		Expiration date	TS	X					
PV1	9.21		Professional suffix	ST	X					
PV1	9.22		Assigning jurisdiction	CWE	X					
PV1	9.23		Assigning agency or department	CWE	X					
PV1	10	00140	Hospital service	IS	X					
PV1	11	00141	Temporary location	PL	X					
PV1	12	00142	Preadmit test indicator	IS	X					
PV1	13	00143	Re-admission indicator	IS	X					
PV1	14	00144	Admit source	IS	X					
PV1	15	00145	Ambulatory status	IS	X					
PV1	16	00146	VIP indicator	IS	X					
PV1	17	00147	Admitting doctor	XCN	RE				2	
PV1	17.1		ID number	ST	RE					
PV1	17.2		Family name	FN	R					
PV1	17.2.1		Surname	ST	R					
PV1	17.2.2		Own surname prefix	ST	RE					
PV1	17.2.3		Own surname	ST	RE					
PV1	17.2.4		Surname prefix from partner/spouse	ST	RE					
PV1	17.2.5		Surname from partner/spouse	ST	RE					
PV1	17.3		Given name	ST	RE					
PV1	17.4		Second and further given names or initials thereof	ST	RE					
PV1	17.5		Suffix	ST	RE					
PV1	17.6		Prefix	ST	RE					
PV1	17.7		Degree	IS	X					
PV1	17.8		Source table	IS	CE					Values: Table 0297
PV1	17.9		Assigning authority	HD	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PV1	17.9.1		Namespace ID	IS	RE					Values: Table 0363
PV1	17.9.2		Universal ID	ST	CE					
PV1	17.9.3		Universal ID type	ID	CE					Values: Table 0301
PV1	17.10		Name type code	ID	RE					Values: Table 0200
PV1	17.11		Identifier check digit	ST	X					
PV1	17.12		Code identifying check digit scheme	ID	X					
PV1	17.13		Identifier type code	ID	RE					Values: Table 0203
PV1	17.14		Assigning facility	HD	RE					
PV1	17.14.1		Namespace ID	IS	RE					Values: Table 0363
PV1	17.14.2		Universal ID	ST	CE					
PV1	17.14.3		Universal ID type	ID	CE					Values: Table 0301
PV1	17.15		Name representation code	ID	X					
PV1	17.16		Name context	CE	X					
PV1	17.17		Name validity range	DR	X					
PV1	17.18		Name assembly order	ID	X					
PV1	17.19		Effective date	TS	X					
PV1	17.20		Expiration date	TS	X					
PV1	17.21		Professional suffix	ST	X					
PV1	17.22		Assigning jurisdiction	CWE	X					
PV1	17.23		Assigning agency or department	CWE	X					
PV1	18	00148	Patient type	IS	X					
PV1	19	00149	Visit number	CX	X					
PV1	20	00150	Financial class	FC	X					
PV1	21	00151	Charge price indicator	IS	X					
PV1	22	00152	Courtesy code	IS	X					
PV1	23	00153	Credit rating	IS	X					
PV1	24	00154	Contract code	IS	X					
PV1	25	00155	Contract effective date	DT	X					
PV1	26	00156	Contract amount	NM	X					
PV1	27	00157	Contract period	NM	X					
PV1	28	00158	Interest code	IS	X					
PV1	29	00159	Transfer to bad debt code	IS	X					
PV1	30	00160	Transfer to bad debt date	DT	X					
PV1	31	00161	Bad debt agency code	IS	X					
PV1	32	00162	Bad debt transfer amount	NM	X					
PV1	33	00163	Bad debt recovery amount	NM	X					
PV1	34	00164	Delete account indicator	IS	X					
PV1	35	00165	Delete account date	DT	X					
PV1	36	00166	Discharge disposition	IS	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
PV1	37	00167	Discharged to location	DLD	X					
PV1	38	00168	Diet type	CE	X					
PV1	39	00169	Servicing facility	IS	X					
PV1	40	00170	Bed status	IS	X					
PV1	41	00171	Account status	IS	X					
PV1	42	00172	Pending location	PL	X					
PV1	43	00173	Prior temporary location	PL	X					
PV1	44	00174	Admit date/time	TS	X					
PV1	45	00175	Discharge date/time	TS	X					
PV1	46	00176	Current patient balance	NM	X					
PV1	47	00177	Total charges	NM	X					
PV1	48	00178	Total adjustments	NM	X					
PV1	49	00179	Total payments	NM	X					
PV1	50	00180	Alternate visit ID	CX	X					
PV1	51	01226	Visit indicator	IS	X					
PV1	52	01274	Other health care provider	XCN	X					
ORC	1	00215	Order control	ID	R					"RE"
ORC	2	00216	Placer order number	EI	X					
ORC	3	00217	Filler order number	EI	X					
ORC	4	00218	Placer group number	EI	X					
ORC	5	00219	Order status	ID	X					
ORC	6	00220	Response flag	ID	X					
ORC	7	00221	Quantity/Timing	TQ	X					
ORC	8	00222	Parent	EIP	X					
ORC	9	00223	Date/Time of transaction	TS	X					
ORC	10	00224	Entered by	XCN	X					
ORC	11	00225	Verified by	XCN	X					
ORC	12	00226	Ordering provider	XCN	X					
ORC	13	00227	Enterer's location	PL	X					
ORC	14	00228	Call back phone number	XTN	X					
ORC	15	00229	Order effective date/time	TS	X					
ORC	16	00230	Order control code reason	CE	X					
ORC	17	00231	Entering organization	CE	X					
ORC	18	00232	Entering device	CE	X					
ORC	19	00233	Action by	XCN	X					
ORC	20	01310	Advanced beneficiary notice code	CE	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
ORC	21	01311	Ordering facility name	XON	C	7190, 7200	Path Ordering Facility Number (AHA Number), Path Ordering Facility Name	33, 34	4	
ORC	21.1		Organization name	ST	RE	7200	Path Ordering Facility Name	34		
ORC	21.2		Organization name type code	IS	RE					Values: Table 0204
ORC	21.3		ID number	NM	X					Use component 10 instead
ORC	21.4		Check digit	NM	X					
ORC	21.5		Code identifying the check digit scheme	ID	X					
ORC	21.6		Assigning authority	HD	RE					
ORC	21.6.1		Namespace ID	IS	RE					Values: Table 0363
ORC	21.6.2		Universal ID	ST	CE					
ORC	21.6.3		Universal ID type	ID	CE					Values: Table 0301
ORC	21.7		Identifier type code	ID	RE					Values: Table 0203
ORC	21.8		Assigning facility	HD	RE					
ORC	21.8.1		Namespace ID	IS	RE					Values: Table 0363
ORC	21.8.2		Universal ID	ST	CE					
ORC	21.8.3		Universal ID type	ID	CE					Values: Table 0301
ORC	21.9		Name representation code	ID	X					
ORC	21.10		Organization identifier	ST	RE	7190	Path Ordering Facility Number (AHA or other standard facility Number)	33		
ORC	22	01312	Ordering facility address	XAD	RE	7210, 7220, 7230, 7240, 7235	Path Ordering Fac Addr--No & St, Path Ordering Fac Addr--City, Path Ordering Fac Addr--State, and Path Ordering Fac--Postal Code, Path Order Fac Addr--Country	35-38, 76	4	
ORC	22.1		Street address	SAD	RE	7210	Path Ordering Fac Addr--No & St	35		
ORC	22.1.1		Street or mailing address	ST	R	7210	Path Ordering Fac Addr--No & St	35		

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
ORC	22.1.2		Street name	ST	RE					
ORC	22.1.3		Dwelling number	ST	RE					
ORC	22.2		Other designation	ST	RE	7210	Path Ordering Fac Addr--No & St	35		
ORC	22.3		City	ST	RE	7220	Path Ordering Fac Addr--City	36		
ORC	22.4		State or province	ST	RE	7230	Path Ordering Fac Addr--State	37		
ORC	22.5		ZIP or postal code	ST	RE	7240	Path Ordering Fac--Postal Code	38		
ORC	22.6		Country	ID	RE	7235	Path Ordering Fac--Country	76		Values: Table 0399 or ISO3166-1
ORC	22.7		Address type	ID	RE					Values: Table 0190
ORC	22.8		Other geographic designation	ST	X					
ORC	22.9		County/parish code	IS	RE					Values: Table 0289
ORC	22.10		Census tract	IS	X					
ORC	22.11		Address representation code	ID	X					
ORC	22.12		Address validity range	DR	X					
ORC	22.13		Effective date	TS	X					
ORC	22.14		Expiration date	TS	X					
ORC	23	01313	Ordering facility phone number	XTN	RE	7250	Path Ordering Facility--Telephone	39	4	
ORC	23.1		Telephone number	ST	CE	7250	Path Ordering Facility--Telephone	39		
ORC	23.2		Telecommunication use code	ID	RE					Values: Table 0201
ORC	23.3		Telecommunication equipment type	ID	RE					Values: Table 0202
ORC	23.4		Email address	ST	RE					
ORC	23.5		Country code	NM	RE					
ORC	23.6		Area/city code	NM	RE					
ORC	23.7		Local number	NM	RE					
ORC	23.8		Extension	NM	RE					
ORC	23.9		Any text	ST	RE					
ORC	23.10		Extension Prefix	ST	RE					
ORC	23.11		Speed dial code	ST	RE					
ORC	23.12		Unformatted telephone number	ST	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
ORC	24	01314	Ordering provider address	XAD	RE	7140, 7150, 7160, 7170, 7165	Path Ordering Client/Phys Addr--Street, Path Ordering Client/Phys Addr--City, Path Ordering Client/Phys Addr--State, Path Ordering Client/Phys Addr--Postal Code, Path Ordering Client/Phys Addr--Country	28-31, 73	4	
ORC	24.1		Street address	SAD	RE	7140	Path Ordering Client/Phys Addr--Street	28		
ORC	22.1.1		Street or mailing address	ST	R	7140	Path Ordering Client/Phys Addr--Street	28		
ORC	22.1.2		Street name	ST	RE	7140	Path Ordering Client/Phys Addr--Street	28		
ORC	22.1.3		Dwelling number	ST	RE					
ORC	24.2		Other designation	ST	RE	7140	Path Ordering Client/Phys Addr--Street	28		
ORC	24.3		City	ST	RE	7150	Path Ordering Client/Phys Addr--City	29		
ORC	24.4		State or province	ST	RE	7160	Path Ordering Client/Phys Addr--State	30		
ORC	24.5		ZIP or postal code	ST	RE	7170	Path Ordering Client/Phys Addr--Postal Code	31		
ORC	24.6		Country	ID	RE	7165	Path Ordering Client/Phys Addr--Country	73		Values: Table 0399 or ISO3166-1
ORC	24.7		Address type	ID	RE					Values: Table 0190
ORC	24.8		Other geographic designation	ST	X					
ORC	24.9		County/parish code	IS	RE					Values: Table 0289

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
ORC	24.10		Census tract	IS	X					
ORC	24.11		Address representation code	ID	X					
ORC	24.12		Address validity range	DR	X					
ORC	24.13		Effective date	TS	X					
ORC	24.14		Expiration date	TS	X					
ORC	25	01473	Order status modifier	CWE	X					
ORC	26	01641	Advanced beneficiary notice override reason	CWE	X					
ORC	27	01642	Filler's expected availability date/time	TS	X					
ORC	28	00615	Confidentiality code	CWE	RE					
ORC	28.1		Identifier	ST	R					Values: Table 0177
ORC	28.2		Text	ST	RE					
ORC	28.3		Name of coding system	ID	R					"HL70177"
ORC	28.4		Alternate identifier	ST	RE					
ORC	28.5		Alternate text	ST	RE					
ORC	28.6		Name of alternate coding system	ID	RE					Values: Table 0396
ORC	28.7		Coding system version ID	ST	CE					
ORC	28.8		Alternate coding system version ID	ST	CE					
ORC	28.9		Original text	ST	RE					
ORC	29	01643	Order type	CWE	X					
ORC	30	01644	Enterer authorization mode	CNE	X					
ORC	31	02286	Parent universal service identifier	CWE	CE					
ORC	31.1		Identifier	ST	R					
ORC	31.2		Text	ST	RE					
ORC	31.3		Name of coding system	ID	R					Values: Table 0396
ORC	31.4		Alternate identifier	ST	RE					
ORC	31.5		Alternate text	ST	RE					
ORC	31.6		Name of alternate coding system	ID	RE					Values: Table 0396
ORC	31.7		Coding system version ID	ST	CE					
ORC	31.8		Alternate coding system version ID	ST	CE					
ORC	31.9		Original text	ST	RE					
OBR	1	00237	Set ID – OBR	SI	R					
OBR	2	00216	Placer order number	EI	RE					
OBR	2.1		Entity identifier	ST	R					
OBR	2.2		Namespace ID	IS	RE					Values: Table 0363
OBR	2.3		Universal ID	ST	CE					
OBR	2.4		Universal ID type	ID	CE					Values: Table 0301
OBR	3	00217	Filler order number	EI	R	7090	Path Report Number	23		

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBR	3.1		Entity identifier	ST	R	7090	Path Report Number	23		
OBR	3.2		Namespace ID	IS	RE					Values: Table 0363
OBR	3.3		Universal ID	ST	CE					
OBR	3.4		Universal ID type	ID	CE					Values: Table 0301
OBR	4	00238	Universal service ID	CE	R	7480	Path--Report Type	64		
OBR	4.1		Identifier	ST	R	7480	Path--Report Type	64		Usually LOINC, SNOMED, or ID value
OBR	4.2		Text	ST	RE					
OBR	4.3		Name of coding system	ID	R					Values: Table 0396
OBR	4.4		Alternate identifier	ST	RE					
OBR	4.5		Alternate text	ST	RE					
OBR	4.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBR	5	00239	Priority	ID	X					
OBR	6	00240	Requested date/time	TS	X					
OBR	7	00241	Observation date/time	TS	R	7320	Path--Date Spec Collection	46		
OBR	8	00242	Observation end date/time	TS	X					
OBR	9	00243	Collection volume	CQ	X					
OBR	10	00244	Collector identifier	XCN	RE				4	
OBR	10.1		ID Number	ST	RE	2480	Physician--Primary Surgeon	82		
OBR	10.2		Family name	FN	R					
OBR	10.2.1		Surname	ST	R					
OBR	10.2.2		Own surname prefix	ST	RE					
OBR	10.2.3		Own surname	ST	RE					
OBR	10.2.4		Surname prefix from partner/spouse	ST	RE					
OBR	10.2.5		Surname from partner/spouse	ST	RE					
OBR	10.3		Given name	ST	RE					
OBR	10.4		Middle initial or name	ST	RE					
OBR	10.5		Suffix	ST	RE					
OBR	10.6		Prefix	ST	RE					
OBR	10.7		Degree	IS	X					
OBR	10.8		Source table	IS	CE					Values: Table 0297
OBR	10.9		Assigning authority	HD	RE					
OBR	10.9.1		Namespace ID	IS	RE					Values: Table 0363
OBR	10.9.2		Universal ID	ST	CE					
OBR	10.9.3		Universal ID type	ID	CE					Values: Table 0301
OBR	10.10		Name type code	ID	RE					Values: Table 0200

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBR	10.11		Identifier check digit	ST	X					
OBR	10.12		Code identifying check digit scheme	ID	X					
OBR	10.13		Identifier type code	ID	RE					Values: Table 0203
OBR	10.14		Assigning facility	HD	RE					
OBR	10.14.1		Namespace ID	IS	RE					Values: Table 0363
OBR	10.14.2		Universal ID	ST	CE					
OBR	10.14.3		Universal ID type	ID	CE					Values: Table 0301
OBR	10.15		Name representation code	ID	X					
OBR	10.16		Name context	CE	X					
OBR	10.17		Name validity range	DR	X					
OBR	10.18		Name assembly order	ID	X					
OBR	10.19		Effective date	TS	X					
OBR	10.20		Expiration date	TS	X					
OBR	10.21		Professional suffix	ST	X					
OBR	10.22		Assigning jurisdiction	CWE	X					
OBR	10.23		Assigning agency or department	CWE	X					
OBR	11	00245	Specimen action code	ID	X					
OBR	12	00246	Danger code	CE	X					
OBR	13	00247	Relevant clinical info	ST	X					
OBR	14	00248	Specimen received date/time	TS	RE					
OBR	15	00249	Specimen source	SPS	CE					
OBR	15.1		Specimen source name or code	CWE	RE					
OBR	15.1.1		Identifier	ST	R					Values: Table 0070
OBR	15.1.2		Text	ST	RE					
OBR	15.1.3		Name of coding system	ID	R					Values: Table 0396 or Table 0070
OBR	15.1.4		Alternate identifier	ST	RE					
OBR	15.1.5		Alternate text	ST	RE					
OBR	15.1.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBR	15.1.7		Coding system version ID	ST	CE					
OBR	15.1.8		Alternate coding system version ID	ST	CE					
OBR	15.1.9		Original text	ST	RE					
OBR	15.2		Additives	CWE	X					
OBR	15.3		Specimen collection method	TX	RE					
OBR	15.4		Body site	CWE	RE					
OBR	15.4.1		Identifier	ST	R					
OBR	15.4.2		Text	ST	RE					
OBR	15.4.3		Name of coding system	ID	R					Values: Table 0396
OBR	15.4.4		Alternate identifier	ST	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBR	15.4.5		Alternate text	ST	RE					
OBR	15.4.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBR	15.4.7		Coding system version ID	ST	CE					
OBR	15.4.8		Alternate coding system version ID	ST	CE					
OBR	15.4.9		Original text	ST	RE					
OBR	15.5		Site modifier	CWE	X					
OBR	15.6		Collection method modifier code	CWE	X					
OBR	15.7		Specimen role	CWE	X					
OBR	16	00226	Ordering provider	XCN	C	7100, 7110, 7120, 7130	Path Ordering Client/Phys--Lic No, Path Ordering Client/Phys--LName, Path Ordering Client/Phys--FName, Path Ordering Client/Phys--MName	24, 25, 26, 27	4	
OBR	16.1		ID number	ST	RE	7100	Path Ordering Client/Phys--Lic No	24		
OBR	16.2		Family name	FN	R					
OBR	16.2.1		Surname	ST	R	7120	Path Ordering Client/Phys--LName	25		
OBR	16.2.2		Own surname prefix	ST	RE	7130				
OBR	16.2.3		Own surname	ST	RE					
OBR	16.2.4		Surname prefix from partner/spouse	ST	RE					
OBR	16.2.5		Surname from partner/spouse	ST	RE					
OBR	16.3		Given name	ST	RE		Path Ordering Client/Phys--FName	26		
OBR	16.4		Middle initial or name	ST	RE		Path Ordering Client/Phys--MName	27		
OBR	16.5		Suffix	ST	RE					
OBR	16.6		Prefix	ST	RE					
OBR	16.7		Degree	IS	X					
OBR	16.8		Source table	IS	CE					Values: Table 0297

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBR	16.9		Assigning authority	HD	RE					
OBR	16.9.1		Namespace ID	IS	RE					Values: Table 0363
OBR	16.9.2		Universal ID	ST	CE					
OBR	16.9.3		Universal ID type	ID	CE					Values: Table 0301
OBR	16.10		Name type code	ID	RE					Values: Table 0200
OBR	16.11		Identifier check digit	ST	X					
OBR	16.12		Code identifying check digit scheme	ID	X					
OBR	16.13		Identifier type code	ID	RE					Values: Table 0203
OBR	16.14		Assigning facility	HD	RE					
OBR	16.14.1		Namespace ID	IS	RE					Values: Table 0363
OBR	16.14.2		Universal ID	ST	CE					
OBR	16.14.3		Universal ID type	ID	CE					Values: Table 0301
OBR	16.15		Name representation code	ID	X					
OBR	16.16		Name context	CE	X					
OBR	16.17		Name validity range	DR	X					
OBR	16.18		Name assembly order	ID	X					
OBR	16.19		Effective date	TS	X					
OBR	16.20		Expiration date	TS	X					
OBR	16.21		Professional suffix	ST	X					
OBR	16.22		Assigning jurisdiction	CWE	X					
OBR	16.23		Assigning agency or department	CWE	X					
OBR	17	00250	Order callback phone number	XTN	RE	7180	Path Ordering Client/Phys Phone	32	4	
OBR	17.1		Telephone number	ST	CE	7180	Path Ordering Client/Phys Phone	32		
OBR	17.2		Telecommunication use code	ID	RE					Values: Table 0201
OBR	17.3		Telecommunication equipment type	ID	RE					Values: Table 0202
OBR	17.4		Email address	ST	RE					
OBR	17.5		Country code	NM	RE					
OBR	17.6		Area/city code	NM	RE	7180	Path Ordering Client/Phys Phone	32		
OBR	17.7		Phone number	NM	RE	7180	Path Ordering Client/Phys Phone	32		
OBR	17.8		Extension	NM	RE					
OBR	17.9		Any text	ST	RE					
OBR	17.10		Extension prefix	ST	RE					
OBR	17.11		Speed dial code	ST	RE					
OBR	17.12		Unformatted telephone number	ST	RE					
OBR	18	00251	Placer field 1	ST	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBR	19	00252	Placer field 2	ST	X					
OBR	20	00253	Filler field 1	ST	X					
OBR	21	00254	Filler field 2	ST	RE	7070	Path Lab phone number	9		
OBR	22	00255	Results rpt/status chng-date/time	TS	RE	7530	Date/Time Results Written	71		
OBR	23	00256	Charge to practice	MOC	X					
OBR	24	00257	Diagnostic serv sect ID	ID	X					
OBR	25	00258	Result status	ID	R	7330	Path--Result Status	47		Values: Table 0123
OBR	26	00259	Parent result	PRL	CE					
OBR	26.1		Parent observation identifier	CE	R					
OBR	26.1.1		Identifier	ST	R					
OBR	26.1.2		Text	ST	RE					
OBR	26.1.3		Name of coding system	ID	R					Values: Table 0396
OBR	26.1.4		Alternate identifier	ST	RE					
OBR	26.1.5		Alternate text	ST	RE					
OBR	26.1.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBR	26.2		Parent observation sub-identifier	ST	RE					
OBR	26.3		Parent observation value descriptor	ST	RE					
OBR	27	00221	Quantity/Timing	TQ	X					
OBR	28	00260	Result copies to	XCN	X				5	
OBR	29	00261	Parent	EIP	CE					
OBR	29.1		Placer assigned identifier	EI	RE					
OBR	29.1.1		Entity identifier	ST	R					
OBR	29.1.2		Namespace ID	IS	RE					Values: Table 0363
OBR	29.1.3		Universal ID	ST	CE					
OBR	29.1.4		Universal ID type	ID	CE					Values: Table 0301
OBR	29.2		Filler assigned identifier	EI	RE					
OBR	29.2.1		Entity identifier	ST	R					
OBR	29.2.2		Namespace ID	IS	RE					Values: Table 0363
OBR	29.2.3		Universal ID	ST	CE					
OBR	29.2.4		Universal ID type	ID	CE					Values: Table 0301
OBR	30	00262	Transportation mode	ID	X					
OBR	31	00263	Reason for study	CE	RE				20	
OBR	31.1		Identifier	ST	R					
OBR	31.2		Text	ST	RE					
OBR	31.3		Name of coding system	ID	R					Values: Table 0396
OBR	31.4		Alternate identifier	ST	RE					
OBR	31.5		Alternate text	ST	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBR	31.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBR	32	00264	Principal result interpreter	NDL	RE	7260, 7270, 7280, 7290, 7300, 7310	Pathologist Last Name, Pathologist First Name, Pathologist Middle Name, Pathologist Name Suffix, Pathologist Lic Number, Pathologist Lic State	40-45		
OBR	32.1		Name	CNN	R					
OBR	32.1.1		ID Number	ST	RE	7300, 7305	Pathologist Lic Number, Pathologist Lic Number NPI	44		
OBR	32.1.2		Family name	ST	R	7260	Pathologist Last Name	40		
OBR	32.1.3		Given name	ST	RE	7270	Pathologist First Name	41		
OBR	32.1.4		Second and further given names or initials thereof	ST	RE	7280	Pathologist Middle Name	42		
OBR	32.1.5		Suffix	ST	RE	7290	Pathologist Name Suffix	43		
OBR	32.1.6		Prefix	ST	RE					
OBR	32.1.7		Degree	IS	X					
OBR	32.1.8		Source table	IS	CE					Values: Table 0297
OBR	32.1.9		Assigning authority.Namespace ID	IS	RE	7310	Pathologist Lic State	45		Values: Table 0363
OBR	32.1.10		Assigning authority.Universal ID	ST	CE					
OBR	32.1.11		Assigning authority.Universal ID Type	ID	CE					Values: Table 0301
OBR	32.2		Start date/time	TS	RE					
OBR	32.3		End date/time	TS	RE					
OBR	32.4		Point of care	IS	X					
OBR	32.5		Room	IS	X					
OBR	32.6		Bed	IS	X					
OBR	32.7		Facility	HD	X					
OBR	32.8		Location status	IS	X					
OBR	32.9		Patient location type	IS	X					
OBR	32.10		Building	IS	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBR	32.11		Floor	IS	X					
OBR	33	00265	Assistant result interpreter	NDL	X				6	
OBR	34	00266	Technician	NDL	X				6	
OBR	35	00267	Transcriptionist	NDL	X					
OBR	36	00268	Scheduled date/time	TS	X					
OBR	37	01028	Number of sample containers	NM	X					
OBR	38	01029	Transport logistics of collected sample	CE	X					
OBR	39	01030	Collector's comment	CE	X					
OBR	40	01031	Transport arrangement responsibility	CE	X					
OBR	41	01032	Transport arranged	ID	X					
OBR	42	01033	Escort required	ID	X					
OBR	43	01034	Planned patient transport comment	CE	X					
OBR	44	00393	Procedure code	CWE	CE					
OBR	44.1		Identifier	ST	R					
OBR	44.2		Text	ST	RE					
OBR	44.3		Name of coding system	ID	R					Values: Table 0396
OBR	44.4		Alternate identifier	ST	RE					
OBR	44.5		Alternate text	ST	RE					
OBR	44.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBR	44.7		Coding system version ID	ST	CE					
OBR	44.8		Alternate coding system version ID	ST	CE					
OBR	44.9		Original text	ST	RE					
OBR	45	01316	Procedure code modifier	CE	X					
OBR	46	01474	Placer supplemental service information	CE	X					
OBR	47	01475	Filler supplemental service information	CE	X					
OBR	48	01646	Medically necessary duplicate procedure reason.	CWE	X					
OBR	49	01647	Result handling	IS	RE					Values: Table 0507
OBR	50	02286	Parent universal service identifier	CWE	CE					
OBR	50.1		Identifier	ST	R					
OBR	50.2		Text	ST	RE					
OBR	50.3		Name of coding system	ST	R					Values: Table 0396
OBR	50.4		Alternate identifier	ST	RE					
OBR	50.5		Alternate text	ST	RE					
OBR	50.6		Name of alternate coding system	ST	RE					Values: Table 0396
OBR	50.7		Coding system version ID	ST	CE					
OBR	50.8		Alternate coding system version ID	ST	CE					
OBR	50.9		Original Text	ST	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBX	1	00569	Set ID-OBX	SI	R					
OBX	2	00570	Value type	ID	R					Values: Table 0125
OBX	3	00571	Observation identifier	CE	R					
OBX	3.1		Identifier	ST	R					Usually LOINC or ID
OBX	3.2		Text	ST	R					
OBX	3.3		Name of coding system	ID	R					Values: Table 0396
OBX	3.4		Alternate identifier	ST	O					
OBX	3.5		Alternate text	ST	O					
OBX	3.6		Name of alternate coding system	ID	O					Values: Table 0396
OBX	4	00572	Observation sub-ID	ST	RE					
OBX	5	00573	Observation value	**	R	7340 7350 7360 7370 7380 7390 7400 7410 7420 7430 7440 7450 7460 7470 2600 7080	Path-SNOMED CT Code(s), Path--SNOMED CT Version, Path--ICD-CM codes Path--ICD Version Number, Path--CPT codes, Path--CPT Code Version, Path--Text Diagnosis, Path--Clinical History, Path--Nature of Specimen, Path--Gross Pathology, Path--Micro Pathology, Path--Final Diagnosis, Path--Comment Section, Path--Suppl Reports, Text--Staging, Patient Age at Specimen	19, 48-62	12	
OBX	6	00574	Units	CE	RE	7540	Units for Age at Specimen	72		Use UCUM units
OBX	6.1		Identifier	ST	R	7540	Units for Age at Specimen	72		Values: drawn from UCUM
OBX	6.2		Text	ST	RE					
OBX	6.3		Name of coding system	ID	R					“UCUM”
OBX	6.4		Alternate identifier	ST	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBX	6.5		Alternate text	ST	RE					
OBX	6.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBX	7	00575	Reference ranges	ST	RE					
OBX	8	00576	Abnormal flags	ID	RE				5	Values: Table 0078
OBX	9	00577	Probability	NM	X					
OBX	10	00578	Nature of abnormal test	ID	RE				5	Values: Table 0080
OBX	11	00579	Observation result status	ID	R	7330	Path--Result Status	47		Values: Table 0085
OBX	12	00580	Effective date of reference range values	TS	X					
OBX	13	00581	User defined access checks	ST	X					
OBX	14	00582	Date/time of the observation	TS	RE					
OBX	15	00583	Producer's reference	CE	CE					
OBX	15.1		Identifier	ST	R					
OBX	15.2		Text	ST	RE					
OBX	15.3		Name of coding system	ID	R					Values: Table 0396 or "CLIA"
OBX	15.4		Alternate identifier	ST	RE					
OBX	15.5		Alternate text	ST	RE					
OBX	15.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBX	16	00584	Responsible observer	XCN	RE				5	
OBX	16.1		ID Number	ST	RE					
OBX	16.2		Family name	FN	R					
OBR	16.2.1		Surname	ST	R					
OBR	16.2.2		Own surname prefix	ST	RE					
OBR	16.2.3		Own surname	ST	RE					
OBR	16.2.4		Surname prefix from partner/spouse	ST	RE					
OBR	16.2.5		Surname from partner/spouse	ST	RE					
OBX	16.3		Given name	ST	RE					
OBX	16.4		Middle initial or name	ST	RE					
OBX	16.5		Suffix	ST	RE					
OBX	16.6		Prefix	ST	RE					
OBX	16.7		Degree	IS	X					
OBX	16.8		Source table	IS	CE					Values: Table 0297
OBX	16.9		Assigning authority	HD	RE					
OBX	16.9.1		Namespace ID	IS	RE					Values: Table 0363
OBX	16.9.2		Universal ID	ST	CE					
OBX	16.9.3		Universal ID type	ID	CE					Values: Table 0301
OBX	16.10		Name type code	ID	RE					Values: Table 0200
OBX	16.11		Identifier check digit	ST	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBX	16.12		Code identifying check digit scheme	ID	X					
OBX	16.13		Identifier type code	ID	RE					Values: Table 0203
OBX	16.14		Assigning facility	HD	RE					
OBX	16.14.1		Namespace ID	IS	RE					Values: Table 0363
OBX	16.14.2		Universal ID	ST	CE					
OBX	16.14.3		Universal ID type	ID	CE					Values: Table 0301
OBX	16.15		Name representation code	ID	X					
OBX	16.16		Name context	CE	X					
OBX	16.17		Name validity range	DR	X					
OBX	16.18		Name assembly order	ID	X					
OBX	16.19		Effective date	TS	X					
OBX	16.20		Expiration date	TS	X					
OBX	16.21		Professional suffix	ST	X					
OBX	16.22		Assigning jurisdiction	CWE	X					
OBX	16.23		Assigning agency or department	CWE	X					
OBX	17	00936	Observation method	CE	RE				6	
OBX	17.1		Identifier	ST	R					Values: from NAACCROMC
OBX	17.2		Text	ST	RE					
OBX	17.3		Name of coding system	ID	R					Values: Table 0396
OBX	17.4		Alternate identifier	ST	RE					
OBX	17.5		Alternate text	ST	RE					
OBX	17.6		Name of alternate coding system	ID	RE					Values: Table 0396
OBX	18	01479	Equipment instance identifier	EI	X					
OBX	19	01480	Date/time of the analysis	TS	CE					
OBX	20		Reserved for harmonization with v2.6		X					
OBX	21		Reserved for harmonization with v2.6		X					
OBX	22		Reserved for harmonization with v2.6		X					
OBX	23	02283	Performing organization name	XON	RE					
OBX	23.1		Organization name	ST	RE					
OBX	23.2		Organization name type code	IS	RE					Values: Table 0204
OBX	23.3		ID number	NM	X					Use component 10 instead
OBX	23.4		Check digit	NM	X					
OBX	23.5		Code identifying the check digit scheme	ID	X					
OBX	23.6		Assigning authority	HD	RE					
OBX	23.6.1		Namespace ID	IS	RE					Values: Table 0363
OBX	23.6.2		Universal ID	ST	CE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
OBX	23.6.3		Universal ID type	ID	CE					Values: Table 0301
OBX	23.7		Identifier type code	ID	RE					Values: Table 0203
OBX	23.8		Assigning facility	HD	RE					
ORC	23.8.1		Namespace ID	IS	RE					Values: Table 0363
ORC	23.8.2		Universal ID	ST	CE					
ORC	23.8.3		Universal ID type	ID	CE					Values: Table 0301
OBX	23.9		Name representation code	ID	X					
OBX	23.10		Organization identifier	ST	RE					
OBX	24	02284	Performing organization address	XAD	CE					
OBX	24.1		Street address	SAD	RE					
OBX	24.1.1		Street or mailing address	ST	R	7210	Path Ordering Fac Addr—No & St	35		
OBX	24.1.2		Street name	ST	RE					
OBX	24.1.3		Dwelling number	ST	RE					
OBX	24.2		Other designation	ST	RE					
OBX	24.3		City	ST	RE					
OBX	24.4		State or province	ST	RE					
OBX	24.5		ZIP or postal code	ST	RE					
OBX	24.6		Country	ID	RE					Values: Table 0399 or ISO3166-1
OBX	24.7		Address type	ID	RE					Values: Table 0190
OBX	24.8		Other geographic designation	ST	X					
OBX	24.9		County/parish code	IS	RE					Values: Table 0289
OBX	24.10		Census tract	IS	X					
OBX	24.11		Address representation code	ID	X					
OBX	24.12		Address validity range	DR	X					
OBX	24.13		Effective date	TS	X					
OBX	24.14		Expiration date	TS	X					
OBX	25	02285	Performing organization medical director	XCN	X					
NTE	1	00096	Set ID – NTE	SI	RE					
NTE	2	00097	Source of Comment	ID	RE					Values: Table 0105
NTE	3	00098	Comment	FT	RE					
NTE	4	01318	Comment type	CE	RE					Values: Table 0364
NTE	4.1		Identifier	ST	R					Values: Table 0364
NTE	4.2		Text	ST	RE					
NTE	4.3		Name of coding system	ID	R					“HL70364”
NTE	4.4		Alternate identifier	ST	RE					
NTE	4.5		Alternate text	ST	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
NTE	4.6		Name of alternate coding system	ID	RE					Values: Table 0396
SPM	1	01754	Set ID – SPM	SI	RE					
SPM	2	01755	Specimen ID	EIP	R					
SPM	2.1		Placer assigned identifier	EI	RE					
SPM	2.1.1		Entity identifier	ST	R					
SPM	2.1.2		Namespace ID	IS	RE					Values: Table 0363
SPM	2.1.3		Universal ID	ST	CE					
SPM	2.1.4		Universal ID type	ID	CE					Values: Table 0301
SPM	2.2		Filler assigned identifier	EI	RE					
SPM	2.2.1		Entity identifier	ST	R					
SPM	2.2.2		Namespace ID	IS	RE					Values: Table 0363
SPM	2.2.3		Universal ID	ST	CE					
SPM	2.2.4		Universal ID type	ID	CE					Values: Table 0301
SPM	3	01756	Specimen parent IDs	EIP	RE					
SPM	3.1		Placer assigned identifier	EI	RE					
SPM	3.1.1		Entity identifier	ST	R					
SPM	3.1.2		Namespace ID	IS	RE					Values: Table 0363
SPM	3.1.3		Universal ID	ST	CE					
SPM	3.1.4		Universal ID type	ID	CE					Values: Table 0301
SPM	3.2		Filler assigned identifier	EI	RE					
SPM	3.2.1		Entity identifier	ST	R					
SPM	3.2.2		Namespace ID	IS	RE					Values: Table 0363
SPM	3.2.3		Universal ID	ST	CE					
SPM	3.2.4		Universal ID type	ID	CE					Values: Table 0301
SPM	4	01900	Specimen Type	CWE	R					Values: Table 0487
SPM	4.1		Identifier	ST	R					Values: Table 0487
SPM	4.2		Text	ST	RE					
SPM	4.3		Name of coding system	ST	R					“HL70487”
SPM	4.4		Alternate identifier	ST	RE					
SPM	4.5		Alternate text	ST	RE					
SPM	4.6		Name of alternate coding system	ST	RE					Values: Table 0396
SPM	4.7		Coding system version ID	ST	CE					
SPM	4.8		Alternate coding system version ID	ST	CE					
SPM	4.9		Original text	ST	RE					
SPM	5	01757	Specimen type modifier	CWE	X					
SPM	6	01758	Specimen additives	CWE	X					
SPM	7	01759	Specimen collection method	CWE	X					
SPM	8	01901	Specimen source site	CWE	X					
SPM	9	01760	Specimen source site modifier	CWE	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
SPM	10	01761	Specimen collection site	CWE	X					
SPM	11	01762	Specimen role	CWE	CE					
SPM	11.1		Identifier	ST	R					Values: Table 0487
SPM	11.2		Text	ST	RE					
SPM	11.3		Name of coding system	ST	R					"HL70487"
SPM	11.4		Alternate identifier	ST	RE					
SPM	11.5		Alternate text	ST	RE					
SPM	11.6		Name of alternate coding system	ST	RE					Values: Table 0396
SPM	11.7		Coding system version ID	ST	CE					
SPM	11.8		Alternate coding system version ID	ST	CE					
SPM	11.9		Original text	ST	RE					
SPM	12	01902	Specimen collection amount	CQ	X					
SPM	13	01763	Grouped specimen count	NM	X					
SPM	14	01764	Specimen description	ST	X					
SPM	15	01908	Specimen handling code	CWE	X					
SPM	16	01903	Specimen risk code	CWE	X					
SPM	17	01765	Specimen collection date/time	DR	RE					
SPM	17.1		Range start date/time	TS	RE					
SPM	17.2		Range end date/time	TS	RE					
SPM	18	00248	Specimen received date/time	TS	RE					
SPM	19	01904	Specimen expiration date/time	TS	X					
SPM	20	01766	Specimen availability	ID	X					
SPM	21	01767	Specimen reject reason	CWE	RE					Values: Table 0490
SPM	21.1		Identifier	ST	R					Values: Table 0490
SPM	21.2		Text	ST	RE					
SPM	21.3		Name of coding system	ST	R					"HL70490"
SPM	21.4		Alternate identifier	ST	RE					
SPM	21.5		Alternate text	ST	RE					
SPM	21.6		Name of alternate coding system	ST	RE					Values: Table 0396
SPM	21.7		Coding system version ID	ST	CE					
SPM	21.8		Alternate coding system version ID	ST	CE					
SPM	21.9		Original text	ST	RE					
SPM	22	01768	Specimen quality	CWE	X					
SPM	23	01769	Specimen appropriateness	CWE	X					
SPM	24	01770	Specimen condition	CWE	X					
SPM	25	01771	Specimen current quantity	CQ	X					
SPM	26	01772	Number of specimen containers	NM	RE					
SPM	27	01773	Container type	CWE	X					
SPM	28	01774	Container condition	CWE	X					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
SPM	29	01775	Specimen child role	CWE	C					Values: Table 0494
SPM	29.1		Identifier	ST	R					Values: Table 0494
SPM	29.2		Text	ST	RE					
SPM	29.3		Name of coding system	ST	R					“HL70494”
SPM	29.4		Alternate identifier	ST	RE					
SPM	29.5		Alternate text	ST	RE					
SPM	29.6		Name of alternate coding system	ST	RE					Values: Table 0396
SPM	29.7		Coding system version ID	ST	CE					
SPM	29.8		Alternate coding system version ID	ST	CE					
SPM	29.9		Original text	ST	RE					
SPM	30	02314	Accession ID	CX	RE					
SPM	30.1		ID number	ST	R					
SPM	30.2		Check digit	ST	X					
SPM	30.3		Code identifying check digit schema	ID	X					
SPM	30.4		Assigning authority	HD	R					
SPM	30.4.1		Assigning authority.Namespace ID	IS	RE					Values: Table 0363
SPM	30.4.2		Assigning authority.Universal ID	ST	CE					
SPM	30.4.3		Assigning authority.Universal ID type	ID	CE					Values: Table 0301
SPM	30.5		Identifier type code	ID	RE					Values: Table 0203
SPM	30.6		Assigning facility	HD	RE					
SPM	30.6.1		Assigning facility.Namespace ID	IS	RE					Values: Table 0363
SPM	30.6.2		Assigning facility.Universal ID	ST	CE					
SPM	30.6.3		Assigning facility.Universal ID type	ID	CE					Values: Table 0301
SPM	30.7		Effective date	DT	RE					
SPM	30.8		Expiration date	DT	RE					
SPM	30.9		Assigning jurisdiction	CWE	RE					
SPM	30.9.1		Identifier	ST	R					
SPM	30.9.2		Text	ST	RE					
SPM	30.9.3		Name of coding system	ID	R					Values: Table 0396
SPM	30.9.4		Alternate identifier	ST	RE					
SPM	30.9.5		Alternate text	ST	RE					
SPM	30.9.6		Name of alternate coding system	ID	RE					Values: Table 0396
SPM	30.9.7		Coding system version ID	ST	CE					
SPM	30.9.8		Alternate coding system version ID	ST	CE					
SPM	30.9.9		Original text	ST	RE					
SPM	30.10		Assigning agency or department	CWE	RE					
SPM	30.10.1		Identifier	ST	R					
SPM	30.10.2		Text	ST	RE					
SPM	30.10.3		Name of coding system	ID	R					Values: Table 0396

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
SPM	30.10.4		Alternate identifier	ST	RE					
SPM	30.10.5		Alternate text	ST	RE					
SPM	30.10.6		Name of alternate coding system	ID	RE					Values: Table 0396
SPM	30.10.7		Coding system version ID	ST	CE					
SPM	30.10.8		Alternate coding system version ID	ST	CE					
SPM	30.10.9		Original text	ST	RE					
SPM	31	02315	Other specimen ID	CX	RE					
SPM	31.1		ID number	ST	R					
SPM	31.2		Check digit	ST	X					
SPM	31.3		Code identifying check digit schema	ID	X					
SPM	31.4		Assigning authority	HD	R					
SPM	31.4.1		Assigning authority.Namespace ID	IS	RE					Values: Table 0363
SPM	31.4.2		Assigning authority.Universal ID	ST	CE					
SPM	31.4.3		Assigning authority.Universal ID type	ID	CE					Values: Table 0301
SPM	31.5		Identifier type code	ID	RE					Values: Table 0203
SPM	31.6		Assigning facility	HD	RE					
SPM	31.6.1		Assigning facility.Namespace ID	IS	RE					Values: Table 0363
SPM	31.6.2		Assigning facility.Universal ID	ST	CE					
SPM	31.6.3		Assigning facility.Universal ID type	ID	CE					Values: Table 0301
SPM	31.7		Effective date	DT	RE					
SPM	31.8		Expiration date	DT	RE					
SPM	31.9		Assigning jurisdiction	CWE	RE					
SPM	31.9.1		Identifier	ST	R					
SPM	31.9.2		Text	ST	RE					
SPM	31.9.3		Name of coding system	ID	R					Values: Table 0396
SPM	31.9.4		Alternate identifier	ST	RE					
SPM	31.9.5		Alternate text	ST	RE					
SPM	31.9.6		Name of alternate coding system	ID	RE					Values: Table 0396
SPM	31.9.7		Coding system version ID	ST	CE					
SPM	31.9.8		Alternate coding system version ID	ST	CE					
SPM	31.9.9		Original text	ST	RE					
SPM	31.10		Assigning agency or department	CWE	RE					
SPM	31.10.1		Identifier	ST	R					
SPM	31.10.2		Text	ST	RE					
SPM	31.10.3		Name of coding system	ID	R					Values: Table 0396
SPM	31.10.4		Alternate identifier	ST	RE					
SPM	31.10.5		Alternate text	ST	RE					
SPM	31.10.6		Name of alternate coding system	ID	RE					Values: Table 0396
SPM	31.10.7		Coding system version ID	ST	CE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
SPM	31.10.8		Alternate coding system version ID	ST	CE					
SPM	31.10.9		Original text	ST	RE					
FHS	1	00067	File field separator+	ST	R					
FHS	2	00068	File encoding characters+	ST	R					
FHS	3	00069	File sending application	HD	RE					
FHS	3.1		Namespace ID	IS	RE					Values: Table 0300
FHS	3.2		Universal ID	ST	CE					
FHS	3.3		Universal ID type	ID	CE					Values: Table 0301
FHS	4	00070	File sending facility+	HD	R					
FHS	4.1		Namespace ID	IS	RE					Values: Table 0300
FHS	4.2		Universal ID	ST	CE					
FHS	4.3		Universal ID type	ID	CE					Values: Table 0301
FHS	5	00071	File receiving application	HD	RE					
FHS	5.1		Namespace ID	IS	RE					Values: Table 0300
FHS	5.2		Universal ID	ST	CE					
FHS	5.3		Universal ID type	ID	CE					Values: Table 0301
FHS	6	00072	File receiving facility	HD	RE					
FHS	6.1		Namespace ID	IS	RE					Values: Table 0300
FHS	6.2		Universal ID	ST	CE					
FHS	6.3		Universal ID type	ID	CE					Values: Table 0301
FHS	7	00073	File creation date/time+	TS	R					
FHS	8	00074	File security	ST	RE					
FHS	9	00075	File name/ID/type+	ST	RE					
FHS	10	00076	File comment	ST	RE					
FHS	11	00077	File control ID	ST	RE					
FHS	12	00078	Reference file control ID	ST	RE					
FTS	1	00079	File batch count+	NM	R					
FTS	2	00080	File trailer comment	ST	RE					
BHS	1	00081	Batch field separator+	ST	R					
BHS	2	00082	Batch encoding characters+	ST	R					
BHS	3	00083	Batch sending application	HD	RE					
BHS	3.1		Namespace ID	IS	RE					Values: Table 0300
BHS	3.2		Universal ID	ST	CE					
BHS	3.3		Universal ID type	ID	CE					Values: Table 0301
BHS	4	00084	Batch sending facility+	HD	R					
BHS	4.1		Namespace ID	IS	RE					Values: Table 0300
BHS	4.2		Universal ID	ST	CE					
BHS	4.3		Universal ID type	ID	CE					Values: Table 0301
BHS	5	00085	Batch receiving application	HD	RE					

HL7 Segment	HL7 Seq	HL7 Item #	HL7 ELEMENT NAME	HL7 Data Type	NAACCR Usage	NAACCR Item #	NAACCR Item Name	E-Path Flat File Field	NAACCR Cardinality (maximum)	Note
BHS	5.1		Namespace ID	IS	RE					Values: Table 0300
BHS	5.2		Universal ID	ST	CE					
BHS	5.3		Universal ID type	ID	CE					Values: Table 0301
BHS	6	00086	Batch receiving facility	HD	RE					
BHS	5.1		Namespace ID	IS	RE					Values: Table 0300
BHS	5.2		Universal ID	ST	CE					
BHS	5.3		Universal ID type	ID	CE					Values: Table 0301
BHS	7	00087	Batch creation date/time+	TS	R					
BHS	8	00088	Batch security	ST	RE					
BHS	9	00089	Batch name/ID/type	ST	RE					
BHS	10	00090	Batch comment	ST	RE					
BHS	11	00091	Batch control ID	ST	RE					
BHS	12	00092	Reference batch control ID	ST	RE					
BTS	1	00093	Batch message count+	ST	R					
BTS	2	00094	Batch comment	ST	RE					
BTS	3	00095	Batch totals+	NM	RE				4	

Appendix E. Samples, Examples, and FAQs

This appendix contains a collection of examples that illustrate the use of the encoding described in Volume V. There are examples of narrative and synoptic reports following a simple use case, as well as examples that illustrate some of the very complex Use Cases that occasionally arise in cancer pathology reporting. Each example is laid out showing the report as it might appear printed or on the screen, followed by the Health Level Seven (HL7) message that carries the example report to the registry. Finally, there are questions and answers that refer to specific items that may be challenging to determine how to encode, shown in that example. At the end of this section, there are a set of general Frequently Asked Questions about implementing the HL7 messages as per Volume V specifications.

Note that in all example HL7 messages below, the segment endings are explicitly marked in the document with the four character string "<CR>". These four characters are NOT part of the message content, and are present here only to aid readability, as some segments wrap across multiple print lines in this document. If these messages are used verbatim in testing software, these four characters "<CR>" will cause conformance validation errors if not removed before processing. They are here only for human readability of the example messages.

E.1. Narrative Report examples

E.1.1. Simplest Narrative Report

The following example shows a very simple HL7 cancer registry message containing a single pathology report, transmitted only as narrative text. This example shows the simplest format, where there are no sections of the report, just continuous running text. Note that although this represents the simplest possible encoding of a report from the viewpoint of the sending system, it consequently burdens the cancer registry with a very difficult task of extracting information from the transcription text. For this reason, this simplest format is discouraged.

```
MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|||200506021339||ORU^R01^ORU_R01|2005060213390045|P|2.5.
1|||||VOL_V_50_ORU_R01^NAACCR_CP<CR>
PID|1||123456789^^^SS~00466144^^^MR||Cane^Candy||19570706|F||2106-
3^White^HL70005|495 East Overshoot Drive^^Delmar^NY^12054^^H||||M<CR>
ORC|RE|||||Albany Medical Center|43 New Scotland
Ave.^^Albany^NY^12208||43 New Scotland Ave.^^Albany^NY^12208<CR>
OBR|1||06-123456-MH|22049-1^Flow Cytometry
Analysis^LN|||200505021212|||200505311130|^Bone
marrow|^B.J.^Healing^^^M.D.|2033271605|||200505311332|||F|||||109772&PATHOL
OGIST&QUINCY&&&Dr.&MD&&NPI<CR>
SPM|1|^06-123456-MH-
1&ILSPCID|TISS^Tissue^HL70487|||||200505021212|200505031200|||||
0704500123^^^33D1234567&INDEPENDENT LAB SERVICES<CR>
OBX|1|TX|22633-2^nature of specimen^LN|1|Bone
marrow.||||N|||F|||200505021212|33D1234567^Independent Lab Services^CLIA<CR>
OBX|2|TX|22636-5^clinical history^LN|1|Evaluate for non-Hodgkin's lymphoma: ALL:
myelodysplastic syndromes: chronic Lymphoproliferative disorders, CLL. Prior
therapy: chemotherapy, Fludarabine more than one month ago. CBC report
received.||||N|||F|||200505021212|33D1234567^Independent Lab Services^CLIA<CR>
OBX|3|TX|22638-1^comments^LN|1|Correlation with a comprehensive bone marrow
morphology examination, CBC data/blood smear, and other relevant clinical and
laboratory data is recommended.||||N|||F|||200505021212|33D1234567^Independent
Lab Services^CLIA<CR>
OBX|4|TX|22637-3^final diagnosis^LN|1|A small population of monoclonal B-cells
(Kappa) is present in the bone marrow. The antigenic profile is consistent with
```

chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL) .|||N|||F|||200505021212|33D1234567^Independent Lab Services^CLIA<CR> OBX|5|TX|22049-1^phenotype^LN|1|1. A monoclonal kappa B-cell population co-expressing CD5 and CD23 is present. 2. -92% maturing myeloid elements are present. |||N|||F|||200505021212|33D1234567^Independent Lab Services^CLIA<CR>

E.1.2. Simple Narrative Report With Sections

The anatomic pathology report example below is a typical simple report whose content is to be transmitted from a laboratory or hospital to a cancer registry.

Report as it might appear printed or on a display

PATHOLOGY REPORT

Report Identification		Patient Information			
Facility ID:	33D1234567	Chart/MRN:	00466144	Address	495 East Overshoot Drive
Requisition ID	7654098				
Accession ID:	97 810430	SSN/SIN:	123456789		
Specimen ID	3567829				
Report Date:	2004-07-28	Surname:	CANE	City/Town:	Delmar
Report Type:	Final	Given Name:	CANDY	State/Prov:	NY
Requester ID:	594110NY	Sex:	F	Zip/Post Code:	12054
Requester:	CARING, CAREN M.D. Albany Medical Center, 43 New Scotland Ave. NY, Albany 12208	Date of Birth:	1957-07-06	Country:	
Procedure Date:	2004-07-20	Age:	47 (at procedure date)		
Surgeon ID:	123456	Insurer:	USHC		
Surgeon:	MYELOMUS, JOHN	Insurance No:	3270686987		
Pathologist ID:	109771	Race:	White		
Pathologist:	GLANCE, JUSTIN	Ethnicity:			

Clinical Dx/Comment	Carcinoma of breast. Post operative diagnosis: same.
Clinical History	47-year old white female with (L) UOQ breast mass
Tissue Submitted	<ul style="list-style-type: none"> left breast biopsy apical axillary tissue contents of left radical mastectomy
Gross Pathology	<p>Part #1 is labeled "left breast biopsy" and is received fresh after frozen section preparation. It consists of a single firm nodule measuring 3 cm in circular diameter and 1.5 cm in thickness surrounded by adherent fibrofatty tissue. On section a pale gray, slightly mottled appearance is revealed. Numerous sections are submitted for permanent processing.</p> <p>Part #2 is labeled "apical left axillary tissue" and is received fresh. It consists of two amorphous fibrofatty tissue masses without grossly discernible lymph nodes therein. Both pieces are rendered into numerous sections and submitted in their entirety for history.</p> <p>Part #3 is labeled "contents of left radical mastectomy" and is received flesh. It consists of a large ellipse of skin overlying breast tissue, the ellipse measuring 20 cm in length and 14 cm in height. A freshly sutured incision extends 3 cm directly lateral from the areola, corresponding to the closure for removal of part #1. Abundant amounts of fibrofatty connective tissue surround the entire breast and the deep aspect includes an 8 cm length of pectoralis minor and a generous mass of overlying pectoralis major muscle. Incision from the deepest aspect of the specimen beneath the tumor mass reveals tumor extension gross to within 0.5 cm of muscle. Sections are submitted according to the following code: DE – deep surgical resection margins; SU, LA, INF, ME — full thickness radial samplings from the center of the tumor superiorly, laterally, inferiorly and medially, respectively; NI – nipple and subjacent tissue. Lymph nodes dissected free from axillary fibrofatty tissue from levels I, II, and III will be labeled accordingly.</p>

Microscopic	Sections of part #1 confirm frozen section diagnosis of infiltrating duct carcinoma. It is to be noted that the tumor cells show considerable pleomorphism, and mitotic figures are frequent (as many as 4 per high power field). Many foci of calcification are present within the tumor. Part #2 consists of fibrofatty tissue and single tiny lymph node free of disease. Part #3 includes 18 lymph nodes, three from Level III, two from Level II and thirteen from Level I. All lymph nodes are free of disease with the exception of one Level I lymph node, which contains several masses of metastatic carcinoma. All sections taken radially from the superficial center of the resection site fail to include tumor, indicating the tumor to have originated deep within the breast parenchyma. Similarly, there is no malignancy in the nipple region, or in the lactiferous sinuses. Sections of deep surgical margin demonstrate diffuse tumor infiltration of deep fatty tissues; however, there is no invasion of muscle. Total size of primary tumor is estimated to be 4 cm in greatest dimension.
Final Dx	1. Infiltrating duct carcinoma, left breast. 2. Lymph node, no pathologic diagnosis, left axilla. 3. Ext. of tumor into deep fatty tissue. Metastatic carcinoma, left axillary lymph node (1) Level I. Free of disease 17 of 18 lymph nodes – Level I (12), Level II (2) and Level III (3).
INDEPENDENT LAB SERVICES	
DELMAR, NY 12054	
INDEPENDENT LABORATORY SERVICES, INC.	

E.1.3. HL7 Message Encoding of this Report

There are several ways to encode this report, depending upon whether the source system divides the sections and depending upon the different specimen tissues.

This first example shows the report where all sections are combined together, with no splitting or differentiation based on the tissue specimens. The text sections are encoded using FT (formatted text) to preserve the line endings and other formatting present on the printed report.

```
MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|||200407281339||ORU^R01^ORU_R01|2004072813390045|P|2.5.1|||||
| VOL_V_50_ORU_R01^NAACCR_CP<CR>
PID|1||123456789^SS~00466144^MR||Cane^Candy||19570706|F||2106-3^White^HL70005|495
East Overshoot Drive^Delmar^NY^12054^H||||M<CR>
ORC|RE|||||Albany Medical Center|43 New Scotland Ave.^Albany^NY^12208||43
New Scotland Ave.^Albany^NY^12208<CR>
OBR|1||97 810430|11529-5^Surgical Pathology Study
Report^LN|||200707251630||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594110NY^CARING^C
AREN^M.D.^NY_PHYSICIANLICENSE^MD|||||F|||||109771&GLANCE&JUSTIN&&&&NY_PHYS
ICIANLICENSE<CR>
SPM|1|^3567829||TISS^Tissue^HL70487|K|||||200407200930|200407211500|||||97
810430^^33D1234567&INDEPENDENT LAB SERVICES<CR>
OBX|1|FT|22637-3^Path report.final diagnosis^LN||Carcinoma of breast. Post operative
diagnosis: same.||||F<CR>
OBX|2|FT|22636-5^Path report.relevant Hx^LN||47-year old white female with (L) UOQ breast
mass||||F<CR>
OBX|3|FT|22633-2^Path report.site of origin^LN||left breast biopsy\X0D\X0A\apical
axillary tissue\X0D\X0A\contents of left radical mastectomy||||F<CR>
OBX|4|FT|22634-0^Path report.gross description^LN||Part #1 is labeled "left breast
biopsy" and is received fresh after frozen section preparation. It consists of a single
firm nodule measuring 3 cm in circular diameter and 1.5 cm in thickness surrounded by
adherent fibrofatty tissue. On section a pale gray, slightly mottled appearance is
revealed. Numerous sections are submitted for permanent processing.\X0D\X0A\Part #2 is
labeled "apical left axillary tissue" and is received fresh. It consists of two amorphous
fibrofatty tissue masses without grossly discernible lymph nodes therein. Both pieces are
rendered into numerous sections and submitted in their entirety for
history.\X0D\X0A\Part #3 is labeled "contents of left radical mastectomy" and is
received flesh. It consists of a large ellipse of skin overlying breast tissue, the
ellipse measuring 20 cm in length and 14 cm in height. A freshly sutured incision extends
3 cm directly lateral from the areola, corresponding to the closure for removal of part
#1. Abundant amounts of fibrofatty connective tissue surround the entire breast and the
deep aspect includes an 8 cm length of pectoralis minor and a generous mass of overlying
pectoralis major muscle. Incision from the deepest aspect of the specimen beneath the
tumor mass reveals tumor extension gross to within 0.5 cm of muscle. Sections are
```

submitted according to the following code: DE - deep surgical resection margins; SU, LA, INF, ME -- full thickness radial samplings from the center of the tumor superiorly, laterally, inferiorly and medially, respectively; NI - nipple and subjacent tissue. Lymph nodes dissected free from axillary fibrofatty tissue from levels I, II, and III will be labeled accordingly.|||||F<CR>

OBX|5|FT|22635-7^Path report.microscopic observation^LN||Sections of part #1 confirm frozen section diagnosis of infiltrating duct carcinoma. It is to be noted that the tumor cells show considerable pleomorphism, and mitotic figures are frequent (as many as 4 per high power field). Many foci of calcification are present within the tumor. Part #2 consists of fibrofatty tissue and single tiny lymph node free of disease. Part #3 includes 18 lymph nodes, three from Level III, two from Level II and thirteen from Level I. All lymph nodes are free of disease with the exception of one Level I lymph node, which contains several masses of metastatic carcinoma. All sections taken radially from the superficial center of the resection site fail to include tumor, indicating the tumor to have originated deep within the breast parenchyma. Similarly, there is no malignancy in the nipple region, or in the lactiferous sinuses. Sections of deep surgical margin demonstrate diffuse tumor infiltration of deep fatty tissues, however, there is no invasion of muscle. Total size of primary tumor is estimated to be 4 cm in greatest dimension.|||||F<CR>

OBX|6|FT|22637-3^Path report.final diagnosis^LN||1. Infiltrating duct carcinoma, left breast.\X0D\X0A\2. Lymph node, no pathologic diagnosis, left axilla.\X0D\X0A\3. Ext. of tumor into deep fatty tissue. Metastatic carcinoma, left axillary lymph node (1) Level I. Free of disease 17 of 18 lymph nodes - Level I (12), Level II (2) and Level III (3).|||||F<CR>

The same report also can be encoded without using formatted text. This next example shows this, and also illustrates the additional structure of using the OBX-4 Observation Sub-ID to link those areas of the report that are specific to the particular specimen (shown with numbers in the printed report above).

MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|||200407281339||ORU^R01^ORU_R01|2004072813390045|P|2.5.1|||||||
|
VOL_V_50_ORU_R01^NAACCR_CP<CR>PID|1||123456789^^^SS~00466144^^^MR||Cane^Candy||19570706
|F|2106-3^White^HL70005|495 East Overshoot Drive^^Delmar^NY^12054^^H||||M<CR>
ORC|RE|||||||||||||Albany Medical Center|43 New Scotland Ave.^Albany^NY^12208||43
New Scotland Ave.^Albany^NY^12208<CR>
OBR|1||97 810430|11529-5^Surgical Pathology Study
Report^LN||200707251630||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594110NY^CARING^C
AREN^M.D.^^^NY_PHYSICIANLICENSE^^^MD|||||F|||||109771&GLANCE&JUSTIN&&&&&NY_PHYS
ICIANLICENSE<CR>
SPM|1|^3567829||TISS^Tissue^HL70487|K|||||||||200407200930|200407211500|||||||||97
810430^^^33D1234567&INDEPENDENT LAB SERVICES<CR>
OBX|1|TX|22637-3^Path report.final diagnosis^LN||Carcinoma of breast. Post operative
diagnosis: same.|||||F<CR>
OBX|2|TX|22636-5^Path report.relevant Hx^LN||47-year old white female with (L) UOQ breast
mass|||||F<CR>
OBX|3|TX|22633-2^Path report.site of origin^LN||left breast biopsy|||||F<CR>
OBX|4|TX|22633-2^Path report.site of origin^LN|2|apical axillary tissue|||||F<CR>
OBX|5|TX|22633-2^Path report.site of origin^LN|3|contents of left radical
mastectomy|||||F<CR>
OBX|6|TX|22634-0^Path report.gross description^LN|1|Part #1 is labeled "left breast
biopsy" and is received fresh after frozen section preparation. It consists of a single
firm nodule measuring 3 cm in circular diameter and 1.5 cm in thickness surrounded by
adherent fibrofatty tissue. On section a pale gray, slightly mottled appearance is
revealed. Numerous sections are submitted for permanent processing.|||||F<CR>
OBX|7|TX|22634-0^Path report.gross description^LN|2|Part #2 is labeled "apical left
axillary tissue" and is received fresh. It consists of two amorphous fibrofatty tissue
masses without grossly discernible lymph nodes therein. Both pieces are rendered into
numerous sections and submitted in their entirety for history.|||||F<CR>
OBX|8|TX|22634-0^Path report.gross description^LN|3|Part #3 is labeled "contents of left
radical mastectomy" and is received flesh. It consists of a large ellipse of skin
overlying breast tissue, the ellipse measuring 20 cm in length and 14 cm in height. A

freshly sutured incision extends 3 cm directly lateral from the areola, corresponding to the closure for removal of part #1. Abundant amounts of fibrofatty connective tissue surround the entire breast and the deep aspect includes an 8 cm length of pectoralis minor and a generous mass of overlying pectoralis major muscle. Incision from the deepest aspect of the specimen beneath the tumor mass reveals tumor extension gross to within 0.5 cm of muscle. Sections are submitted according to the following code: DE - deep surgical resection margins; SU, LA, INF, ME -- full thickness radial samplings from the center of the tumor superiorly, laterally, inferiorly and medially, respectively; NI - nipple and subjacent tissue. Lymph nodes dissected free from axillary fibrofatty tissue from levels I, II, and III will be labeled accordingly.|||||F<CR>

OBX|9|TX|22635-7^Path report.microscopic observation^LN||Sections of part #1 confirm frozen section diagnosis of infiltrating duct carcinoma. It is to be noted that the tumor cells show considerable pleomorphism, and mitotic figures are frequent (as many as 4 per high power field). Many foci of calcification are present within the tumor. Part #2 consists of fibrofatty tissue and single tiny lymph node free of disease. Part #3 includes 18 lymph nodes, three from Level III, two from Level II and thirteen from Level I. All lymph nodes are free of disease with the exception of one Level I lymph node, which contains several masses of metastatic carcinoma. All sections taken radially from the superficial center of the resection site fail to include tumor, indicating the tumor to have originated deep within the breast parenchyma. Similarly, there is no malignancy in the nipple region, or in the lactiferous sinuses. Sections of deep surgical margin demonstrate diffuse tumor infiltration of deep fatty tissues, however, there is no invasion of muscle. Total size of primary tumor is estimated to be 4 cm in greatest dimension.|||||F<CR>

OBX|10|TX|22637-3^Path report.final diagnosis^LN|1|1. Infiltrating duct carcinoma, left breast.|||||F<CR>

OBX|11|TX|22637-3^Path report.final diagnosis^LN|2|2. Lymph node, no pathologic diagnosis, left axilla.|||||F<CR>

OBX|12|TX|22637-3^Path report.final diagnosis^LN|3|3. Ext. of tumor into deep fatty tissue. Metastatic carcinoma, left axillary lymph node (1) Level I. Free of disease 17 of 18 lymph nodes - Level I (12), Level II (2) and Level III (3).|||||F<CR>

E.1.4. Structured Narrative Report: "SPM segment style" HL7 v. 2.5.1 example for multiple specimens

MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|ECLRS|NYSCR|200407281339||ORU^R01^ORU_R01|2004072813390045|P|2.5
.1|||||VOL_V_50_ORU_R01^NAACCR_CP<CR>
PID|1||123456789^SS|000039^LR|Cane^Candy^Ms.||19570706|F||2106-3|495 East
Overshoot Drive^Delmar^NY^12054^H||^518^5559999||M||4442331235<CR>
PV1|1|N||||594110NY^CARING^CAREN^^DR|594110NY^CARING^CAREN^^DR<CR>
ORC|RE|||||Albany Medical Center^^123456^^AHA|43 New Scotland
Ave^^Albany^NY^12208|^518^3334444|100 Provider St^^Albany^NY^12205<CR>
OBR|1||97 810430|11529-5^SURGICAL PATH REPORT^LN^^PATHOLOGY
REPORT^L||20040720|||123456^MYELOMUS^JOHN^^MD|^518^4244243|||20040728||F||
||109771&GLANCE&JUSTIN&A&MD&&&&NY_PHYSICIANLICENSE<CR>
OBX|1|TX|22636-5^CLINICAL HISTORY^LN||47-year old white female with (L) UOQ breast
mass|||||F||200407200930|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|2|TX|22638-1^COMMENTS^LN||Carcinoma of breast. Post operative
diagnosis:same|||||F||200407200930|33D1234567^INDEPENDENT LAB SERVICES^CLIA
SPM|1|^3567829||TISS^Tissue^HL70487|K|||||200407200930|200407211500|||||97
810430^^33D1234567&INDEPENDENT LAB SERVICES<CR>
OBX|1|TX|22633-2^Nature of Specimen^LN^L47^SUBMITTED TISSUE^L|1|left breast
biopsy|||||F||200407200930|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|2|TX|22634-0^Gross Pathology^LN^L567^GROSS PATHOLOGY^L|1|Part #1 is labeled "left
breast biopsy" and is received fresh after frozen section preparation. It consists of a
single firm nodule measuring 3 cm in circular diameter and 1.5 cm in thickness surrounded
by adherent fibrofatty tissue. On section a pale gray, slightly mottled appearance is
revealed. Numerous sections are submitted for permanent processing.
|||||F||200407280841|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|3|TX|22635-7^Microscopic Pathology^LN^L589^MICROSCOPIC^L|1|Sections of part #1
confirm frozen section diagnosis of infiltrating duct carcinoma. It is to be noted that
the tumor cells show considerable pleomorphism, and mitotic figures are frequent (as many
as 4 per high power field). Many foci of calcification are present within the
tumor.|||||F||200407200930|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|4|TX|22637-3^Path report.final diagnosis^LN|1|1. Infiltrating duct carcinoma, left breast.|||||F|||200407280841|33D1234567^INDEPENDENT LAB SERVICES^CLIA SPM|2|^97 810430-
2&ILSPCID||TISS^Tissue^HL70487|||||200407200930|2004070211500|||||07045001 23^^^33D1234567&INDEPENDENT LAB SERVICES<CR>
OBX|1|TX|22633-2^Nature of Specimen^LN^L47^SUBMITTED TISSUE^L|2|apical axillary tissue |||||F|||200407200930|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|2|TX|22634-0^Gross Pathology^LN^L567^GROSS PATHOLOGY^L|2|Part #2 is labeled "apical left axillary tissue" and is received fresh. It consists of two amorphous fibrofatty tissue masses without grossly discernible lymph nodes therein. Both pieces are rendered into numerous sections and submitted in their entirety for history. |||||F|||200407280841|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|3|TX|22635-7^Microscopic Pathology^LN^L589^MICROSCOPIC^L|2|Part #2 consists of fibrofatty tissue and single tiny lymph node free of disease.|||||F|||200407200930|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|4|TX|22637-3^Path report.final diagnosis^LN|2|2. Lymph node, no pathologic diagnosis, left axilla.|||||F|||200407280841|33D1234567^INDEPENDENT LAB SERVICES^CLIA SPM|3|^97 810430-
3&ILSPCID||TISS^Tissue^HL70487|||||200407200930|2004070211500|||||07045001 23^^^33D1234567&INDEPENDENT LAB SERVICES<CR>
OBX|1|TX|22633-2^Nature of Specimen^LN^L47^SUBMITTED TISSUE^L|3|contents of left radical mastectomy |||||F|||200407200930|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|2|TX|22634-0^Gross Pathology^LN^L567^GROSS PATHOLOGY^L|3|Part #3 is labeled "contents of left radical mastectomy" and is received fresh. It consists of a large ellipse of skin overlying breast tissue, the ellipse measuring 20 cm in length and 14 cm in height. A freshly sutured incision extends 3 cm directly lateral from the areola, corresponding to the closure for removal of part #1. Abundant amounts of fibrofatty connective tissue surround the entire breast and the deep aspect includes an 8 cm length of pectoralis minor and a generous mass of overlying pectoralis major muscle. Incision from the deepest aspect of the specimen beneath the tumor mass reveals tumor extension gross to within 0.5 cm of muscle. Sections are submitted according to the following code: DE - deep surgical resection margins; SU, LA, INF, ME -- full thickness radial samplings from the center of the tumor superiorly, laterally, inferiorly and medially, respectively: NI - nipple and subjacent tissue. Lymph nodes dissected free from axillary fibrofatty tissue from levels I, II, and III will be labeled accordingly. |||||F|||200407280841|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|3|TX|22635-7^Microscopic Pathology^LN^L589^MICROSCOPIC^L|3|Part #3 includes 18 lymph nodes, three from Level III, two from Level II and thirteen from Level I. All lymph nodes are free of disease with the exception of one Level I lymph node, which contains several masses of metastatic carcinoma. All sections taken radially from the superficial center of the resection site fail to include tumor, indicating the tumor to have originated deep within the breast parenchyma. Similarly, there is no malignancy in the nipple region, or in the lactiferous sinuses. Sections of deep surgical margin demonstrate diffuse tumor infiltration of deep fatty tissues, however, there is no invasion of muscle. Total size of primary tumor is estimated to be 4 cm in greatest dimension.|||||F|||200704110841|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|4|TX|22637-3^Path report.final diagnosis^LN|3|3. Ext. of tumor into deep fatty tissue. Metastatic carcinoma, left axillary lymph node (1) Level I. Free of disease 17 of 18 lymph nodes - Level I (12), Level II (2) and Level III (3).|||||F|||200407280841|33D1234567^INDEPENDENT LAB SERVICES^CLIA<CR>

E.1.5. Complex Reports

As described in [Section 2.2.3.2](#), a laboratory that has sent a case out for a consult or special study may report its original report data and the consult (or special study) from a different institution in the same message that is sent to a cancer registry. This example illustrates the format and linkage of these two reports from different institutions being sent in the same message to a registry.

INDEPENDENT LAB SERVICES, PID 6767676767 October 30, 2010

TISSUE SUBMITTED

A: Right colon

B: Rectosigmoid @ 15 cm

GROSS PATHOLOGY

A: The anatomical site is not specified on the container's label. The specimen consists of a solitary pinkish-tan tissue fragment measuring 0.6 cm in greatest dimension. The specimen is entirely submitted in block A.

B: The anatomical site is not specified on the container's label. The specimen consists of a single dark tan, multi-lobulated sessile polyp that measures 2.1 in greatest diameter x 1.4 in height and 0.9 cm in thickness. Black ink is applied to marked the line of resection. The polyp is serially sectioned and entirely submitted in blocks B1 and B2.

MICROSCOPIC

A: Sections show two biopsies of colon in which there is mild chronic inflammation in the lamina propria. The colonic glands are regular and the goblet cell population is preserved. There is no evidence of dysplasia or malignancy in the plane of sections examined.

B: Sections show invasive, moderately differentiated adenocarcinoma. The tumor is forming complex glands that are lined by severely dysplastic epithelium and show necrosis within the glandular lumens. The tumor glands infiltrate the lamina propria, the muscularis mucosa and the stroma beyond the muscularis mucosa. There is associated with acute and chronic inflammation and stromal reaction. The malignant glands are 2.4 mm from the closest point of the cauterized resection margin of the polyp. Surface ulceration is noted. The background shows underlying villous adenoma.

DIAGNOSIS

A: BIOPSIES OF RIGHT COLON – NO EVIDENCE OF DYSPLASIA OR MALIGNANCY. (PLEASE SEE COMMENTS).

B: COLON AND RECTUM: Polypectomy.

Tumor Site – Rectosigmoid, at 15 cm.

Specimen Integrity – Intact.

Polyp Size

Greatest dimension: 2.1 cm.

Additional dimensions: 1.9 x 1.4 cm.

Polyp Configuration – Sessile. (Please see Comments).

Size of Invasive Carcinoma:

Greatest dimension: 1.9 cm.

Histologic Type – Adenocarcinoma.

Histologic Grade:

Low-grade (well differentiated to moderately differentiated)

Microscopic Tumor Extension:

– Invasion (deepest) – submucosa.

Margins:

Deep Margin (Stalk Margin)

Uninvolved by invasive carcinoma.

Mucosal/Lateral Margin

Uninvolved by invasive carcinoma.

Vascular Invasion – Indeterminate. (Please see comments).

Type of Polyp in Which Invasive Carcinoma Arose:

– Villous adenoma.

Ancillary Studies – IHC performed.

The case is referred to Dr.M. Yyyyy at HITECK PATH LAB for Consultation. (Please see Comments).

COMMENTS

A: There is no evidence of dysplasia or malignancy in the plane of sections examined. Correlation with endoscopic findings and if dysplasia/malignancy is a clinical possibility, repeat biopsy is recommended.

B: The polyp grossly is a sessile polyp, morphologically is a malignant polyp. At the tip of the polyp, there is intramucosal carcinoma; however, most of the polyp shows invasive moderately differentiated adenocarcinoma. In block #2, there is a portion of adjacent mucosa suggestive of a small stalk, that measures 0.5 cm in length, 0.6 cm in diameter; however, this could represent adjacent mucosa. Based on routine H&E alone, there is no evidence of lymphovascular invasion. Immunohistochemical stain with D2-40 is non conclusive. The tumor glands are 2.1 mm from the closest point of the cauterized polypectomy resection line.

The case was verbally communicated with Dr. A. Wwww on 19/10/10.

Electronically signed by Dr. J. Glance, MD. 21/10/10

Consultation Report

HITECK PATH LAB, PID 6767676767 October 29, 2010

SPECIMENS SUBMITTED

Colon and rectum

DIAGNOSIS

Right colon, biopsy (S10-1234, Part A):

– COLONIC MUCOSA WITH NO SIGNIFICANT HISTOLOGIC ABNORMALITY.

Rectosigmoid colon, biopsy (S10-1234, Part B):

– ADENOCARCINOMA IN A BACKGROUND OF A TUBULAR ADENOMA.

Specimen

Tumor Site: Other (specify): Rectosigmoid colon @ 15 cm

Specimen Integrity: Intact

Polyp Size

Dimensions: 2.1 cm

Polyp Configuration: Sessile

Tumor

Histologic Type: Adenocarcinoma

Histologic Grade: Low-grade (well-differentiated to moderately differentiated)

Extent

Size of invasive Carcinoma

Dimensions: 1.9 cm

Microscopic Tumor Extension: Submucosa

Margins

Deep Margin (stalk margin): Uninvolved by invasive carcinoma

Distance of Invasive Carcinoma from margin (mm): 2.5

Mucosal / Lateral Margin: Uninvolved by invasive carcinoma

Accessory Findings

Lymph-Vascular Invasion: Not identified

Type of Polyp in Which Invasive Carcinoma Arose: Tubular adenoma

Special Studies

Ancillary Studies: Not performed

Additional Non-Tumor

Additional Pathologic Findings: None identified

Reported by Mxxxx Yyyyy, MD, address zzzz (October 28, 2010)

October 29, 2010

Example Message for this combined report:

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MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|||201010301339||ORU^R01^ORU_R01|2004072813390045|P|2.5.1|||||
|VOL_V_50_ORU_R01^NAACCR_CP<CR>
PID|1||123456789^SS~6767676767^MR||Cane^Candy||19570706|F||2106-3^White^HL70005|495
East Overshoot Drive^^Delmar^ON^08D 6L7^CAN^H||||M<CR>
ORC|RE|||||||Central Hospital Ltd.|43 New Scotland Ave.^Ancaster^ON^L9G
4V5^CAN||43 New Scotland Ave.^Ancaster^ON^L9G 4V5^CAN<CR>
OBR|1||97 810430|60567-5^Comprehensive pathology report
panel^LN|||201010291600||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594111^CARING^CARE
N^^M.D.^^^^ONTARIOLICENSE^^^MD|||||||F|||||109771&GLANCE&JUSTIN&&&&&ONTARIOLICENSE<
CR>
OBR|2||97 810430|11529-5^Study
Report^LN|||201010210930||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594110^CARING^CAR
EN^^M.D.^^^^ONTARIOLICENSE^^^MD|||||||F||||^97
810430||109771&GLANCE&JUSTIN&&&&&ONTARIOLICENSE<CR>
OBX|1|FT|22634-0^Pathology report.gross observation^LN|1|A: The anatomical site is not
specified on the container's label. The specimen consists of a solitary pinkish-tan
tissue fragment measuring 0.6 cm in greatest dimension. The specimen is entirely
submitted in block A.|||||F|||201010210800|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>
OBX|2|FT|22634-0^Pathology report.gross observation^LN|2|B: The anatomical site is not
specified on the container's label. The specimen consists of a single dark tan, multi-
lobulated sessile polyp that measures 2.1 in greatest diameter x 1.4 in height and 0.9 cm
```

in thickness. Black ink is applied to marked the line of resection. The polyp is serially sectioned and entirely submitted in blocks B1 and B2.|||||F|||201010210800|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|3|FT|22635-7^Path report.microscopic observation^LN|1|A: Sections show two biopsies of colon in which there is mild chronic inflammation in the lamina propria. The colonic glands are regular and the goblet cell population is preserved. There is no evidence of dysplasia or malignancy in the plane of sections examined.|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|4|FT|22635-7^Path report.microscopic observation^LN|2|B: Sections show invasive, moderately differentiated adenocarcinoma. The tumor is forming complex glands that are lined by severely dysplastic epithelium and show necrosis within the glandular lumens. The tumor glands in infiltrate the lamina propria, the muscularis mucosa and thestroma beyond the muscularis mucosa. There is associated with acute and chronic inflammation and stromal reaction. The malignant glands are 2.4 mm from the closest point of the cauterized resection margin of the polyp. Surface ulceration is noted. The background shows underlying villous adenoma.|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|5|FT|22637-3^Pathology report final diagnosis^LN|1|A: BIOPSIES OF RIGHT COLON - NO EVIDENCE OF DYSPLASIA OR MALIGNANCY. PLEASE SEE COMMENTS).|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|6|FT|22637-3^Pathology report final diagnosis^LN|2|B: COLON AND RECTUM: Polypectomy.|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|7|FT|22637-3^Pathology report final diagnosis^LN|2|Tumor Site - Rectosigmoid, at 15 cm. \XOD\XOA\ Specimen Integrity - Intact. \XOD\XOA\ Polyp Size \XOD\XOA\ Greatest dimension: 2.1 cm. \XOD\XOA\ Additional dimensions: 1.9 x 1.4 cm.\XOD\XOA\ Polyp Configuration - Sessile. (Please see Comments). \XOD\XOA\ Size of Invasive Carcinoma:\XOD\XOA\ Greatest dimension: 1.9 cm.\XOD\XOA\ Histologic Type - Adenocarcinoma. \XOD\XOA\ Histologic Grade:\XOD\XOA\ Low-grade (well differentiated to moderately differentiated)\XOD\XOA\ Microscopic Tumor Extension: \XOD\XOA\ - Invasion (deepest) - submucosa. \XOD\XOA\ Margins: \XOD\XOA\ Deep Margin (Stalk Margin)\XOD\XOA\ Uninvolved by invasive carcinoma.\XOD\XOA\ Mucosal/Lateral Margin\XOD\XOA\ Uninvolved by invasive carcinoma.\XOD\XOA\ Vascular Invasion - Indeterminate. (Please see comments).\XOD\XOA\ Type of Polyp in Which Invasive Carcinoma Arose:\XOD\XOA\ - Villous adenoma. \XOD\XOA\ Ancillary Studies - IHC performed. \XOD\XOA\The case is referred to Dr.M. Yyyyy at HITECK PATH LAB for Consultation. (Please see Comments).|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|8|FT|22638-1^Pathology report comments^LN|1|A: There is no evidence of dysplasia or malignancy in the plane of sections examined. Correlation with endoscopic findings and if dysplasia/malignancy is a clinical possibility, repeat biopsy is recommended.|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|9|FT|22638-1^Pathology report comments^LN|2|B: The polyp grossly is a sessile polyp, morphologically is a malignant polyp. At the tip of the polyp there is intramucosal carcinoma; however, most of the polyp shows invasive moderately differentiated adenocarcinoma. In block #2 there is a portion of adjacent mucosa suggestive of small stalk, that measures 0.5 cm in length, 0.6 cm in diameter, however this could represent adjacent mucosa. Based on routine H\T\E alone there is no evidence of lymphovascular invasion. Immunohistochemical stain with D2-40 is non conclusive. The tumor glands are 2.1 mm from the closest point of the cauterized polypectomy resection line.|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|10|FT|22638-1^Pathology report comments^LN||The case was verbally communicated with Dr. A. Wwww on 19/10/10.|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBX|11|FT|22638-1^Pathology report comments^LN||Electronically signed by Dr. J. Glance, MD. 21/10/10|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

SPM|1|^97 810430-A&ILSPCID|^97 810430|TISS^Tissue^HL70487|||||201010201600<CR>

OBX|1|FT|^TISSUE SUBMITTED|1|A: Right colon|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

SPM|2|^97 810430-B&ILSPCID|^97 810430|TISS^Tissue^HL70487|||||201010201600<CR>

OBX|1|FT|^TISSUE SUBMITTED|2|B: Rectosigmoid @ 15 cm|||||F|||201010210930|01D0301145^INDEPENDENT LAB SERVICES^CLIA<CR>

OBR|3||S10-1234|60570-9^Consultation note^LN|||20101028|||||TISS^Tissue^HL70487|109771^GLANCE^JUSTIN^M.D.^ONTARIO LICENS

```

E^^^MD|||||F|22637-3&Pathology report final diagnosis&LN^^The case is referred to
Dr.M. Yyyyy at HITECK PATH LAB for Consultation.||||^97
810430||||7878787&Yyyyy&Mxxxx&&&&&ONTARIOLICENSE<CR>
OBX|1|FT|^SPECIMENS SUBMITTED||Colon and rectum|||||F|||201010281430|01D0301145^HITECK
PATH LAB^CLIA<CR>
OBX|2|FT|22637-3^Pathology report final diagnosis^LN|1|Right colon, biopsy (S10-1234, Part
A):\XOD\XOA\ COLONIC MUCOSA WITH NO SIGNIFICANT HISTOLOGIC
ABNORMALITY.|||||F|||201010281430|01D0301145^HITECK PATH LAB^CLIA<CR>
OBX|3|FT|22637-3^Pathology report final diagnosis^LN|2|Rectosigmoid colon, biopsy (S10-
1234, Part B):\XOD\XOA\ - ADENOCARCINOMA IN A BACKGROUND OF A TUBULAR ADENOMA.\XOD\XOA\
Specimen\XOD\XOA\ Tumor Site: Other (specify): Rectosigmoid colon @ 15
cm\XOD\XOA\ Specimen Integrity: Intact\XOD\XOA\ Polyp Size\XOD\XOA\
Dimensions: 2.1 cm\XOD\XOA\ Polyp Configuration: Sessile\XOD\XOA\
Tumor\XOD\XOA\ Histologic Type: Adenocarcinoma\XOD\XOA\ Histologic Grade:
Low-grade (well-differentiated to moderately differentiated)\XOD\XOA\ Extent\XOD\XOA\
Size of invasive Carcinoma\XOD\XOA\ Dimensions: 1.9 cm\XOD\XOA\
Microscopic Tumor Extension: Submucosa\XOD\XOA\ Margins\XOD\XOA\ Deep Margin
(stalk margin): Uninvolved by invasive carcinoma\XOD\XOA\ Distance of
Invasive Carcinoma from margin (mm): 2.5\XOD\XOA\ Mucosal / Lateral Margin:
Uninvolved by invasive carcinoma\XOD\XOA\ Accessory Findings\XOD\XOA\ Lymph-
Vascular Invasion:Not identified\XOD\XOA\ Type of Polyp in Which Invasive
Carcinoma Arose: Tubular adenoma\XOD\XOA\ Special Studies\XOD\XOA\ Ancillary
Studies: Not performed\XOD\XOA\ Additional Non-Tumor\XOD\XOA\ Additional
Pathologic Findings:None identified|||||F|||201010281430|01D0301145^HITECK PATH
LAB^CLIA<CR>

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E.2. Synoptically Structured Report Examples

Synoptically structured reports are textual reports but are formatted in a style where each collected clinical data item is on its own line and labeled appropriately. Every line on the displayed or printed report is transmitted in the message.

E.2.1. Simple Report – Single Site, Single Primary

The anatomic pathology report example below is a typical simple report whose content is to be transmitted from a laboratory or hospital to a cancer registry.

PATHOLOGY REPORT

Report Identification		Patient Information			
Facility ID:	33D1234567	Chart/MRN:	00466144	Address	495 East Overshoot Drive
Requisition ID	7654098				
Accession ID:	97 810430	SSN/SIN:	123456789		
Specimen ID	3567829				
Report Date:	2004-07-28	Surname:	CANE	City/Town:	Delmar
Report Type:	Final	Given Name:	CANDY	State/Prov:	NY
Requester ID:	594110NY	Sex:	F	Zip/Post Code:	12054
Requester:	CARING, CAREN M.D. Albany Medical Center, 43 New Scotland Ave. NY, Albany 12208	Date of Birth:	1957-07-06	Country:	
Procedure Date:	2004-07-20	Age:	47 (at procedure date)		
Surgeon ID:	123456	Insurer:	USHC		
Surgeon:	MYELOMUS, JOHN	Insurance No:	3270686987		
Pathologist ID:	109771	Race:	White		
Pathologist:	GLANCE, JUSTIN	Ethnicity:			

Clinical Dx/ Comment	Carcinoma of breast. Post operative diagnosis: same.
Clinical History	47-year old white female with (L) UOQ breast mass
Tissue Submitted	Left breast lesion – short stitch superior. Long stitch lateral.
Gross Pathology	<p>SPECIMEN SITE DESCRIBED ON CONTAINER: left breast lesion SPECIMEN DESCRIPTION Tissue/s: consistent with breast lumpectomy, with attached skin ellipse Handling Prior to Receipt in Lab: specimen received intact Clinical Orientation: attached short suture, described on requisition as “superior” and attached long suture, described as “lateral” – used for the orientation of the specimen (below) Resection Margins: inked: red medial and lateral blue superior green inferior black deep</p> <p>Other Handling in Lab: sectioned and left for overnight fixation Approximate Fixation Time: > 48 hours/ < 7 days Specimen Size: breast 7.1 x 6.2 x 2.5 cm in greatest dimensions skin ellipse 3.3 x 0.6 cm Diagnostic Imaging for Identification of Suspect Area/s: not required Breast Tumor: present – see below Size: difficult to measure accurately; a 0.6 cm area of hemorrhage immediately adjacent tumor, obscuring tumor margin approximately 2.0 x 1.2 cm in greatest dimensions Location: 11 o’clock – as per prior clinical history Appearance: spiculated, ill-defined, firm, grey-white Evidence of Spread or Complications: none Resection Lines: 0.3 cm from the closest resection margin – the deep 0.8 cm from the next closest resection margin – the junction of the superior and inferior (superficially) 1.2 cm from all remaining resection margins, the next closest being the medial Other Breast: moderately fibrous centrally, and surrounding tumor Nipple: not applicable – not included with specimen Skin: normal Lymph Nodes: none seen Axillary Tissue: not applicable – none included with specimen Other Abnormalities/ Comments: none</p> <p>MATERIAL SUBMITTED FOR HISTOLOGY: entire tumor, and other representative sections</p> <p>BLOCKS SUBMITTED TO HISTOLOGY: A,B complete cross-section of tumor, in its largest dimension – split in two C tumor including closest (deep) resection margin D-G ? tumor including deep margin H fibrous breast including inferior resection margin I breast including lateral resection margin J breast including medial resection margin K section immediately superficial, but perpendicular to that in A,B including superior margin, and skin ellipse</p>
Microscopic	<p>Neoadjuvant Treatment: unknown – not provided clinically Specimen Type: lumpectomy Lymph Node Sampling: sentinel lymph node biopsy Specimen Size: Greatest Dimension (cm): 7.1 Comments: as described grossly Laterality: left Comments: as described clinically Features of Malignancy: Tumor Site: not specified clinically</p>

	<p>Comments: described as “11 o’clock” in the Clinical History for a previous core biopsy (S*_*****) - likely the same site as the tumor in the specimen here</p> <p>Invasive Carcinoma: present</p> <p>Histologic Type: invasive ductal carcinoma</p> <p>Comments: with prominent lobular differentiation; for instance, the carcinoma spreads as individual cells and small groups of cells at the edge of the main tumor mass</p> <p>Tumor Distribution: single focus only</p> <p>Comments: seen in the area described grossly</p> <p>Size of Invasive Component:</p> <p>Greatest Dimension (cm): 1.1</p> <p>Comments: exact size difficult to be certain of, because of the effect of previous biopsy, but appearing greater than 1.0 cm in largest dimension, from the microscopic slides</p> <p>Histologic Grade:</p> <p>Tubule Formation: 3/3</p> <p>Nuclear Pleomorphism: 2/3</p> <p>Mitotic Count (40x): 1/3</p> <p>Modified Nottingham Grade: Grade II/III – moderately differentiated</p> <p>Skin Involvement: absent</p> <p>Chest Wall Involvement: not applicable – none included with the specimen</p> <p>Venous/Lymphatic Invasion: absent</p> <p>Block(s) for Receptor Studies: being sent to: LHO</p> <p>Blocks Submitted: G</p> <p>In Situ Carcinoma: absent</p> <p>Comments: except in some very minute foci in and around the invasive tumor</p> <p>Lymph Nodes:</p> <p>Lymph Nodes Present: yes</p> <p>Number Examined: 1</p> <p>Number Involved: 0</p> <p>AJCC Staging:</p> <p>Additional pTNM Descriptors: not applicable</p> <p>Primary Tumor (pT): pT1c – tumor more than 1.0 cm but not more than 2.0 cm in greatest dimension</p> <p>Distant Metastasis (pM): pMx – cannot be assessed</p> <p>Resection Margin(s):</p> <p>Involvement by Invasive Carcinoma: absent</p> <p>Closest Margin(s): deep, in a number of slides – and particularly close in Slide G</p> <p>Distance to Closest Margin (mm): 1</p> <p>Comments: (0.1 cm)</p> <p>Correlation with IOC: not applicable</p> <p>Additional Pathologic Findings: reactive fibrosis around the carcinoma changes around the carcinoma consistent with the effect of previous biopsy</p> <p>some immunohistochemistry will be ordered to confirm some of the findings above – that will be reported in an Addendum Report to follow</p> <p>fibrocystic change in the background</p> <p>reactive changes in the lymph node</p>
<p>Final Dx</p>	<p>SKIN ELLIPSE AND UNDERLYING BREAST AND ADIPOSE TISSUE (LEFT), LUMPECTOMY: INVASIVE DUCTAL CARCINOMA – ADDENDUM AND CONSULTATION REPORTS WITH RECEPTOR STATUS TO FOLLOW</p>
<p>INDEPENDENT LAB SERVICES</p>	

DELMAR, NY 12054

INDEPENDENT LABORATORY SERVICES, INC.

E.2.2. HL7 Message Synoptic Summary Report**Note that all data in the report is of value type (OBX-2) text (“TX”).**

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MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|||200407281339||ORU^R01^ORU_R01|2004072813390045|P|2.5.1|||||
|
VOL_V_50_ORU_R01^NAACCR_CP<CR>
PID|1||123456789^SS~00466144^MR||Cane^Candy||19570706|F||2106-3^White^HL70005|495
East Overshoot Drive^^Delmar^NY^12054^H||||M<CR>
ORC|RE|||||||Albany Medical Center|43 New Scotland Ave.^Albany^NY^12208||43
New Scotland Ave.^Albany^NY^12208<CR>
OBR|1||19SF-7337^SFML^05D0576873^CLIA|60567-5^Comprehensive pathology report
panel^LN|||200707251630|||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594110NY^CARING^CA
REN^M.D.^NY_PHYSICIANLICENSE^^MD|||||F|||||109771&GLANCE&JUSTIN&&&&&NY_PHYSI
CIANLICENSE<CR>
SPM|1|^3567829||TISS^Tissue^HL70487|K|||||200407200930|200407211500|||||97
810430^^33D1234567^INDEPENDENT LAB SERVICES<CR>
OBR|2||19SF-7337^SFML^05D0576873^CLIA|11529-5^Surgical Pathology
Study^LN|||200707251630|||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594110NY^CARING^CA
REN^M.D.^NY_PHYSICIANLICENSE^^MD|||||F|||||109771&GLANCE&JUSTIN&&&&&NY_PHYSI
CIANLICENSE<CR>
OBX|1|TX|22637-3^Path report.final diagnosis^LN||
SKIN ELLIPSE AND UNDERLYING BREAST AND ADIPOSE TISSUE (LEFT), LUMPECTOMY: INVASIVE DUCTAL
CARCINOMA - ADDENDUM AND CONSULTATION REPORTS WITH RECEPTORSTATUS TO FOLLOW|||||F<CR>
OBX|2|TX|22636-5^Path report.relevant Hx^LN||47-year old white female with (L) UOQ breast
mass|||||F<CR>
OBX|3|TX|22633-2^Path report.site of origin^LN||Left breast lesion - short stitch
superior.|||||F<CR>
OBX|4|TX|22633-2^Path report.site of origin^LN||Long stitch lateral.|||||F<CR>
OBR|3||19SF-7337^SFML^05D0576873^CLIA|60568-3^Synoptic
Report^LN|||2019070100|||||201907011709|1|1306182530^Chalmers^Brenna^^^^^CMS^L^^NPI|^
WPN^PH^1^714^9923978~^WPN^FX^^714^9923928|||||20190702|||F|||||^1528402427&John&Sand
hya&&&&&CMS<CR>
OBX|1|ST|60573-3^Report template source^LN||Synoptic Summary CAP
eCC|||||F|||20190703114458|SFML^05D0576873^CLIA<CR>
OBX|2|CWE|60572-5^Report template ID^LN||169.1000043^Breast Biomarker Reporting
Template^CAPECC|||||F|||20190703114458|SFML^05D0576873^CLIA<CR>
OBX|3|ST|60574-1^Report template version
ID^LN||1.003.001.1000043|||||F|||20190703114458|SFML^05D0576873^CLIA<CR>
OBX|4|TX|33746-9 ^Pathologic Findings^LN||Test(s) Performed: Estrogen Receptor (ER)
Status (Note A) \X0D\X0A\ Test(s) Performed: Progesterone Receptor (PgR) Status (Note A)
\X0D\X0A\ Test(s) Performed: HER2 by Immunohistochemistry (Note B) \X0D\X0A\ ER
Results: Negative (less than 1%)\X0D\X0A\ ER Test Control Status: Internal control cells
present and stain as expected \X0D\X0A\ Test Type: Laboratory-developed test \X0D\X0A\
Primary Antibody: SP1 \X0D\X0A\
PgR Results: Negative (less than 1%) \X0D\X0A\ PgR Test Control Status: Internal control
cells present and stain as expected \X0D\X0A\ Test Type: Laboratory-developed test
\X0D\X0A\
Primary Antibody: 312 \X0D\X0A\ HER2 IHC Results: Negative (Score 1+) \X0D\X0A\ Test
Type: Laboratory-developed test \X0D\X0A\ Primary Antibody: CB11 \X0D\X0A\ Cold
Ischemia and Fixation Times: Meet requirements specified in latest version of the ASCO/
CAP Guidelines \X0D\X0A\ Fixative: Formalin \X0D\X0A\
|||||F|||20190703114458|SFML^05D0576873^CLIA<CR>

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E.2.3. HL7 Message Encoding of this Synoptic Report

Note that all data in the report that is carried in this message is of value type (OBX-2) text ("TX"). Note also that this illustrates the recommended use of OBX-4 Observation Sub-ID to link groups of observations with their heading title. The non-synoptic portion of the report is shown reported in the initial OBR.

```
MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|||200407281339|ORU^R01^ORU_R01|2004072813390045|P|2.5.1|||||
|
VOL_V_50_ORU_R01^NAACCR_CP<CR>PID|1||123456789^^^SS~00466144^^^MR||Cane^Candy||19570706
|F||2106-3^White^HL70005|495 East Overshoot Drive^^Delmar^NY^12054^^H||||M<CR>
ORC|RE|||||||Albany Medical Center|43 New Scotland Ave.^^Albany^NY^12208||43
New Scotland Ave.^^Albany^NY^12208<CR>
OBR|1||97 810430|60567-5^Comprehensive pathology report
panel^LN|||200707251630|||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594110NY^CARING^CA
REN^^M.D.^^^NY_PHYSICIANLICENSE^^^MD|||||F|||||109771&GLANCE&JUSTIN&&&&&NY_PHYSI
CIANLICENSE<CR>
SPM|1|^3567829||TISS^Tissue^HL70487|K|||||200407200930|200407211500|||||97
810430^^^33D1234567&INDEPENDENT LAB SERVICES<CR>
OBR|2||97 810430|11529-5^Surgical Pathology
Study^LN|||200707251630|||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594110NY^CARING^CA
REN^^M.D.^^^NY_PHYSICIANLICENSE^^^MD|||||F|||||109771&GLANCE&JUSTIN&&&&&NY_PHYSI
CIANLICENSE<CR>
OBX|1|TX|22637-3^Path report.final diagnosis^LN||SKIN ELLIPSE AND UNDERLYING BREAST AND
ADIPOSE TISSUE (LEFT), LUMPECTOMY: INVASIVE DUCTAL CARCINOMA - ADDENDUM AND CONSULTATION
REPORTS WITH RECEPTORSTATUS TO FOLLOW|||||F<CR>
OBX|2|TX|22636-5^Path report.relevant Hx^LN||47-year old white female with (L) UOQ breast
mass|||||F<CR>
OBX|3|TX|22633-2^Path report.site of origin^LN||Left breast lesion - short stitch
superior.|||||F<CR>
OBX|4|TX|22633-2^Path report.site of origin^LN||Long stitch lateral.|||||F<CR>
OBR|3||97 810430|60568-3^Synoptic report
^LN|||200707251630|||123456^MYELOMUS^JOHN||||TISS^Tissue^HL70487|594110NY^CARING^CAREN^^
M.D.^^^NY_PHYSICIANLICENSE^^^MD|||||F|60567-5&Comprehensive pathology report
panel&LN|||^97 810430|||109771&GLANCE&JUSTIN&&&&&NY_PHYSICIANLICENSE<CR>
OBX|1|ST|60573-3^Report template source^LN||New York State Synoptic Report Format|||||F
OBX|2|ST|60572-5^Report template ID^LN||Protocol for the Examination of Specimens from
Patients with Invasive Ductal Carcinoma of the Breast|||||F<CR>
OBX|3|ST|60574-1^Report template version ID^LN||NYS-
InvasiveCarcinomaRelease2.1|||||F<CR>
OBX|4|TX|SPECIMEN SITE DESCRIBED ON CONTAINER:||left breast lesion|||||F<CR>
OBX|5|TX|Header|1|SPECIMEN DESCRIPTION|||||F<CR>
OBX|6|TX|Tissue/s:||1|consistent with breast lumpectomy, with attached skin
ellipse|||||F<CR>
OBX|7|TX|Handling Prior to Receipt in Lab:||1|specimen received intact|||||F<CR>
OBX|8|TX|Clinical Orientation:||attached short suture, described on requisition as
"superior" and attached long suture, described as "lateral" - used for the orientation of
the specimen (below)|||||F<CR>
OBX|9|TX|Header|2|Resection Margins:|||||F<CR>
OBX|10|TX|Header|2.1|inked:|||||F<CR>
OBX|11|TX|red|2.1|medial and lateral|||||F<CR>
OBX|12|TX|blue|2.1|superior|||||F<CR>
OBX|13|TX|green|2.1|inferior|||||F<CR>
OBX|14|TX|black|2.1|deep|||||F<CR>
OBX|15|TX|Other Handling in Lab:||2|sectioned and left for overnight fixation|||||F<CR>
OBX|16|TX|Approximate Fixation Time:||2|> 48 hours/ < 7 days|||||F<CR>
OBX|17|TX|Specimen Size:||2|breast 7.1 x 6.2 x 2.5 cm in greatest dimensions skinellipse
3.3 x 0.6 cm|||||F<CR>
OBX|18|TX|Diagnostic Imaging for Identification of Suspect Area/s:||2|not
required|||||F<CR>
OBX|19|TX|Breast Tumor:||2|present - see below|||||F<CR>
OBX|20|TX|Size:||3|difficult to measure accurately; a 0.6 cm area of hemorrhage
immediately adjacent tumor, obscuring tumor margin approximately 2.0 x 1.2 cm ingreatest
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dimensions|||||F<CR>
 OBX|21|TX|Location:|3|11 o'clock - as per prior clinical history|||||F<CR>
 OBX|22|TX|Appearance:|3|spiculated, ill-defined, firm, grey-white|||||F<CR>
 OBX|23|TX|Evidence of Spread or Complications:|3|none|||||F<CR>
 OBX|24|TX|Resection Lines:|4|0.3 cm from the closest resection margin - the deep 0.8 cm from the next closest resection margin - the junction of the superior and inferior (superficially) 1.2 cm from all remaining resection margins, the next closest being the medial|||||F<CR>
 OBX|25|TX|Other Breast:|4|moderately fibrous centrally, and surrounding tumor|||||F<CR>
 OBX|24|TX|Nipple:|4|not applicable - not included with specimen|||||F<CR>
 OBX|25|TX|Skin:|4|normal|||||F<CR>
 OBX|26|TX|Lymph Nodes:|4|none seen|||||F<CR>
 OBX|27|TX|Axillary Tissue:|5|not applicable - none included with specimen|||||F<CR>
 OBX|28|TX|Other Abnormalities/ Comments:|5|none|||||F<CR>
 OBX|29|TX|MATERIAL SUBMITTED FOR HISTOLOGY:|entire tumor, and other representative sections|||||F<CR>
 OBX|30|TX|Header|6|BLOCKS SUBMITTED TO HISTOLOGY:|||||F<CR>
 OBX|31|TX|A,B|6|complete cross-section of tumor, in its largest dimension - split in two|||||F<CR>
 OBX|32|TX|C|6|tumor including closest (deep) resection margin|||||F<CR>
 OBX|33|TX|D-G|6|? tumor including deep margin|||||F<CR>
 OBX|34|TX|H|6|fibrous breast including inferior resection margin|||||F<CR>
 OBX|35|TX|I|7|breast including lateral resection margin|||||F<CR>
 OBX|36|TX|J|6|breast including medial resection margin|||||F<CR>
 OBX|37|TX|K|6|section immediately superficial, but perpendicular to that in A,B including superior margin, and skin ellipse|||||F<CR>
 OBX|38|TX|Neoadjuvant Treatment:|unknown - not provided clinically|||||F<CR>
 OBX|39|TX|Specimen Type:|lumpectomy|||||F<CR>
 OBX|40|TX|Lymph Node Sampling:|sentinel lymph node biopsy|||||F<CR>
 OBX|41|TX|Header|7|Specimen Size:|||||F<CR>
 OBX|42|TX|Greatest Dimension (cm):|7|7.1|||||F<CR>
 OBX|43|TX|Comments:|7|as described grossly|||||F<CR>
 OBX|44|TX|Laterality:|8|left|||||F<CR>
 OBX|45|TX|Comments:|8|as described clinically|||||F<CR>
 OBX|46|TX|Header|9|Features of Malignancy:|||||F<CR>
 OBX|47|TX|Tumor Site:|9.1|not specified clinically|||||F<CR>
 OBX|48|TX|Comments:|9.1|described as "11 o'clock" in the Clinical History for a previous core biopsy (S*****) - likely the same site as the tumor in the specimen here|||||F<CR>
 OBX|49|TX|Invasive Carcinoma:|9|present|||||F<CR>
 OBX|50|TX|Histologic Type:|9.2|invasive ductal carcinoma|||||F<CR>
 OBX|51|TX|Comments:|9.2|with prominent lobular differentiation; for instance, the carcinoma spreads as individual cells and small groups of cells at the edge of the main tumor mass|||||F<CR>
 OBX|52|TX|Tumor Distribution:|9.3|single focus only|||||F<CR>
 OBX|53|TX|Comments:|9.3|seen in the area described grossly|||||F<CR>
 OBX|54|TX|Size of Invasive Component:|9.4|Greatest Dimension (cm): 1.1|||||F<CR>
 OBX|55|TX|Comments:|9.4|exact size difficult to be certain of, because of the effect of previous biopsy, but appearing greater than 1.0 cm in largest dimension, from the microscopic slides|||||F<CR>
 OBX|56|TX|Header|9.5|Histologic Grade:|||||F<CR>
 OBX|57|TX|Tubule Formation:|9.5|3/3|||||F<CR>
 OBX|58|TX|Nuclear Pleomorphism:|9.5|2/3|||||F<CR>
 OBX|59|TX|Mitotic Count (40x):|9.5|1/3|||||F<CR>
 OBX|60|TX|Modified Nottingham Grade:|9.5|Grade II/III - moderately differentiated|||||F<CR>
 OBX|61|TX|Skin Involvement:|absent|||||F<CR>
 OBX|62|TX|Chest Wall Involvement:|not applicable - none included with the specimen|||||F<CR>
 OBX|63|TX|Venous/Lymphatic Invasion:|absent|||||F<CR>
 OBX|64|TX|Block(s) for Receptor Studies:|9.6|being sent to: LHO|||||F<CR>
 OBX|65|TX|Blocks Submitted:|9.6|G|||||F<CR>
 OBX|66|TX|In Situ Carcinoma:|9.7|absent|||||F<CR>
 OBX|67|TX|Comments:|9.7|except in some very minute foci in and around the invasive

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tumor|||||F<CR>
OBX|68|TX|Header|10|Lymph Nodes:|||||F<CR>
OBX|69|TX|Lymph Nodes Present:|10|yes|||||F<CR>
OBX|70|TX|Number Examined:|10|1|||||F<CR>
OBX|71|TX|Number Involved:|10|0|||||F<CR>
OBX|72|TX|Header|11|AJCC Staging:|||||F<CR>
OBX|73|TX|Additional pTNM Descriptors:|11|not applicable|||||F<CR>
OBX|74|TX|Primary Tumor (pT):|11|pT1c - tumor more than 1.0 cm but not more than 2.0 cm
in greatest dimension|||||F<CR>
OBX|75|TX|Distant Metastasis (pM):|11|pMx - cannot be assessed|||||F<CR>
OBX|76|TX|Header|12|Resection Margin(s):|||||F<CR>
OBX|77|TX|Involvement by Invasive Carcinoma:|12|absent|||||F<CR>
OBX|78|TX|Closest Margin(s):|12|deep, in a number of slides - and particularly close in
Slide G|||||F<CR>
OBX|79|TX|Distance to Closest Margin (mm):|12.1|1|||||F<CR>
OBX|80|TX|Comments:|12.1|(0.1 cm)|||||F<CR>
OBX|81|TX|^Correlation with IOC:|not applicable|||||F<CR>
OBX|82|TX|^Additional Pathologic Findings:|reactive fibrosis around the
carcinoma|||||F<CR>
OBX|83|TX|^Additional Pathologic Findings:|changes around the carcinoma consistent with
the effect of previous biopsy|||||F<CR>
OBX|84|TX|^Additional Pathologic Findings:|some immunohistochemistry will be ordered to
confirm some of the findings above - that will be reported in an Addendum Report to
follow|||||F<CR>
OBX|85|TX|^Additional Pathologic Findings:|fibrocystic change in the
background|||||F<CR>
OBX|86|TX|^Additional Pathologic Findings:|reactive changes in the lymph node|||||F<CR>
OBX|87|TX|22637-3^Pathology report final diagnosis^LN||SKIN ELLIPSE AND UNDERLYING BREAST
AND ADIPOSE TISSUE (LEFT), LUMPECTOMY: INVASIVE DUCTAL CARCINOMA - ADDENDUM AND
CONSULTATION REPORTS WITH RECEPTOR STATUS TO FOLLOW|||||F<CR>
```

E.2.4. Simple Report, both Narrative and Synoptically Structured styles for the same content

The following is a simple message illustrating the structure of a comprehensive report panel, including both a narrative report and a synoptically structured report with the same content. Note the use of the comprehensive report panel as a “container” for the two reports having the same content but different styles of reporting. The example report includes just the pathology section of a larger case report, and illustrates the transmission of just this pathology information to the registry.

PROCEDURE

6/15 Bilateral pelvic lymphadenectomy with radical retropubic prostatectomy

PATHOLOGY

Lymphadenectomy and prostatectomy:

Gross description: Specimen #1 “right pelvic obturator lymph nodes” consists of two portions of adipose tissue measuring 2.5 x 1 x 0.8 cm and 2.5 x 1 x 0.5 cm. There are two lymph nodes measuring 1 x 0.7 cm and 0.5 x 0.5 cm. The entire specimen is cut into several portions and totally embedded. Specimen #2 labeled “left pelvic obturation lymph nodes” consists of an adipose tissue measuring 4 x 2 x 1 cm. There are two lymph nodes measuring 1.3 x 0.8 cm and 1 x 0.6 cm. The entire specimen is cut into several portions and totally embedded. Specimen #3 labeled “prostate” consists of a prostate. It measure 5 x 4.5 x 4 cm. The external surface shows a very small portion of seminal vesicles attached in both sides with tumor induration. External surface also shows tumor induration especially in the right side. External surface is stained with green ink. The cut surface shows diffuse tumor induration especially in right side. The tumor appears to extend to excision margin.

Microscopic description: Section #1 reveals lymph node. There is no evidence of metastatic carcinoma. Section #2 reveals lymph node with tumor metastasis in section of large lymph node as well as section of

small lymph node. Section #3 reveals adenocarcinoma of prostate, Gleason score 9 (5 + 4). The tumor shows extension to periprostatic tissue as well as margin involvement. Seminal vesicle attached to prostate tissue shows tumor invasion.

- A. Adenocarcinoma of prostate, Gleason score 9, with both lobe involvement and seminal vesicle involvement (T3b)
- B. There is lymph node metastasis (N1)
- C. Distance metastasis cannot be assessed (MX)
- D. Excision margin is positive and there is tumor extension to periprostatic tissue

FINAL DIAGNOSIS

Adenocarcinoma of prostate

This same report, synoptically structured, might appear as:

Date: 6/15/2009

Procedure: Bilateral pelvic lymphadenectomy with radical retropubic prostatectomy

Prostate size: 5 x 4.5 x 4 cm

Lymph Node Sampling: Pelvic lymph node dissection

Histologic Type: Adenocarcinoma

Histologic Grade: Gleason Pattern

Primary Pattern: 5

Secondary Pattern: 4

Tertiary Pattern: N/A

Total Gleason Score: 9

Extraprostatic Extension: Present, Nonfocal (established, extensive), periprostatic tissue, bilateral seminal vesicles

Seminal Vesicle Invasion: Present

Pathologic Staging (pTNM):

Primary Tumor (pT): pT3

Regional Lymph Nodes (pN): pN1

Number examined: 4

Number involved: 2

Margins: Excision margin is positive

Distant Metastasis (pM): cannot be assessed

The message containing both reports would be encoded as:

```
MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|||200907281339||ORU^R01^ORU_R01|2004072813390045|P|2.5.1|||||
|
VOL_V_50_ORU_R01^NAACCR_CP<CR>
PID|1||123456789^SS~00466144^MR||Cane^Candy||19570706|F||2106-3^White^HL70005|495
East Overshoot Drive^Delmar^NY^12054^H|||||M<CR>
ORC|RE|||||Albany Medical Center|43 New Scotland Ave.^Albany^NY^12208||43
New Scotland Ave.^Albany^NY^12208<CR>
OBR|1||97810430|60567-5^Comprehensive pathology report
panel^LN|||200407261530|||||TISS|164341^SURGEON^HANNAH^^^DR|||||F|||||55555555&W
elby&Marcus&&Dr.&MD&&NPI<CR>
OBR|2||123456789|11529-5^Surgical Pathology
Study^LN|||200907261500|||||TISS|164341^SURGEON^HANNAH^^^DR|||||F|60567-
5^Comprehensive pathology report
panel^LN|||97810430|||55555555&Welby&Marcus&&Dr.&MD&&NPI<CR>
OBX|1|FT|22633-2^Path report.site of origin^LN||Lymphadenectomy and
```

prostatectomy|||||F|||200906151400<CR>
 OBX|2|FT|22634-0^Pathology report gross observation^LN||Specimen #1 "right pelvic obturator lymph nodes" consists of two portions of adipose tissue measuring 2.5 x 1 x 0.8 cm and 2.5 x 1 x 0.5 cm. There are two lymph nodes measuring 1 x 0.7 cm and 0.5 x 0.5 cm. The entire specimen is cut into several portions and totally embedded. Specimen #2 labeled "left pelvic obturation lymph nodes" consists of an adipose tissue measuring 4 x 2 x 1 cm. There are two lymph nodes measuring 1.3 x 0.8 cm and 1 x 0.6 cm. The entire specimen is cut into several portions and totally embedded. Specimen #3 labeled "prostate" consists of a prostate. It measure 5 x 4.5 x 4 cm. The external surface shows very small portion of seminal vesicles attached in both sides with tumor induration.External surface also shows tumor induration especially in right side. External surface is stained with green ink. The cut surface shows diffuse tumor induration especially in right side.The tumor appears to extend to excision margin.|||||F|||200906151400<CR>
 OBX|3|FT|22635-7^Path report.microscopic observation^LN||Section #1 reveals lymph node. There is no evidence of metastatic carcinoma. Section #2 reveals lymph node with tumor metastasis in section of large lymph node as well as section of small lymph node. Section #3 reveals adenocarcinoma of prostate, Gleason score 9 (5 + 4). The tumor shows extension to periprostatic tissue as well as margin involvement. Seminal vesicle attached to prostate tissue shows tumor invasion.\X0D\X0A\A. Adenocarcinoma of prostate, Gleason score 9, with both lobe involvement and seminal vesicle involvement (T3b)\X0D\X0A\B. There is lymph node metastasis (N1)\X0D\X0A\C.Distance metastasis cannot be assessed (MX)\X0D\X0A\D. Excision margin is positive and there is tumor extension to periprostatic tissue|||||F|||200906151600<CR>
 OBX|4|FT|22637-3^Path report.final diagnosis^LN||Adenocarcinoma of prostate|||||F|||200906151600<CR>
 OBR|3||123456789|60568-3^Synoptic report
 ^LN|||200506151630|||||TISS|164341^SURGEON^HANNAH^^^DR|||||F|60567-5&Comprehensive pathology report panel&LN||^97810430||55555555&Welby&Marcus&&Dr.&MD&&NPI<CR>
 OBX|1|ST|60573-3^Report template source^LN||Institution Cancer Checklists|||||F|||200906151630<CR>
 OBX|2|ST|60572-5^Report template ID^LN||PROSTATE GLAND|||||F|||200906151630<CR>
 OBX|3|ST|60574-1^Report template version ID^LN||2.6|||||F|||200906151630<CR>
 OBX|4|TX|Procedure||Bilateral pelvic lymphadenectomy with radical retropubic prostatectomy|||||F|||200906151630<CR>
 OBX|5|TX|Prostate size:||5 x 4.5 x 4 cm|||||F|||200906151630<CR>
 OBX|6|TX|Lymph Node Sampling:||Pelvic lymph node dissection|||||F|||200906151630<CR>
 OBX|7|TX|Histologic Type:||Adenocarcinoma|||||F|||200906151630<CR>
 OBX|8|TX|Histologic Grade:||1|Gleason Pattern|||||F|||200906151630<CR>
 OBX|9|TX|Primary Pattern:||1|5|||||F|||200906151630<CR>
 OBX|10|TX|Secondary Pattern:||1|4|||||F|||200906151630<CR>
 OBX|11|TX|Tertiary Pattern:||1|N/A|||||F|||200906151630<CR>
 OBX|12|TX|Total Gleason Score:||1|9|||||F|||200906151630<CR>
 OBX|13|TX|Extraprostatic Extension:||Present, Nonfocal (established, extensive), periprostatic tissue, bilateral seminal vesicles|||||F|||200906151630<CR>
 OBX|14|TX|Seminal Vesicle Invasion:||Present|||||F|||200906151630<CR>
 OBX|15|TX|Header|2|Pathologic Staging (pTNM):|||||F|||200906151630<CR>
 OBX|16|TX|Primary Tumor (pT):|2|pT3|||||F|||200906151630<CR>
 OBX|17|TX|Regional Lymph Nodes (pN):|3|pN1|||||F|||200906151630<CR>
 OBX|18|TX|Number examined:||3|4|||||F|||200906151630<CR>
 OBX|19|TX|Number involved:||3|2|||||F|||200906151630<CR>
 OBX|20|TX|Margins:||Excision margin is positive|||||F|||200906151630<CR>
 OBX|21|TX|Distant Metastasis (pM):||cannot be assessed|||||F|||200906151630<CR>

E.2.5. Complex Report – Multiple Sites, Multiple Primaries

There are many complexities relative to incorporating multiple specimens and/or multiple primary cancers in a single cancer report, and there remain some outstanding issues. These are under discussion by the CAP Cancer Committee at the time of publication of this document. In the meantime, the following recommendations are explained for packaging such information into an HL7 message consistent with this Guide.

Several guidelines form a pattern for reporting complex cases with multiple primary cancers and/or multiple specimens in the same report. These guidelines are as follows:

- The entire case report is in a single HL7 message, which is likely to contain multiple OBR segments.
- The first OBR segment in the message may identify the comprehensive report panel and collects all of the report types and styles that pertain to the case. Associated with this first OBR, there may be one or more OBX segments which contain information that is not specific to a particular specimen or a particular cancer, or a particular site, such as clinical history.
- Multiple OBX segments that represent parts of the same observation (same value in OBX-3 Observation ID) should have the same value in OBX-4 Observation sub-ID. This may occur when systems “break up” a long text result field across multiple segments, or when a group of findings across several OBX segments should be logically kept together. The example below shows several observations that are indicated as having been reviewed and electronically signed by a certain physician. These all share the same OBX-4 Observation sub-ID. In addition, many reports follow a templated pattern where there may be headers for groups of related documented items, such as “Margins:”. All the OBX segments documenting this particular group share the same OBX-4 Observation Sub-ID value.
- Each individually identified specimen in the case has its own SPM segment.
- The observations and findings specific to a certain specimen are reported in the OBX segments following the SPM for that specimen. All OBX segments associated with an SPM segment should have the OBX-4 Observation Sub-ID field reported with the same value in SPM-1 field of the associated SPM segment.

Below is a complex example. The lengthy HL7 message following the case report illustrates how the rules defined in this version of the Guide may be applied to properly encode such a case in an HL7 ORU_R01 message conformant to this Specification and Guide.

This example case shows a multispecimen multiprimary report. Note that this report also has identified separate specific sections. This case and report is of invasive urothelial carcinoma, and adenocarcinoma of the colon, combined in one report, with text and synoptic reports, plus separate sections. It includes observations particular to specimens, as well as information related to the overall case. The example also shows the report being transmitted with part of the report as Narrative style, and part as synoptically structured format in the same message.

Accession #: 97810430

CLINICAL HISTORY

Bladder tumor, rectal cancer metastasis or post radiation therapy necrosis

TISSUE SUBMITTED

A(fsi) (gums) Bladder tumor
B(fss) (gums) Symphysis pubis bone
C(gupr) Prostate and bladder
D(gums) Left pelvic lymph nodes
E(gums) Partial symphyectomy
F(gums) Left pubic ramus biopsy
G(gums) Right pelvic lymph node dissection
H(gurs) Rectum

GROSS PATHOLOGY

Gross Description

The specimen consists of numerous rubbery tan fragments measuring approximately 5 cm in aggregate. The

fragments range in size from a few mm up to 1.5 cm. Several fragments are submitted in (A1FS&A2FS). BFS: The specimen consists of multiple irregular fragments of soft tissue and bone, the largest measures approximately 2 cm in maximum dimension. Representative soft tissue is submitted in B1FS and B2FS.

Preliminary Diagnosis

Bladder tumor, biopsy: positive for malignancy.

Reviewed and electronically signed by: J. Pathdoc, MD- 2007/04/03 11:26

BFS: Biopsy of symphysis pubis bone and soft tissue: positive for malignancy.

Reviewed and electronically signed by: J. Pathdoc, MD- 2007/04/03 13:10

A: Please see description at time of Intraoperative Consultation.

B: Please see description at time of Intraoperative Consultation.

C: The specimen consists of a cystoprostatectomy, which measures 10 cm in length and 10 cm in width. The bladder and prostate measure 7 cm in length and 3.2 x 2.2 x 1.2 cm, respectively. The anterior surface of the specimen, which is non-peritonealized, is inked in green and black on the right and left sides, respectively. The right and the left ureters are identified by sutures and measure 2.5 x 0.4 cm and 2.3 x 0.4 cm, respectively. The anterior surface (non-peritonealized) is firm on palpation. Sectioning through the bladder reveals a very firm and thickened bladder wall, which measures a maximum of 1.6 cm. The mucosa of the bladder is irregular and denuded on the anterior aspect, which extends to the dome of the bladder. Further sectioning through the thickened wall reveals a pale tan firm lesion, which appears to involve the bladder wall through its full thickness. Sectioning of the prostate and seminal vesicles is unremarkable.

Sections submitted are as follows: (C1) ureteric margins en face; (C2-3) (C4) (C5-6) full thickness section of bladder showing firm pale tan lesion; (C7) bladder neck; (C8, 9) anterior wall of bladder; (C10, 11) posterior wall of bladder; (C12) (C13-14) full thickness sectioning showing dome of bladder; (C15, 16) trigone of bladder; (C17) sections right ureter; (C18) sections left ureter; (C19-22) right seminal vesicle in toto; (C23) base of right seminal vesicle; (C24) apex of right lobe of prostate; (C25) base of right lobe of prostate; (C26-31) cross sections of prostate in toto from apex to base; (C32-33) left seminal vesicle in toto; (C34) base of left seminal vesicle; (C35) apex of left lobe of prostate; (C36) base of left lobe of prostate; (C37-43) left lobe of prostate in toto from apex to base.

D: The specimen consists of a fragment of adipose tissue, which measures 6.5 x 3.5 x 0.5 cm. Palpation reveals possible nodes. Sections submitted are as follows: (D1) possible five node; (D2) possible five nodes; (D3) possible four nodes.

E: Gross description to follow decalcification. Supplemental report to follow.

F: The specimen consists of pale tan fragments of bony tissue which measures 2 x 1.1 x 0.5 cm. All tissue embedded in one cassette and submitted for decalcification (F1).

G: The specimen consists of multiple fragments of dark tan adipose tissue, which vary in size from 1 x 0.5 x 0.3 cm to 5 x 2 x 2.5 cm. Palpation reveals possible nodes. Sections submitted are as follows: (G1) possible three nodes; (G2) possible four nodes; (G3) possible five nodes.

H: The specimen consists of a mesorectal excision, which is comprised of the sigmoid colon, rectum, anal canal, and anus. The specimen measures 30 cm in length and 6 cm along its maximum diameter. Externally, the serosa of the large bowel is dark tan, smooth and shiny for the most part except for an area that appears firm and subtly puckered and feels firm. It is located at a distance of 18 cm from the proximal resection margin and 10 cm from the distal resection margin. The anterior bare area of the mesorectum is inked in blue, while the posterior bare area of mesorectum is inked in black. The mesorectum is intact and bulky. There are no defects, no coning of the specimen, and no abnormally firm areas. The specimen has been previously opened as per the MRE protocol. Internally, underneath the puckered area there is an exophytic, pale tan lesion, which measures 2.6 x 2.5 x 2.3 cm. This lesion is located at a distance of 18 cm from the proximal resection

margin and 10 cm from the distal resection margin. It is located at a distance of 2.5 cm from the radial resection margin. There is a small polyp measuring 1.1 cm along its maximum dimensions located at a distance of 8 cm from the proximal resection margin. There are no other lesions or masses identified elsewhere. The proximal, distal and radial resection margins have been inked in black prior to submitting sections. Sectioning of the exophytic mass reveals that grossly it does not appear to have invaded beyond the muscularis propria. There is a small polyp noted measuring 1.1 cm along its maximum dimensions and located at a distance of 8 cm from the proximal resection margin.

Sections submitted are as follows: (H1) proximal resection margin; (H2) distal resection margin; (H3) radial resection margin/circumferential resection margin; (H4-6) full thickness sectioning showing exophytic pale tan lesion; (H7-8) full thickness section showing exophytic pale tan lesion; (H9) uninvolved large bowel; (H10) possible four nodes; (H11) one node bisected into two; (H12) possible four nodes; (H13) possible four nodes; (H14) one node bisected into two; (H15) possible one node bisected into two; (H16) polyp in toto. 2007/04/11 08:14

MICROSCOPIC

A: Sections examined.

B: Sections examined.

C: Sections of the bladder show invasive urothelial carcinoma, high grade. It is extending through the muscularis propria into the perivesical. The anterior margin/anterior surface of the bladder is positive for malignancy. The ureteric margins are negative. There is no evidence of lymphatic, vascular or perineural invasion. There is a significant amount of fibroinflammatory reaction present on the peritoneal surface raising suspicion of focal penetration. However, no tumor is appreciated on the peritoneal surface in the tissue sections examined. Sections of prostate show focal areas of atrophic glands. There is no evidence of prostatic adenocarcinoma, PIN, ASAP, active and chronic inflammation. The urothelial carcinoma does not appear to involve the prostate, seminal vesicles, or bowel.

D: Sections examined.

G: Sections examined.

H: COLON AND RECTUM: Resection, Including Transanal Disk Excision of Rectal Neoplasms Tissue(s) received: sigmoid colon, rectum, anal canal, anus
Specimen type: abdominoperineal resection
Histologic Type: adenocarcinoma
Histologic Grade: low grade (well to moderately differentiated)
Tumor Site: rectum
Depth of Invasion: invasion into muscularis propria (pT2)
Tumor Border Configuration: infiltrating
Lymphovascular (Small Vessel) Invasion: absent
Venous (Large Vessel) Invasion: absent
Perineural Invasion: absent
Host Response: Conspicuous lymphocytes at invasive edge (not in aggregates): absent
Lymphoid aggregates in surrounding tissues: absent
Intratumoral lymphocytic infiltrate: absent
Resection Margins: Proximal: uninvolved by invasive carcinoma
Distal: uninvolved by invasive carcinoma
Radial: uninvolved by invasive carcinoma
Distance of invasive carcinoma from closest margin: 2.5 from radial margin
Lymph Node Status: no malignancy in 11 regional lymph nodes (pN0)
Additional Pathological Findings: adenoma(s)
Pathological Stage: pT2N0Mx

DIAGNOSIS

A: Bladder tumor, biopsy: positive for invasive urothelial carcinoma.

B: Biopsy, symphysis pubis bone and soft tissue: positive for urothelial carcinoma.

C: Prostate and bladder, cystoprostatectomy:

- invasive urothelial carcinoma, high grade;
- extending through muscularis propria;
- anterior margin/anterior surface of the bladder positive for tumor;
- ureteric margins negative;
- no evidence of lymphatic, vascular or perineural invasion;
- prostate unremarkable.

D: Left pelvic lymph node, excisional biopsy: 7 nodes negative for malignancy.

E: Partial symphyectomy: pending decalcification, supplemental report to follow.

F: Biopsy, left pubic ramus: pending decalcification, supplemental report to follow.

G: Right pelvic lymph nodes, excisional biopsy: 11 lymph nodes negative for malignancy.

H: Sigmoid colon, rectum, anus, abdominoperineal resection:

- adenocarcinoma of the colon (see synoptic report);
- arising in villous adenoma.

Case reviewed with..., M.D., Resident

CLASSIFICATION

Topography: C679 C187 Morphology: 81203 81403 Laterality:

E.2.5.1. Example Message

This example illustrates the HL7 Message encoding of the above example report. There are three OBR segments: one for the overall summary report, one for the text report, and one for the synoptic report. There are eight SPM segments, one for each of the eight individually identified and documented tissue specimens in the case. Local codes for OBX-3 values are “made up” in this example, as the narrative report above does not identify such codes; these are required because the OBX-3 is a CE field and must have a coded value to identify what is being reported in the OBX-5 Observation Value field.

In the example below, the string “<CR>” is used at the end of every segment to indicate the end of the segment, rather than a line-break for long text. This is not part of the legal HL7 message, but is a construct used here to make the message more readable. The example also illustrates a situation where the different specimen parts have all been accessioned differently, but there is a single surgical path number for the entire case (97810430).

```
MSH|^~\&|TESTLAB1|INDEPENDENT LAB
SERVICES^LABCLIANUM^CLIA|||200404281339||ORU^R01^ORU_R01|2004042813390045|P|2.5.1|||
|
VOL_V_50_ORU_R01^NAACCR_CP <CR>
PID|1||123456789^^^^SS|000039^^^^LR|CANE^Candy^^^Ms.||19570706|F||2106-3|495 East
Overshoot Drive^^Delmar^NY^12054^^H||^518^5559999||M||4442331235 <CR>
ORC|RE|||General Hospital^^123456^^^AHA|857 Facility
Lane^^Albany^NY^12205|^518^3334444|100 Provider St^^Albany^NY^12205 <CR>
OBR|1||97810430|60567-5^Comprehensive pathology report
panel^LN|||200404261530|||TISS|1234567^Myeolmus^John^^MD|(518)424-
4243|||F|||99999&Glance&Justin&A&MD <CR>
```

OBX|1|TX|22636-5^clinical history^LN|1|Bladder tumor, rectal cancer metastasis orpost radiation therapy necrosis|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBR|2||97810430|11529-5^Surgical Pathology Study Report^LN|||20040426|||||TISS^Tissue^HL70487|1234567^Myeolmus^John^MD|(518)424-4243|||||F|60567-5^Comprehensive pathology report panel&LN|||^97810430|||99999&Glance&Justin&A^MD <CR>

OBX|1|CWE|21855-2^Primary site Cancer^LN|2|C679^Bladder Wall^ICD03|||||F|||200704041500|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|2|CWE|21855-2^Primary site Cancer^LN|2|C187^Sigmoid Colon^ICD03|||||F|||200704041500|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|3|CWE|59848-2^Morphology.ICD-O-3^LN|2|81203^Transitional Cell Carcinoma, NOS^ICD03|||||F|||200704041500|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|4|CWE|59848-2^Morphology.ICD-O-3^LN|2|81403^Adenocarcinoma NOS^ICD03|||||F|||200704041500|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|5|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|2|The specimen consists of numerous rubbery tan fragments measuring approximately 5 cm in aggregate. The fragments range in size from a few mm up to 1.5 cm. Several fragments are submitted in (A1FS&A2FS).|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|6|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|2|BFS: The specimen consists of multiple irregular fragments of soft tissue and bone, the largest measures approximately 2 cm in maximum dimension. Representative soft tissue is submitted in B1FS and B2FS.|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|7|TX|44833-2^Diagnosis.preliminary^LN|2|Bladder tumor, biopsy: positive for malignancy.|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA|P123456^PATHDOC^Jason

OBX|8|TX|^L34^ELECTRONIC SIGNATURE^L|2|Reviewed and electronically signed by: Jason Pathdoc, MD- 2007/04/03 11:26|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|9|TX|44833-2^Diagnosis.preliminary^LN|2|BFS: Biopsy of symphysis pubis bone and soft tissue: positive for malignancy.|||||F|||200407201500|01D0301145^HITECK PATH LAB^CLIA|P123456^PATHDOC^Jason

OBX|10|TX|^L34^ELECTRONIC SIGNATURE^L|2|Reviewed and electronically signed by: Jason Pathdoc, MD- 2007/04/03 13:10|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|11|TX|^L117^CASE REVIEW^L|1|Case reviewed with..., M.D., Resident|||||F|||200704041500|01D0301145^HITECK PATH LAB^CLIA

SPM|1|^97810430A^HITECKSPCID|TISS^Tissue^HL70487|||||200704020930|200704021500| |||||0704500123^^^01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|1|TX|22633-2^Path Report.Site of origin^LN^L47^SUBMITTED TISSUE^L|1|A(fsi) (gums) Bladder tumor|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|2|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|1|Please see description at time of Intraoperative Consultation. |||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|3|TX|22635-7^Path Report.Microscopic Observation^LN^L589^MICROSCOPIC^L|1|A: Sections examined.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|4|TX|22637-3^Path report.final diagnosis^LN|1|A: Bladder tumor, biopsy: positive for invasive urothelial carcinoma.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

SPM|2|^97810430B^HITECKSPCID|TISS^Tissue^HL70487|||||200704020930|200704021500| |||||0704500123^^^01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|1|TX|22633-2^Path Report.Site of origin^LN^L47^SUBMITTED TISSUE^L|2|B(fss) (gums) Symphysis pubis bone|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|2|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|2|Please see description at time of Intraoperative Consultation. |||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|3|TX|22635-7^Path Report.Microscopic Observation^LN^L589^MICROSCOPIC^L|2|B: Sections examined.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|4|TX|22637-3^Path report.final diagnosis^LN|2|B: Biopsy, symphysis pubis bone and soft tissue: positive for urothelial carcinoma.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

SPM|3|^97810430C^HITECKSPCID|TISS^Tissue^HL70487|||||200704020930|200704021500| |||||0704500123^^^01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|1|TX|22633-2^Path Report.Site of origin^LN^L47^SUBMITTED TISSUE^L|3|C(gupr) Prostate and bladder|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|2|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|3|The specimen consists of a cystoprostatectomy, which measures 10 cm in length and 10 cm in width. The bladder and prostate measure 7 cm in length and 3.2 x 2.2 x 1.2 cm, respectively. The

anterior surface of the specimen, which is non-peritonealized, is inked in green and black on the right and left sides, respectively. The right and the left ureters are identified by sutures and measure 2.5 x 0.4 cm and 2.3 x 0.4 cm, respectively. The anterior surface (non-peritonealized) is firm on palpation. Sectioning through the bladder reveals a very firm and thickened bladder wall, which measures a maximum of 1.6 cm. The mucosa of the bladder is irregular and denuded on the anterior aspect, which extends to the dome of the bladder. Further sectioning through the thickened wall reveals a pale tan firm lesion, which appears to involve the bladder wall through its full thickness. Sectioning of the prostate and seminal vesicles is unremarkable.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|3|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|3|Sections submitted are as follows: (C1) ureteric margins en face; (C2-3) (C4) (C5-6) full thickness section of bladder showing firm pale tan lesion; (C7) bladder neck; (C8, 9) anterior wall of bladder; (C10, 11) posterior wall of bladder; (C12) (C13-14) full thickness sectioning showing dome of bladder; (C15, 16) trigone of bladder; (C17) sections right ureter; (C18) sections left ureter; (C19-22) right seminal vesicle in toto; (C23) base of right seminal vesicle; (C24) apex of right lobe of prostate; (C25) base of right lobe of prostate; (C26-31) cross sections of prostate in toto from apex to base; (C32-33) left seminal vesicle in toto; (C34) base of left seminal vesicle; (C35) apex of left lobe of prostate; (C36) base of left lobe of prostate; (C37-43) left lobe of prostate in toto from apex to base.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|4|TX|22635-7^Path Report.Microscopic Observation^LN^L589^MICROSCOPIC^L|3|C: Sections of the bladder show invasive urothelial carcinoma, high grade. It is extending through the muscularis propria into the perivesical. The anterior margin/anterior surface of the bladder is positive for malignancy. The ureteric margins are negative. There is no evidence of lymphatic, vascular, or perineural invasion. There is a significant amount of fibroinflammatory reaction present on the peritoneal surface raising suspicion of focal penetration. However, no tumor is appreciated on the peritoneal surface in the tissue sections examined. Sections of prostate show focal areas of atrophic glands. There is no evidence of prostatic adenocarcinoma, PIN, ASAP, active and chronic inflammation. The urothelial carcinoma does not appear to involve the prostate, seminal vesicles or bowel. |||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|5|TX|22637-3^Path report.final diagnosis^LN|3|C: Prostate and bladder, cystoprostatectomy: \X0D\\X0A\ - invasive urothelial carcinoma, high grade; \X0D\\X0A\ - extending through muscularis propria; \X0D\\X0A\ - anterior margin/anterior surface of the bladder positive for tumor; \X0D\\X0A\ - ureteric margins negative; \X0D\\X0A\ - no evidence of lymphatic, vascular or perineural invasion; \X0D\\X0A\ - prostate unremarkable.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

SPM|4|^97810430D&HITECKSPCID|TISS^Tissue^HL70487|||||200704020930|200704021500|| |||||0704500123^^^01D0301145&HITECK PATH LAB^CLIA<CR>

OBX|1|TX|22633-2^Path Report.Site of origin^LN^L47^SUBMITTED TISSUE^L|4|D(gums) Left pelvic lymph nodes|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|2|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|4|The specimen consists of a fragment of adipose tissue, which measures 6.5 x 3.5 x 0.5 cm. Palpation reveals possible nodes. Sections submitted are as follows: (D1) possible five node; (D2) possible five nodes; (D3) possible four nodes.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|3|TX|22635-7^Path Report.Microscopic Observation^LN^L589^MICROSCOPIC^L|4|D: Sections examined.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|4|TX|22637-3^Path report.final diagnosis^LN|4|D: Left pelvic lymph node, excisional biopsy: 7 nodes negative for malignancy.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

SPM|5|^97810430E&HITECKSPCID|TISS^Tissue^HL70487|||||200704020930|200704021500|| |||||0704500123^^^01D0301145&HITECK PATH LAB^CLIA<CR>

OBX|1|TX|22633-2^Path Report.Site of origin^LN^L47^SUBMITTED TISSUE^L|5|E(gums) Partial symphyectomy|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|2|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|5|Gross description to follow decalcification. Supplemental report to follow.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

OBX|3|TX|22637-3^Path report.final diagnosis^LN|5|E: Partial symphyectomy: pending decalcification, supplemental report to follow.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>

SPM|6|^97810430F&HITECKSPCID||TISS^Tissue^HL70487|||||200704020930|200704021500||
 |||||0704500123^^^01D0301145&HITECK PATH LAB^CLIA<CR>
 OBX|1|TX|22633-2^Path Report.Site of origin^LN^L47^SUBMITTED TISSUE^L|6|F(gums) Left
 pubic ramus biopsy|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
 OBX|2|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|6|The specimen
 consists of pale tan fragments of bony tissue, which measures 2 x 1.1 x 0.5 cm. All
 tissue embedded in one cassette and submitted for decalcification
 (F1).|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>
 OBX|3|TX|22637-3^Path report.final diagnosis^LN|6|F: Biopsy, left pubic ramus: pending
 decalcification, supplemental report to follow.|||||F|||200704110841|01D0301145^HITECK
 PATH LAB^CLIA <CR>
 SPM|7|^97810430G&HITECKSPCID||TISS^Tissue^HL70487|||||200704020930|200704021500||
 |||||0704500123^^^01D0301145&HITECK PATH LAB^CLIA<CR>
 OBX|1|TX|22633-2^Path Report.Site of origin^LN^L47^SUBMITTED TISSUE^L|7|G(gums) Right
 pelvic lymph node dissection|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
 OBX|2|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|7|The specimen
 consists of multiple fragments of dark tan adipose tissue, which vary in size from 1 x
 0.5 x 0.3 cm to 5 x 2 x 2.5 cm. Palpation reveals possible nodes. Sections submitted are
 as follows: (G1) possible three nodes; (G2) possible four nodes; (G3) possible five
 nodes.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>
 OBX|3|TX|22635-7^Path Report.Microscopic Observation^LN^L589^MICROSCOPIC^L|7|G: Sections
 examined.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>
 OBX|4|TX|22637-3^Path report.final diagnosis^LN|7|G: Right pelvic lymph nodes, excisional
 biopsy: 11 lymph nodes negative for malignancy.|||||F|||200704110841|01D0301145^HITECK
 PATH LAB^CLIA <CR>
 SPM|8|^97810430H&HITECKSPCID||TISS^Tissue^HL70487|||||200704020930|200704021500||
 |||||0704500123^^^01D0301145&HITECK PATH LAB^CLIA<CR>
 OBX|1|TX|22633-2^Path Report.Site of origin^LN^L47^SUBMITTED TISSUE^L|8|H(gurs)
 Rectum|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
 OBX|2|TX|22634-0^Path Report.Gross Observation^LN^L567^GROSS PATHOLOGY^L|8|The specimen
 consists of a mesorectal excision, which is comprised of the sigmoid colon, rectum, anal
 canal, and anus. The specimen measures 30 cm in length and 6 cm along its maximum
 diameter. Externally, the serosa of the large bowel is dark tan, smooth and shiny for the
 most part except for an area which appears firm and subtly puckered and feels firm. It is
 located at a distance of 18 cm from the proximal resection margin and 10 cm from the
 distal resection margin. The anterior bare area of the mesorectum is inked in blue, while
 the posterior bare area of mesorectum is inked in black. The mesorectum is intact and
 bulky. There are no defects, no coning of the specimen, and no abnormally firm areas. The
 specimen has been previously opened as per the MRE protocol. Internally, underneath the
 puckered area there is an exophytic, pale tan lesion, which measures 2.6 x 2.5 x 2.3 cm.
 This lesion is located at a distance of 18 cm from the proximal resection margin and 10
 cm from the distal resection margin. It is located at a distance of 2.5 cm from the
 radial resection margin. There is a small polyp measuring 1.1 cm along its maximum
 dimensions located at a distance of 8 cm from the proximal resection margin. There are no
 other lesions or masses identified elsewhere. The proximal, distal, and radial resection
 margins have been inked in black prior to submitting sections. Sectioning of the
 exophytic mass reveals that grossly it does not appear to have invaded beyond the
 muscularis propria. There is a small polyp noted measuring 1.1 cm along its maximum
 dimensions and located at a distance of 8 cm from the proximal resection margin.
 \X0D\X0A\ Sections submitted are as follows: (H1) proximal resection margin; (H2)
 distal resection margin; (H3) radial resection margin/circumferential resection margin;
 (H4-6) full thickness sectioning showing exophytic pale tan lesion; (H7-8) full thickness
 section showing exophytic pale tan lesion; (H9) uninvolved large bowel; (H10) possible
 four nodes; (H11) one node bisected into two; (H12) possible four nodes; (H13) possible
 four nodes; (H14) one node bisected into two; (H15) possible one node bisected into two;
 (H16) polyp in toto.|||||F|||200704110841|01D0301145^HITECK PATH LAB^CLIA <CR>
 OBX|3|TX|22637-3^Path report.final diagnosis^LN|8|H: Sigmoid colon, rectum, anus,
 abdominoperineal resection: \X0D\X0A\ - adenocarcinoma of the colon (see synoptic
 report); \X0D\X0A\ - arising in villous adenoma.|||||F|||200704110841|01D0301145^HITECK
 PATH LAB^CLIA <CR>
 OBR|3||97810430|^L5671^COLON AND RECTUM: Resection, Including Transanal Disk Excision
 of Rectal Neoplasms ^ L|||20070405|||||1234567^Myeolmus^John^MD|(518)424-
 4243|||||F|||^S91-1700||99999&Glance&Justin&A&MD|||||11529-5^Surgical

```

Pathology Study Report^LN <CR>
OBX|1|TX|60573-3^Report template source^LN||CAP Synoptic
Segmented|||||F|||200906151630<CR>
OBX|2|TX|60572-5^Report template ID^LN||Colon and Rectum: Resection, Including Transanal
Disk Excision of Rectal Neoplasms|||||F|||200906151630<CR>
OBX|3|TX|60574-1^Report template version ID^LN||2.6|||||F|||200906151630<CR>
OBX|4|TX|^^^L6223^Tissue(s) received^L|12|sigmoid colon, rectum, anal canal,
anus|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|5|TX|^^^L6235^Specimen type^L|12|abdominoperineal
resection|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|6|TX|^^^L6257^Histologic
Type^L|12|adenocarcinoma|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|7|TX|^^^L6259^Histologic Grade^L|12|low grade (well to moderately
differentiated)|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|8|TX|^^^L6303^Tumor Site^L|12|rectum|||||F|||200704031100|01D0301145^HITECK PATH
LAB^CLIA <CR>
OBX|9|TX|^^^L6378^Depth of Invasion^L|12|invasion into muscularis propria
(pT2)|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|10|TX|^^^L6389^Tumor Border
Configuration^L|12|infiltrating|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA
<CR>
OBX|11|TX|^^^L6345^Lymphovascular (Small Vessel)
Invasion^L|12|absent|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|12|TX|^^^L6356^Venous (Large Vessel)
Invasion^L|12|absent|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|13|TX|^^^L6367^Perineural
Invasion^L|12|absent|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|14|TX|^^^L6369^Host Response: Conspicuous lymphocytes at invasive edge (not in
aggregates)^L|12|absent|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|15|TX|^^^L6371^Lymphoid aggregates in surrounding
tissues^L|12|absent|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|16|TX|^^^L6373^Intratumoral lymphocytic
infiltrate^L|12|absent|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|17|TX|^^^L6375^Resection Margins: Proximal^L|12|uninvolved by invasive
carcinoma|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|18|TX|^^^L6376^Resection Margins: Distal^L|12|uninvolved by invasive
carcinoma|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|19|TX|^^^L6376^Resection Margins: Radial^L|12|uninvolved by invasive
carcinoma|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|20|TX|^^^L6379^Distance of invasive carcinoma from closest
margin^L|12|2.5 mm|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|21|TX|^^^L6383^Lymph Node Status^L|12|no malignancy in 11 regional lymph nodes
(pN0)|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|22|TX|^^^L7355^Additional Pathological
Findings^L|12|adenoma(s)|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>
OBX|23|TX|^^^L6476^Pathological
Stage^L|12|pT2N0Mx|||||F|||200704031100|01D0301145^HITECK PATH LAB^CLIA <CR>

```

E.3. Synoptic Report Examples Using the CAP Checklists

E.3.1. Sample Report Using a CAP Cancer Checklist

The following example illustrates a prostate case and is a portion of a report where the CAP Cancer Checklist¹ for the Prostate Protocol could sensibly be used. The information has been filled out for illustrative purposes.

¹ College of American Pathologists electronic Cancer Checklists (CAP eCC). August 2019 release. Available with a license from the CAP, 325 Waukegan Road, Northfield, IL 60093, capec@cap.org.

Surgical Pathology Cancer Case Summary (Checklist)	
PROSTATE GLAND: Radical Prostatectomy	
Procedure	Radical prostatectomy
Prostate Size	Weight: 47.2g Size: 4.5 x 4.0 x 4.0 cm
Lymph Node Sampling	No lymph nodes present
Histologic Type	Adenocarcinoma (acinar, not otherwise specified)
Histologic Grade	
	<u>Gleason Pattern</u>
	Primary Pattern: Grade 3 Secondary Pattern: Grade 4 Total Gleason Score: 7
Tumor Quantitation	Proportion (percentage) of prostate involved by tumor: 15% Tumor size: Not applicable
Extraprostatic Extension	Not identified
Urinary Bladder Neck Invasion	Not identified
Seminal Vesicle Invasion	Not identified
Margins	Margins uninvolved by invasive carcinoma
Treatment Effect on Carcinoma	Not identified
Lymph-Vascular Invasion	Not identified
Pathologic Staging	TNM Descriptors: Not applicable Primary Tumor (pT): pT2 Regional Lymph Nodes (pN): pNX Distant Metastasis (pM): Not applicable

Example Message for This Synoptic Segmented Report

Note that the demographic information in this example message is the same as for the above examples, and is included for completeness of the example message. A number of encoding strategies have been applied to achieve this message:

- Every piece of information in the checklist is carried in the message.
- The items are populated in the message sequentially, and every OBX carries a Set-ID value in OBX-1 that is sequentially numbered and corresponds to each line on the displayed checklist.
- Every question-answer pair is encoded in a single OBX segment.
- Every captured data item is considered to be text, i.e., value type in OBX-2 is “TX”, even if the value is a numeric measurement
- “Headers” of sections of the display report (such as Histologic Grade in the above example) are carried in the message, and are encoded with “^Header” in OBX-3 and the text in OBX-5.
- Multiple question-answer pairs that are grouped together under a particular heading (such as the four question-answer pairs in Pathologic Staging in the example above) should be linked together with the OBX-4 Sub-ID field to preserve their association. However, this is not an absolute requirement, as some systems may be unable to construct this linking.
- This message contains only the synoptic report.

```

MSH|^~\&||INDEPENDENT LAB
SERVICES^33D1234567^CLIA|||201907281339||ORU^R01^ORU_R01|2019072813390045|P|2.5.1|||||
|VOL_V_50_ORU_R01^NAACCR_CP<CR>
PID|I||00466144^MR~123456789^SS||Cane^Candy||19570706|F||2106-3^White^HL70005|495
East Overshoot Drive^Delmar^NY^12054^H|||||M<CR>
ORC|RE|||||Albany Medical Center|43 New Scotland Ave.^Albany^NY^12208||43
New Scotland Ave.^Albany^NY^12208<CR>
OBR|1||123456789|60568-3^Synoptic report
^LN|||201907261530|||||TISS|164341^SURGEON^HANNAH^^DR|||||F|60567-5&Comprehensive
pathology report panel&LN|||^97810430||55555555&Welby&Marcus&&Dr.&MD&&NPI<CR>
SPM|1|^3567829||TISS^Tissue^HL70487|K|||||200407200930|200407211500|||||97
810430^^^33D1234567&INDEPENDENT LAB SERVICES<CR>
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F|||201907261530<CR>
OBX|2|ST|60572-5^Report template ID^LN||128.1000043^PROSTATE GLAND: Radical
Prostatectomy^CAPECC |||||F|||201907261530<CR>
OBX|3|ST|60574-1^Report template version ID^LN||
4.0.4.0|||||F|||201907261530<CR>
OBX|4|TX|Procedure:|1|Radical prostatectomy|||||F<CR>
OBX|5|TX|Header|2|Prostate Size|||||F<CR>
OBX|6|TX|Prostate weight|2.1|47.2g|||||F<CR>
OBX|7|TX|Size|2.2|4.5 x 4.0 x 4.0 cm|||||F<CR>
OBX|8|TX|Lymph Node Sampling|2.3|No lymph nodes present|||||F<CR>
OBX|9|TX|Histologic type|2.4|Adenocarcinoma (acinar, not otherwise specified)
|||||F<CR>
OBX|10|TX|Header|3|Histologic grade|||||F<CR>
OBX|11|TX|Header|3.1|Gleason Pattern|||||F<CR>
OBX|12|TX|Primary Pattern|3.1.1|3|||||F<CR>
OBX|13|TX|Secondary Pattern|3.1.2|4|||||F<CR>
OBX|14|TX|Total Gleason score|3.1.3|7|||||F<CR>
OBX|15|TX|Header|3.2|Tumor Quantitation|||||F<CR>
OBX|16|TX|Proportion (percent) of prostate involved by tumor|3.3|15%|||||F<CR>
OBX|17|TX|Tumor size:|3.4|Not applicable|||||F<CR>
OBX|18|TX|Extraprostatic extension|3.5|Not identified|||||F<CR>
OBX|19|TX|Urinary Bladder Neck Invasion|3.6|Not identified|||||F<CR>
OBX|20|TX|Seminal vesicle invasion|3.7|Not identified|||||F<CR>
OBX|21|TX|Margins|3.8|Margins uninvolved by invasive carcinoma|||||F<CR>
OBX|22|TX|Lymph-Vascular invasion|3.9|Not identified|||||F<CR>
OBX|23|TX|Treatment Effect on Carcinoma|3.10|Not identified|||||F<CR>
OBX|24|TX|Header||Pathologic staging (pTNM)|||||F<CR>
OBX|25|TX|TNM Descriptors|.1|Not applicable|||||F<CR>
OBX|26|TX|Primary Tumor (pT)|.2|pT2|||||F<CR>
OBX|27|TX|Regional Lymph Nodes (pN)|.3|No nodes submitted or found|||||F<CR>
OBX|28|TX|Distant Metastasis (pM)|.4|Not applicable|||||F<CR>

```

E.3.2. Sample Message Using CAP eCC

The following is part of a CAP eCC data-entry form that was automatically generated from the SDC XML template for Ampulla of Vater.² This example was selected to illustrate several features that were difficult to cover in Chapter 3, including nesting with the use of OBX-4 and the handling of untitled Questions.

² College of American Pathologists electronic Cancer Checklists (CAP eCC). August 2019 release. Available to registries with a free license from the CAP, 325 Waukegan Road, Northfield, IL 60093, capec@cap.org.

15897 - SPECIMEN	
15906 - Procedure	
<input checked="" type="radio"/>	15907 - Ampullectomy
<input type="radio"/>	2229 - Pancreaticoduodenectomy (Whipple resection)
<input type="radio"/>	15908 - Other (specify) <input type="text"/>
<input type="radio"/>	15909 - Not specified
15910 - TUMOR	
34390 - Tumor Site (Note A)	
<input checked="" type="radio"/>	2234 - Intra-ampullary <input type="text" value="perforated"/>
33456 -	
<input checked="" type="radio"/>	33457 - Arising from intra-ampullary papillary-tubular neoplasm (IAPN)
<input type="radio"/>	33458 - Ampullary ductal (pancreaticobiliary-type)
<input type="radio"/>	33459 - Peri-ampullary / ampullary duodenal (arising from duodenal surface of the papilla) <input type="text"/>
<input type="radio"/>	33460 - Intra-ampullary and peri-ampullary (mixed type) <input type="text"/>
<input type="radio"/>	15911 - Other (specify) <input type="text"/>
<input type="radio"/>	15912 - Cannot be determined <input type="text"/>
<input type="radio"/>	2237 - Not specified
52515 - Histologic Type (Note C)	
<input checked="" type="radio"/>	2245 - Adenocarcinoma
<input type="radio"/>	27063 - Adenocarcinoma, pancreaticobiliary type
<input type="radio"/>	2247 - Adenocarcinoma, intestinal type

In the above image, eCC IDs are shown in red, with the CAP namespace (.100004300) removed to save space. Sections have a dark blue background. Questions have a light blue background. Note that the sub-Question with ID 33456 is untitled, and this sub-Question is a child of the LIR with ID 2234. This LIR (2234) is selected and contains a user's Response ("perforated"). Note that the two other Questions (with IDs 34390 and 52515) are subsumed by a parent Section (15910 Tumor). All of these features will be represented in the resultant set of OBX rows in the message.

The next page shows the part of the original SDC XML that was used to automatically generate the above data entry form; the user's responses also have been included in the SDC XML to simulate the data available in an eCC-based software system. The XML parts required for HL7 message creation are highlighted. This XML sample contains some SDC attributes (e.g., name and order) that are not covered in this document, but these will be ignored in this example.

```
<?xml version="1.0" encoding="utf-8"?>
<FormDesign xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" ID="Ampulla.Res.131_3.001.001.REL_sdcFDF" baseURI="www.cap.org/eCC"
fullURI="baseURI=www.cap.org/eCC&_lineage=Ampulla.Res.131&_version=3.001.001.REL&_docTyp
e=sdcFDF" FormTitle="AMPULLA OF VATER" lineage="Ampulla.Res.131"
filename="Ampulla.Res.131_3.001.001.REL_sdcFDF.xml" version="3.001.001.REL"
```

```

xmlns="urn:ihe:qrph:sd:2016">
  <Property name="Copyright" type="CAPECC_static_text" styleClass="copyright" order="1"
  propName="Copyright" val="(c) 2019 College of American Pathologists. All rights reserved. License
  required for use." />
  <Property name="GenericHeaderText" type="CAPECC_static_text" order="2" propName="GenericHeaderText"
  val="Surgical Pathology Cancer Case Summary" />
  <Property name="Category" type="CAPECC_meta" order="3" propName="Category" val="Digestive System" />
  <Property name="OfficialName" type="CAPECC_meta" order="4" propName="OfficialName" val="AMPULLA OF
  VATER" />
  <Property name="CAP_ProtocolName" type="CAPECC_meta" order="5" propName="CAP_ProtocolName"
  val="Ampulla of Vater" />
  <Property name="CAP_ProtocolShortName" type="CAPECC_meta" order="6" propName="CAP_ProtocolShortName"
  val="Ampulla" />
  <Property name="CAP_ProtocolVersion" type="CAPECC_meta" order="7" propName="CAP_ProtocolVersion"
  val="4.0.0.0" />
  <Property name="TemplateID" type="CAPECC_meta" order="8" propName="TemplateID" val="131.100004300"
  />
  <Property name="Restrictions" type="CAPECC_meta" order="9" propName="Restrictions" val="Please refer
  to the cancer protocol cover page (www.cap.org/cancerprotocols) for information about which tumor
  types and procedures can be reported using this template." />
  <Property name="CAP_Required" type="CAPECC_meta" order="10" propName="CAP_Required" val="true" />
  <Property name="AccreditationDate" type="CAPECC_meta dt.dateTime" order="11"
  propName="AccreditationDate" val="2/28/2018" />
  <Property name="WebPostingDate" type="CAPECC_meta dt.dateTime" order="12" propName="WebPostingDate"
  val="2/27/2019" />
  <Property name="ApprovalStatus" type="CAPECC_meta" order="13" propName="ReleaseStatus" val="REL" />
  <Property name="AJCC_Version" type="CAPECC_meta" order="14" propName="AJCC_Version" val="8th
  Edition" />
  <Body name="Body" order="15" ID="Ampulla.Res.131_3.001.001.REL_sdcFDF_Body">
    <ChildItems name="ch_Body" order="16">
      <Section name="S_15897" order="17" ID="15897.100004300" title="SPECIMEN">
        <ChildItems name="ch_15897_1" order="18">
          <Question name="Q_15906" order="19" ID="15906.100004300" title="Procedure">
            <ListField name="lf_15906_1" order="20">
              <List name="lst_15906_2" order="21">
                <ListItem name="LI_15907" order="22" ID="15907.100004300" title="Ampullectomy"
                selected="true"/>
                <ListItem name="LI_2229" order="23" ID="2229.100004300" title="Pancreaticoduodenectomy
                (Whipple resection)" />
                <ListItem name="LI_15908" order="24" ID="15908.100004300" title="Other (specify)">
                  <Property name="p_rptTxt_15908_1" order="25" propName="reportText" val="{no text}" />
                  <ListItemResponseField name="lirf_15908_2" order="26" responseRequired="true">
                    <Response name="rsp_15908_3" order="27">
                      <string name="str_15908_4" order="28" />
                    </Response>
                  </ListItemResponseField>
                </ListItem>
                <ListItem name="LI_15909" order="29" ID="15909.100004300" title="Not specified" />
              </List>
            </ListField>
          </Question>
        </ChildItems>
      </Section>
      <Section name="S_15910" order="30" ID="15910.100004300" title="TUMOR">
        <ChildItems name="ch_15910_1" order="31">
          <Question name="Q_34390" order="32" ID="34390.100004300" title="Tumor Site (Note A)"
          selected="true">
            <Property name="p_rptTxt_34390_1" order="33" propName="reportText" val="Tumor Site" />
            <ListField name="lf_34390_2" order="34">
              <List name="lst_34390_3" order="35">
                <ListItem name="LI_2234" order="36" ID="2234.100004300" title="Intra-ampullary">
                  <ListItemResponseField name="lirf_2234_1" order="37">
                    <Response name="rsp_2234_2" order="38">
                      <string name="str_2234_3" selected="true" val="perforated"/>
                    </Response>
                  </ListItemResponseField>
                <ChildItems name="ch_2234_4" order="40">
                  <Question name="Q_33456" order="41" ID="33456.100004300" mustImplement="false" minCard="0">
                    <Property name="p_altTxt_33456_1" order="42" propName="altText" val="Intra-ampullary Type"
                    />
                    <ListField name="lf_33456_2" order="43">

```

```

    <List name="lst_33456_3" order="44">
      <ListItem name="LI_33457" order="45" ID="33457.100004300" title="Arising from intra-
ampullary papillary-tubular neoplasm (IAPN)" selected="true"/>
      <ListItem name="LI_33458" order="46" ID="33458.100004300" title="Ampullary ductal
(pancreaticobiliary-type)" />
    </List>
  </ListField>
</Question>
</ChildItems>
</ListItem>
<ListItem name="LI_33459" order="47" ID="33459.100004300" title="Peri-ampullary / ampullary
duodenal (arising from duodenal surface of the papilla)">
  <ListItemResponseField name="lirf_33459_1" order="48">
    <Response name="rsp_33459_2" order="49">
      <string name="str_33459_3" order="50" />
    </Response>
  </ListItemResponseField>
</ListItem>
<ListItem name="LI_33460" order="51" ID="33460.100004300" title="Intra-ampullary and peri-
ampullary (mixed type)">
  <ListItemResponseField name="lirf_33460_1" order="52">
    <Response name="rsp_33460_2" order="53">
      <string name="str_33460_3" order="54" />
    </Response>
  </ListItemResponseField>
</ListItem>
<ListItem name="LI_15911" order="55" ID="15911.100004300" title="Other (specify)">
  <Property name="p_rptTxt_15911_1" order="56" propName="reportText" val="{no text}" />
  <ListItemResponseField name="lirf_15911_2" order="57" responseRequired="true">
    <Response name="rsp_15911_3" order="58">
      <string name="str_15911_4" order="59" />
    </Response>
  </ListItemResponseField>
</ListItem>
<ListItem name="LI_15912" order="60" ID="15912.100004300" title="Cannot be determined">
  <ListItemResponseField name="lirf_15912_1" order="61">
    <Response name="rsp_15912_2" order="62">
      <string name="str_15912_3" order="63" />
    </Response>
  </ListItemResponseField>
</ListItem>
<ListItem name="LI_2237" order="64" ID="2237.100004300" title="Not specified" />
</List>
</ListField>
</Question>
<Question name="Q_52515" order="65" ID="52515.100004300" title="Histologic Type (Note C)">
  <Property name="p_rptTxt_52515_1" order="66" propName="reportText" val="Histologic Type" />
  <ListField name="lf_52515_2" order="67">
    <List name="lst_52515_3" order="68">
      <ListItem name="LI_2245" order="69" ID="2245.100004300" title="Adenocarcinoma"
selected="true"/>
      <ListItem name="LI_27063" order="70" ID="27063.100004300" title="Adenocarcinoma,
pancreaticobiliary type" />
      <ListItem name="LI_2247" order="71" ID="2247.100004300" title="Adenocarcinoma, intestinal
type" />
    </List>
  </ListField>
</Question>

```

... XML truncated here...

All the sample user entries in the data entry form image are highlighted in the SDC XML sample. All message-related information can be extracted from the SDC XML (or from the data entry form software), including, for example, IDs, and title text.

In the table below, information required to create an HL7 2.5.1 synoptic message has been extracted. Information not found in the SDC XML includes demographic information for the PID, ORC, and OBR, specimen information for the SPM segment, and code map data for SNOMED CT and ICD-O-3. Demographic and specimen data must be extracted from the laboratory information system, and code maps for SNOMED CT and ICD-O-3 are available from CAP. Access to code maps can be requested from CAP by

email at capecc@cap.org, and additional information can be found on the CAP eCC website at www.cap.org/capecc.

In the table below, truncated IDs are shown without the CAP namespace, to save space. Note that child → parent eCC linkages are handled in OBX-4. Gray cells are inapplicable for the data type in OBX-2 and the SDC XML content. **Blue background** for OBX-3.2 and OBX-5 indicates an OBX row for a Section. Several eCC features are not demonstrated here, but are described in detail in [Chapter 3](#).

OBX-1	Data Type (OBX-2)	Question or Section ID (OBX-3.1)	Question or Section title (OBX-3.2)	Parent ID (OBX-4)	ListItem ID (OBX-5)	Response val	ListItem title	Comments
OBX 4	ST	15897	SPECIMEN	NULL	SECTION			▶ No parent in OBX-4
OBX 5	CWE	15906	Procedure	15897	15907		Ampullectomy	
OBX 6	ST	15910	TUMOR	NULL	SECTION			▶ No parent in OBX-4
OBX 7	CWE	34390	Tumor Site	15910	2234		Intra-ampullary	▶ OBX-3.2 is derived from the reportText Property, not from title. ▶ ICDO3=C24.1^Ampulla of Vater^ICDO3
OBX 8	TX	34390	Tumor Site	2234		perforated		▶ OBX-3.2 is derived from the reportText Property, not from title. ▶ The OBX row is duplicated to carry the LIR response. ▶ OBX-4 contains the LIR ID (2234) from the previous OBX.
OBX 9	CWE	33456	NULL	34390	33457		Arising from intra-ampullary papillary-tubular neoplasm (IAPN)	▶ OBX-3.2 is NULL because the creation has no title content.
OBX 10	CWE	52515	Histologic Type	2234	2245		Adenocarcinoma	▶ OBX-3.2 is derived from the reportText Property, not from title. ▶ The parent in OBX-4 is a ListItem. ▶ ICDO3 = 8140/3

OBX rows constructed from the above data are shown below. OBR information would be drawn from the host system for the eCC template, and in this case, is simply copied from prior examples in this document. The symbol “<CR>” indicates a line break in the actual message; this consists of ASCII code 13 followed by ASCII code 10. Without formatting for human readability, this short message would appear as follows:

```
OBR|1||123456789|60568-3^Synoptic
Report^LN||201907261530|||TISS|164341^SURGEON^HANNAH^^^DR|||F|60567-
5&Comprehensive pathology report
panel&LN||^97810430||55555555&Welby&Marcus&&Dr.&MD&&NPI<CR>
OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||F||201907261530<CR>
OBX|2|CWE|60572-5^Report template ID^LN||131.100004300^AMPULLA OF
VATER^CAPECC|||F||201907261530<CR>
OBX|3|ST|60574-1^Report template version ID^LN||3.001.001.REL|||F||201907261530<CR>
OBX|4|ST|15897.100004300^SPECIMEN^CAPECC||SECTION|||F||201907261530<CR>
OBX|5|CWE|15906.100004300^Procedure^CAPECC|15897.100004300|15907.100004300^Ampullectomy^C
APECC|||F||201907261530<CR>
OBX|6|ST|15910.100004300^TUMOR^CAPECC||SECTION|||F||201907261530<CR>
OBX|7|CWE|34390.100004300^Tumor Site^CAPECC|15910.100004300|2234.100004300^Intra-
```

```
ampullary^CAPECC^C24.1^Ampulla of Vater^ICD03|||||F|||201907261530<CR>
OBX|8|TX|34390.100004300^Tumor Site^CAPECC|2234.100004300|perforated|||||F|||201907261530<CR>
OBX|9|CWE|33456.100004300^^CAPECC|34390.100004300|33457.100004300^Arising from intra-
ampullary papillary-tubular neoplasm (IAPN)^CAPECC|||||F|||201907261530<CR>
OBX|10|CWE|52515.100004300^Histologic
Type^CAPECC|2234.100004300|2245.100004300^Adenocarcinoma^CAPECC^81403^Adenocarcinoma,
NOS^ICD03|||||F|||201907261530<CR>
```

A reformatted example: To aid reading, an empty line was inserted after the OBR, and also after the first three special OBX rows. The OBR segment is broken after each 10 fields to aid field identification by the reader. Similarly, each OBX line is broken before OBX-5. For each Section, OBX-3.2 and OBX-5 have a **blue background**. Data added from the SDC XML file (and compiled in the above table) or from a CAP code map are **bolded**. These formatting changes would not be present in the actual message.

```

                                OBR Fields (F)
OBR|1||123456789|60568-3^Synoptic Report^LN|||201907261530|||          01-10
{11}||||TISS|164341^SURGEON^HANNAH^^^DR|||||          11-20
{21}||||F|60567-5&Comprehensive pathology report panel&LN|||97810430||          21-30
{31}|55555555&Welby&Marcus&&&Dr. &MD&&CMS<CR>          31-32

OBX|1|ST|60573-3^Report template source^LN||CAP eCC|||||F|||201907261530<CR>
OBX|2|CWE|60572-5^Report template ID^LN||
    131.100004300^AMPULLA OF VATER^CAPECC|||||F|||201907261530<CR>
OBX|3|ST|60574-1^Report template version ID^LN||3.001.001.100004300|||||F|||201907261530<CR>

OBX|4|ST|15897.100004300^SPECIMEN^CAPECC||
    SECTION|||||F|||201907261530<CR>
OBX|5|CWE|15906.100004300^Procedure^CAPECC|15897.100004300|
    15907.100004300^Ampullectomy^CAPECC|||||F|||201907261530<CR>
OBX|6|ST|15910.100004300^TUMOR^CAPECC||
    SECTION|||||F|||201907261530<CR>
OBX|7|CWE|34390.100004300^Tumor Site^CAPECC|15910.100004300|
    2234.100004300^Intra-ampullary^CAPECC^67109009^Structure of ampulla of Vater (body
    structure)|||||F|||201907261530<CR>
OBX|8|TX|34390.100004300^Tumor Site^CAPECC|2234.100004300|
    perforated|||||F|||201907261530<CR>
OBX|9|CWE|33456.100004300^^CAPECC|34390.100004300|
    33457.100004300^Arising from intra-ampullary papillary-tubular neoplasm
    (IAPN)^CAPECC|||||F|||201907261530<CR>
OBX|10|CWE|52515.100004300^Histologic Type^CAPECC|2234.100004300|
    2245.100004300^Adenocarcinoma^CAPECC^81403^Adenocarcinoma,
    NOS^ICD03|||||F|||201907261530<CR>
```

E.4. Messaging Examples General Questions and Answers

The questions and answers in this section make up a “Frequently Asked Questions” (FAQ) about implementing HL7 messages using the information in this Guide. For detailed information about the implementation of synoptic reporting using the coded CAP Cancer Checklists, see [Chapter 3](#).

Question 1: How should the version field in CE and CWE data types be populated?

Answer: Every code system has a release version. Some code systems, such as SNOMED-CT, have a date for this, represented as a month and year, such as “January 2008.” Other code systems, such as LOINC, may alternatively have a numeric version identifier, such as “2.24.” Whatever the coding system publisher declares as the version identifier is the string to be used in the code system version component of the coded data types. Note, however, that the curation process for IDs is such that no version needs to be populated; CAP IDs may be deprecated, but not deleted and will never be repurposed for another clinical concept. When IDs are transmitted in a CE or CWE field, the code system version is not populated.

Question 2: Is a separate OBR used to identify different sections in the report?

Answer: No. Separate OBRs are used to identify different reports, not sections. When completely different reports, such as both a text report and a synoptic report, are included in the same message, then there is an OBR for each of the Reports. Use the OBR-Set ID (OBR-1) as a unique and sequential identifier for these multiple OBRs if they are present. For different report sections, the OBX will be used, with the OBX-3 identifying the section header using LOINC or local codes. These sections are typically items such as “Clinical History,” “Gross Observation,” “Microscopic,” etc. Refer to [Section 1.5.3](#) for more detail.

Question 3: How will local/state/provincial/territorial-specific data items be handled?

Answer: The sending anatomic pathology laboratory and the receiving cancer registry need to agree on the data item, associated codes, data type, and code system identifiers. Wherever possible, LOINC and/or SNOMED CT codes should be used for the question and answer components: OBX-3 and OBX-5. Note that local jurisdictions may acquire their own namespace identifier from CAP for the definition of jurisdiction-specific ID; as the namespace ID is part of the ID value, this provides unique codes.

Question 4: What coding system should be used for Units of Measure in OBX-6?

Answer: In the United States, Units of Measure in laboratories may be communicated using the coding systems “ISO+,” “ANSI+,” or “UCUM.” In the United States, UCUM is preferred. In Canada, the coding system SI (Système Internationale) is usually required; this is a constraint on UCUM, so the OBX-6.3 should be “UCUM” when the OBX-6.1 carries an SI unit.

Question 5: How do I format a message when Reporting for Complex Cases?

Answer: Complex cases involving multiple sites, multiple primaries, multiple reports, and multiple styles involve a number of recommendations to transmit information that can be understood by the Registry. See the recommendations and example above in section [Section 2.2.3.3.2, Multiple Hospital Processing and Reporting with Consults](#).

Question 6: How should the specimen information be uniquely identified in the case of multiple primaries (for example when a patient is diagnosed with more than one cancer in the same primary site; e.g., 2 breast cancers)?

Answer: The information is generally mixed in the text report, such that the entire report refers to the multiple cancers. There should only be a single OBR for the entire report. The information specific to the different specimens is contained in the different OBX segments following the SPM segments, where there is one SPM for each of the separate specimens comprising the report.

Question 7: Pathology data on a single specimen, reported in a single ORC segment, may contain multiple primaries. Some information on each of the multiple primaries is contained in the OBR segment. Some of the fields in the OBR segment are of particular interest to cancer registration, for example, OBR-7 (Path-Date Spec Collection), OBR-16 (Path Ordering Client/Phys), OBR-17 (Path Ordering Client/Phys Phone), and OBR-21 (Path Lab phone number). Is this information always identical across the multiple primaries because it is the same specimen, so there is no need for any repeating OBR?

Answer: Yes, the information in those fields will usually be identical and contained in the OBR segments in the message. This information should be in the first OBR specifying the Comprehensive Report Panel.

Question 8: In cases with multiple specimens, some of the specimen-specific information (ie OBR-14 Specimen Received Date/Time and OBR-15 Specimen Source) is in the OBR. If there is only one OBR for the message, how can this handle multiple specimens?

Answer: You must use the SPM segment, and the message construction that includes the specimen-specific information in the group of segments starting with the SPM and optionally including one or more associated OBX segments when constructing an HL7 ORU_R01 message for a Cancer Pathology Report containing multiple individually identified specimens.

Question 9: How should Addendum and Supplemental Reports be used?

Answer: Addendum reports are a variety of ancillary reports that contain additional information from subsequent testing that are usually completed after the definitive pathology report is released. Supplemental reports are different kinds of reports that provide additional information about the diagnosed case. Many kinds of supplemental reports have been assigned specific LOINC codes. These reports should be submitted using the appropriately assigned LOINC code for the test and if no code exists then the general code for addendum reports [35265-8] should be used. The use of LOINC code 22639-9 for general supplemental reports is deprecated and should not be used in any new or updated interfaces.

Question 10: How should updated reports be handled with messaging?

Answer: Currently, updates to original reports are not transmitted as separate Volume V messages. Modifications to individual reports are merged or appended to the original Volume V message, and then the entire updated message should be re-transmitted, with a report status code in OBR-25 of “C” for “Correction to results.” Note that addenda (new content, not corrections) may be sent separately in their own OBR, with a status of “F” for “Final” as part of the Comprehensive Report Collection. Since the entire collection is being updated or added to, the OBR-25 for the Collection should carry the status “C” for “Correction to results.”

Question 11: Some synoptic checklists may contain headers that help to organize the paper document (e.g., “Margins:” or “Histology:”) but have no entered data as “answers.” Should these be sent in the HL7 message?

Answer: Yes, ideally the Section Headers should be transmitted as described in [Chapter 3](#). This applies to eCC reports as well: Each Section should generate a new OBX row.

Question 12: In situations with a single cancer pathology report that contains multiple cancers, should each cancer be linked to the respective specimens or parts, and, if so, how?

Answer: A single checklist is usually used to cover all specimens from a single surgical procedure. In some circumstances, there may be multiple checklists. These are not explicitly linked to the specimens, as the observations explicitly related to the specimens are (e.g., macroscopic observations during specimen processing), even though the message may contain SPM segments for the separate specimens. Each CAP checklist has its own OBR and associated OBX segments, without using the SPM and observations related specifically to the SPM parts of the message definition for its data.

Question 13: When a patient is diagnosed with more than one primary cancer, (that is, with multiple primaries, where multiple primary malignancies are defined as those arising in different sites and/or are of a different histology or morphology group), how should those be submitted and encoded into a single HL7 version 2.5.1 message?

Answer: The single HL7 message should contain at least two OBR segments, each specific to the multiple primary being examined, where *each* OBR is followed by an OBX segment, and one SPM segment specific to that primary. Depending on how the information is being submitted, narrative style or synoptic message style, the structure of the single HL7 message will differ. A synoptic message style can contain data from multiple specimens that are not uniquely identified in the report. In such situations, the identifier at the case level should be used. If the synoptic message style is used, it will be based on CAP checklists that are specific to that site/histology/behavior combination. For example, in the case of two breast primaries (one primary being Ductal carcinoma, infiltrating (M-8521/3), and the other primary being Lobular and ductal carcinoma (M-8522/3) and both occurring in the *left* breast—the OBR will *generally* contain the same information, and there will be two CAP checklists completed. Each OBR will be followed by an SPM and OBX segment(s), which contains the identical checklist identifiers. Use the OBR-Set ID (OBR-1) as well as SPM segment identifier (SPM-30) as the reports unique and sequential identifier. There will be one of these for each checklist instance. The existence of additional OBRs (each with a different sequential identifier in OBR-2) and unique SPM identifiers will indicate more than one checklist in the message or associated text pathology data. The type of report, as specified in OBR-4, can be used in this case, since two different OBR and SPM segments with different sequence numbers, but the same report type and style, will indicate this circumstance where two different cancers are documented for the same case in the same message.

Appendix F. Mapping to NAACCR Volume II Data Items

This table provides guidance on how to map data received in the HL7 or ASCII fields to the NAACCR Volume II record. For the NAACCR item numbers that are not described in NAACCR Volume II, these are State-Specific items that are recommended to map the pathology data for consistency across cancer registries. Please take note of the comments provided about certain fields.

NAACCR Item Number	NAACCR Item Name in Volume V and in Volume II	HL7 field	Volume V NAACCR Item Name: Blue if not in Vol II	NAACCR E-path Flat File (ASCII) Field	Comment
7010	Path Reporting Fac ID 1	MSH-4.2		3	Sending Facility ID/Lab CLIA number
7011	Path Reporting Fac ID 2				
7012	Path Reporting Fac ID 3				
7013	Path Reporting Fac ID 4				
7014	Path Reporting Fac ID 5				
7020		MSH-4.1	Sending Facility Name/Path Laboratory Name	4	
7030			Sending Facility (Path Lab) Address: No and Street	5	No equivalent in HL7-part of Epath ASCII flat file.
7040			Sending Facility (Path Lab) Addr: City	6	No equivalent in HL7-part of Epath ASCII flat file.
7050			Sending Facility (Path Lab) Addr: State	7	No equivalent in HL7-part of Epath ASCII flat file.
7060			Sending Facility (Path Lab) Addr: Postal Code	8	No equivalent in HL7-part of Epath ASCII flat file.
7070		OBR-21.2	Path Lab Phone Number	9	In HL7 OBR-21.2 is Filler Field 2 – used here for Path Lab phone number.
7080		OBX-5	Patient Age at Specimen Collection	19	Note: units (yrs, days or months) are sent in OBX-6, which is Field 72 in NAACCR ASCII.
7090	Path Report Number 1	OBR-3.1		23	Mapping Issue: NAACCR ASCII max length is 20, HL7 max length is 22.
7091	Path Report Number 2				
7092	Path Report Number 3				
7093	Path Report Number 4				
7094	Path Report Number 5				
7100	Path Order Phys Lic No 1	OBR-16.1		24	
7101	Path Order Phys Lic No 2				
7102	Path Order Phys Lic No 3				
7103	Path Order Phys Lic No 4				

NAACCR Item Number	NAACCR Item Name in Volume V and in Volume II	HL7 field	Volume V NAACCR Item Name: Blue if not in Vol II	NAACCR E-path Flat File (ASCII) Field	Comment
7104	Path Order Phys Lic No 5				
7110		OBR-16.2	Path Ordering Provider Last Name	25	
7120		OBR-16.3	Path Ordering Provider First Name	26	
7130		OBR-16.4	Path Ordering Provider Middle Name	27	
7140		ORC-24.5	Path Ordering Physician Addr: Number and Street	28	
7150		ORC-24.3	Path Ordering Physician City	29	
7160		ORC-24.4	Path Ordering Physician State	30	
7165		ORC-24.	Path Ordering Physician Country	73	
7170		ORC-24.5	Path Ordering Physician ZIP Code or Postal Code	31	
7180		OBR-17	Path Ordering Physician Phone Number	32	
7190	Path Ordering Fac No 1	ORC-21.1		33	Other types of Facility identifiers (outside the U.S.)
7191	Path Ordering Fac No 2				
7192	Path Ordering Fac No 3				
7193	Path Ordering Fac No 4				
7194	Path Ordering Fac No 5				
7195		ORC-21.1	Path Ordering Facility Number NPI		National Provider ID (in the U.S.)
7200		ORC-21.1	Path Ordering Facility Name	34	
7210		ORC-22.1	Path Ordering Facility Address: Number and Street	35	
7220		ORC-22.3	Path Ordering Facility City	36	
7230		ORC-22.4	Path Ordering Facility State	37	
7235		ORC-22.6	Path Ordering Facility Country	76	
7240		ORC-22.5	Path Ordering Facility ZIP Code or Postal Code	38	
7250		ORC-23.1	Path Ordering Facility Telephone Number	39	
7260		OBR-32.1.2	Principal Results Interpreter (Pathologist) Last Name	40	
7270		OBR-32.1.3	Pathologist First Name	41	

7280		OBR-32.1.4	Pathologist Middle Name	42	
------	--	------------	----------------------------	----	--

NAACCR Item Number	NAACCR Item Name in Volume V and in Volume II	HL7 field	Volume V NAACCR Item Name: Blue if not in Vol II	NAACCR E-path Flat File (ASCII) Field	Comment
7290		OBR-33.1.5	Pathologist Name Suffix	43	
7300		OBR-32.1.1	Pathologist License Number	44	Note: In OBR-32.1.9, indicate if it is MD (license number), or NPI (National Provider Identifier)
7305		OBR-32.1.1	Pathologist NPI Number	44	Note: In OBR-32.1.9, indicate if it is NPI
7310		OBR-32.1.9.1	Pathologist License State (where pathologist license issued)	45	
7320	Path Date Spec Collect 1	OBR-7		46	
7321	Path Date Spec Collect 2				
7322	Path Date Spec Collect 3				
7323	Path Date Spec Collect 4				
7324	Path Date Spec Collect 5				
7330		OBR-25	Path Result Status	47	
7340		OBX-5	Path SNOMED CT Codes(s)	48	
7350		OBX-5	Path SNOMED CT Version	49	
7360		OBX-5	Path ICD-CM Code	50	For example: ICD-10 CM codes.
7370		OBX-5	Path ICD-CM Version Number	51	Version of ICD-10 CM used above.
7380		OBX-5	Path CPT Codes	52	
7390		OBX-5	Path CPT Code Version	53	
7400		OBX-5	Path Text Diagnosis	54	This field is used for NAACCR E-path Flat File ASCII if path text <u>cannot</u> be separated out into specific sections, such as Clinical History, etc.
7410		OBX-5	Path Clinical History	55	
7420		OBX-5	Path Nature of Specimen (Site of Origin)	56	
7430		OBX-5	Path Gross Pathology	57	
7440		OBX-5	Path Micro Pathology	58	
7450		OBX-5	Path Final Diagnosis	59	
7460		OBX-5	Path Comment Section	60	
7470		OBX-5	Supplemental Reports	61	
7480	Path Report Type 1	OBR-4	Universal Service ID (Path Report Type)		
7481	Path Report Type 2				

NAACCR Item Number	NAACCR Item Name in Volume V and in Volume II	HL7 field	Volume V NAACCR Item Name: Blue if not in Vol II	NAACCR E-path Flat File (ASCII) Field	Comment
7482	Path Report Type 3				
7483	Path Report Type 4				
7484	Path Report Type 5				
7490		MSH-7	Date/Time of Message (Date Transmitted)	63	
7500		MSH-10	Message Control ID	65	Unique ID for the specific HL7 message (used for quality control, when communicating with the sending lab about issues associated with a specific HL7 report.)
7510		MSH-11	Processing ID	66	Used in HL7 to decide how a message should be processed. For example, D=Debugging, P=Production, T=Training
7515		OBX-15	Producer ID	84	CLIA for the lab that produced the specimen. Usually the same CLIA as in MSH-4, but not always. If one lab is the sender (CLIA in MSH-4), it could also submit for another lab, the producer, whose CLIA goes into OBX-15.
7520		PID-11.7	Patient Address Address Type Code	68	Indicates whether the patient address is, for example, current, permanent, etc. (NAACCR E-path ASCII)
7530		OBR-22	Results Report Status Change: Date/Time	71	NAACCR E-path ASCII
7540		OBX-6	Units for Age at Specimen	72	NAACCR E-path ASCII
7550		PID-29	Patient Death Date and Time	81	NAACCR E-path ASCII
7560		OBR-14	Specimen Received Date	83	NAACCR E-path ASCII
7580		PV1-7	Physician Managing Other		Other types of individual provider IDs
7590		PV1-8	Physician Follow-up Other		Other types of individual provider IDs
7600		PV1-9	Path Physician 3		Other types of individual provider IDs