**Integrating the Healthcare Enterprise**



**IHE Radiation Oncology**

**Technical Framework Supplement**

Radiation Oncology Workflow Exchange (ROWE) Profile

**Draft in preparation for Public Comment**

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<Instructions to authors are encapsulated in angled brackets as “< … >” and denoted with italicized text. These instructions are to be deleted in their entirety prior to publication.>

<Use of capitalization: Please follow standard English grammar rules-only proper nouns and names are upper case. For example, “Modality Actor” is upper case, but “an actor which fulfills the role of a modality” is lower case. Do not use upper case to emphasize a word/topic.>

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**Foreword**

This is a supplement to the IHE <Domain Name> Technical Framework <VX.X>. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

*<For Public Comment:>* This supplement is published on <Month XX, 201x> for Public Comment. Comments are invited and may be submitted at [http://www.ihe.net/<domain>/<domain>comments.cfm](http://www.ihe.net/Technical_Framework/public_comment.cfm). In order to be considered in development of the Trial Implementation version of the supplement, comments must be received by <Month XX, 201X>.

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This supplement describes changes to the existing technical framework documents.

“Boxed” instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume.

Amend section X.X by the following:

Where the amendment adds text, make the added text bold underline. Where the amendment removes text, make the removed text bold strikethrough. When entire new sections are added, introduce with editor’s instructions to “add new text” or similar, which for readability are not bolded or underlined.

General information about IHE can be found at: [www.ihe.net](http://www.ihe.net).

Information about the IHE <Domain Name> domain can be found at: <http://www.ihe.net/Domains/index.cfm>.

Information about the organization of IHE Technical Frameworks and Supplements and the process used to create them can be found at: <http://www.ihe.net/About/process.cfm> and <http://www.ihe.net/profiles/index.cfm>.

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## Introduction to this Supplement

This supplement modifies sections x and y of the IHE-RO Technical Framework.

The intent of this supplement is to describe the specific ways the Hospital information system and Radiation Oncology Information System share data .

## History

|  |  |  |  |
| --- | --- | --- | --- |
| Date | R. | Author | Change Summary |
|  |  |  |  |

## Open Issues and Questions

|  |  |  |  |
| --- | --- | --- | --- |
| # | Intr. in | Resp. | Description |
| 1 | 0.1 | Rishabh Kapoor | * What version of HL7 should we use in this profile?
* Can Radiology based transactions RAD-1 and RAD-12 be reused in this profile?
* How do we limit the demographics messages to patients who are seen in the radiation oncology clinic?
* Should appointment interface be bi-directional i.e. appointment can be created by the Rad/Onc and HIS system or any one system?
* Are their any patient appointment based transactions used in other IHE domains that can be reused in this profile?
 |
| 2 | 0.1 | RK | * How do we limit the demographics messages to patients who are seen in the radiation oncology clinic?
1. HIS has a Rad/Onc flag set if patient is for radiation oncology clinic.
2. Patient registers for an oncology encounter. Appointment location in the PV1 segment:
3. Appointment in a Rad/Onc clinic activity [Rad/Onc consult, SIM etc.) or Appointment with a Rad/Onc provider
4. Event based with human interventions in HIS.
5. Get the full hospital feed of the ADT demographics in Rad/Onc TMS and then user can select the rad/onc patient from this temporary database.
 |
| 3 | 0.2 | RK | * Which segment should indicate the pregnancy and pacemaker status in the ADT feed?
* Where should we indicate the patient transportation / DNR status?
* Added the disability information (DB1) segment to the ADT.
 |

Closed Issues

|  |  |  |  |
| --- | --- | --- | --- |
| # | Intr. in | Resp. | Description |
|  |  |  |  |

Volume 1 – Profiles

## Copyright Licenses

*Not applicable*

## Domain-specific additions

*Not applicable*

1. **Patient Demographics and Appointment Exchange Workflow (ROWE-1)**

During the Radiation Oncology clinical process, clinical staff typically enters patient registration and demographic data multiple times. For example: into the Radiation Oncology Treatment Management Systems at the patient's initial visit to the Radiation Oncology department; at the imaging modality; at the treatment planning workstation.

The patient information is often read manually from patient information displayed by the HIS application, and then typed into the Radiation Oncology application(s), a time-consuming and error-prone process.

In addition, if any of the patient's information changes in the HIS (for instance, medical record number, family name), there is no well-defined mechanism for propagating those changes to the TMS.

* 1. **Overview**

Patient is registered at the ADT system and an HL7 patient registration message is sent to the radiation oncology treatment management system (TMS) and patient appointment system (PAM).

* 1. **ROWE-1 Actors, Transactions**

**Actor Descriptions**

**ADT Patient Registration**

A system responsible for adding and/or updating patient demographic and encounter information. In particular, it registers a new patient with the hospital information System.

**Patient Appointment Manager**

A system responsible for adding and/or updating patient’s appointments in the hospital information system for Radiation therapy visits.

**Treatment Management System “TMS”**

A department-based information system that provides functions related to the management of patient appointment and other treatment related activities.

ADT

Pt. Registration [RAD-1] ↓

Patient Update [RAD-12] ↓

Patient Update [RAD-12] ↓

Patient Appointment Notification [RO-xx] ↓

Patient Appointment Update [RO-xx] ↓

Patient Appointment Cancel [RO-xx] ↓

Patient Appointment Manager (PAM)

Pt. Registration [RAD-1] ↓

Patient Update [RAD-12] ↓

Patient Update [RAD-12] ↓

Patient Appointment Update [RO-xx] ↑

Patient Appointment Notification [RO-xx] ↑

Patient Appointment Cancel [RO-xx] ↑

Treatment Management System (TMS)

Table X.1-1 lists the transactions for each actor directly involved in the <Profile Name> Profile. In order to claim support of this Integration Profile, an implementation must perform the required transactions (labeled “R”). Transactions labeled “O” are optional. A complete list of options defined by this Integration Profile and that implementations may choose to support is listed in Volume I, Section X.2.

Table X.1-1. ROWE Profile - Actors and Transactions

| Actors | Transactions  | Optionality | Section in Vol. 2 |
| --- | --- | --- | --- |
| Admission/Discharge/Transfer (ADT) | Patient Registration (RO-HL7-1) | R |  |
| Patient Update (RO-HL7-12) | R |
| Patient Appointment Manager (PAM) | Patient Appointment Notification (RO-HL7-xx) | R |  |
| Patient Appointment Update (RO-HL7xx) | R |
| Patient Appointment Cancel (RO-HL7-xx) | R |
| Treatment Management System (TMS) | Patient Appointment Notification (RO-HL7-xx) | R |  |
| Patient Appointment Update (RO-HL7-xx) | R |  |
| Patient Appointment Cancel (RO-HL7-xx) | R |  |

Volume 2 – Transactions

##

This section defines each IHE transaction in detail, specifying the standards used, the information transferred, and the conditions under which the transaction is required or optional.

### 2.1 Patient Registration

This section corresponds to the Transaction RO-HL7-1 of the IHE technical framework. Transaction RO-HL7-1 is used by actors: ADT, Treatment Management System (TMS).

### 2.1.1 Scope

This transaction involves the patient information, including demographics, captured at the point of encounter. This may occur when the visit is scheduled, if that precedes arrival at the clinic. This transaction is used for both in-patients (i.e. those who are assigned a bed at the facility) and outpatients (i.e. those who are not assigned a bed at the facility).

### 2.1.2 Use Case Roles

Patient Registration

ADT Patient

Registration

Treatment Management

System

Patient Appointment

Manager

Actor: ADT

Role: Adds and modifies patient demographics and encounter information

Actor: Treatment Management System

Role: Uses the patient demographic information to create a patient record.

Actor: Patient Appointment Manager

Role:

### 2.1.3 Reference Standards

HL7 2.3.1 Chapters 2, 3

HL7 v2.5.1 Chapter 2,3,7,15

IHE ITI Technical Framework

### 2.1.4 Interaction Diagram

ADT Patient Registration

Actor A

HL7 ADT

Message 1

Patient Appointment Manager

Actor D

HL7 ADT

Message 2

Treatment Management System

Actor D

\*- A01, A04, A05, A11, A38

Message 2

### 2.1.4.1 Patient Management – Admit/Register Patient

2.1.4.1.1 Trigger events

The following events will trigger one of the patient registration messages:

* A01- Admission of an in-patient into a facility
* A04 – Registration of an outpatient for a visit of the facility
* A05- Pre-admission of an in-patient

### 2.1.4.1.2 Message Semantics

### 2.1.4.1.2.1 Message Semantics (HL7 v2.3.1)

The patient registration transaction is conducted by the HL7 ADT message. The ADT actor shall generate the message whenever a patient is admitted or registered for a radiation oncology episode. In the event that a new patient will be seen as an outpatient at some future time, an ADT A04 message shall be used to convey patient information required by the Treatment Management System and Patient Appointment Manager. The segments of the message listed below are required, and their detailed descriptions are provided in the following subsections.

### ADT Message Definitions

|  |  |  |
| --- | --- | --- |
| *Segment* | *Segment Name* | *Chapter in Hl7 2.3.1* |
| MSH | Message Header | 2 |
| EVN | Event Type | 3 |
| PID | Patient Identification | 3 |
| PV1 | Patient Visit |  |
| [ { NK1 } ] | Next of Kin / Associated Parties  |  |
| [{AL1}]  | Allergy Information | 3 |
| [{DG1}] | Diagnosis | 6 |
| [{DB1}] | Disability Information | 3 |
| [OBX}] | Observation/Result | 7 |

One or more AL1 segments shall be present if any allergies (incl. contrast allergies) are identified for the patient at the time of registration. It may be absent otherwise.

One or more OBX segments shall be present if the information about patient weight and/or height is present. They may be absent otherwise.

Application should supports the standard Field separator ( | ) and the standard encoding characters (^~\& ).

Each message shall be acknowledged by the HL7 ACK message sent by the receiver of ADT message to its sender.

Static definition – Segment level and Data Type level The Segment table and the Data Type table each contain 8 columns (HL7 v2.3.1 messages use only 7 columns) as described below:

* **SEQ**: Position (sequence) of the field within the segment.
* **LEN**: Maximum length of the field.

Since version 2.5, the HL7 standard also defines the maximum length of each component with a field. IHE profiled HL7 messages shall conform to the HL7 standard if not otherwise stated in this Technical Framework.

* **DT**: Field Data Type
* **Usage**: Usage of the field (column noted as **OPT** in HL7 v2.3.1 message static definition.)

 The coded values used in this column are:

 **R**: Required: A compliant sending application shall populate all "R" elements with a non-empty value. A compliant receiving application may ignore the information conveyed by required elements. A compliant receiving application shall 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.

**R+**: Required as IHE extension: This is a field optional in the original HL7 standard but required in the IHE-profiled messages. Only HL7 v2.3.1 messages use this notation to indicate the difference between OPT in the IHE profiles and in the base HL7 standard.

**RE**: Required but may be empty. (“**R2**” in HL7 v2.3.1 messages)

The element may be missing from the message, but shall be sent by the sending application if there is relevant data. A conformant sending application shall be capable of providing all "RE" elements. If the conformant sending application knows a value for the element, then it shall send that value. If the conformant sending application does not know a value, then that element may be omitted. Receiving applications may ignore data contained in the element, but shall be able to successfully process the message if the element is omitted (no error message should be generated if the element is missing).

**O**: Optional. The usage for this field within the message is not defined. The sending application may choose to populate the field; the receiving application may choose to ignore the field.

**C**: Conditional. This usage has an associated condition predicate. (See HL7 v2.5.1, Chapter 2, Section 2.12.6.6, "Condition Predicate".) If the predicate is satisfied: A compliant sending application shall populate the element. A compliant receiving application may ignore data in the element. It may raise an error if the element is not present. If the predicate is NOT satisfied: A compliant sending application shall NOT populate the element. A compliant receiving application shall NOT raise an error if the condition predicate is false and the element is not present, though it may raise an error if the element IS present. The condition predicate is not explicitly defined when it depends on functional characteristics of the system implementing the transaction and it does not affect data consistency.

**CE**: Conditional but may be empty. This usage has an associated condition predicate. (See HL7 Version 2.5, Chapter 2, Section 2.12.6.6, "Condition Predicate".) If the conforming sending application knows the required values for the element, then the application must populate the element. If the conforming sending application does not know the values required for this element, then the element shall be omitted. The conforming sending application must be capable of populating the element (when the predicate is true) for all ‘CE’ elements. If the element is present, the conformant receiving application may 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.

**X**: Not supported. For conformant sending applications, the element will not be sent. Conformant receiving applications may ignore the element if it is sent, or may raise an application error.

* **TBL#**: Table reference (for fields using a set of defined values)
* **ITEM#**: HL7 unique reference for this field
* **Element Name**: Name of the field in a Segment table. / Component Name: Name of a subfield in a Data Type table.

### MSH ‑ Message Header Segment

 The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.

| HL7 |  |
| --- | --- |
| SEQ | DT | LEN | TBL# | ELEMENT NAME | USAGE |
| 1 | ST |  |  | Field Separator | R |
| 2 | ST |  |  | Encoding Characters | R |
| 3 | HD |  |  | Sending Application | R |
| 4 | HD |  |  | Sending Facility | R |
| 5 | HD |  |  | Receiving Application | R |
| 6 | HD |  |  | Receiving Facility | R |
| 7 | TS |  |  | Date/Time Of Message | R |
| 8 | ST |  |  | Security | X |
| 9 | CM |  |  | Message Type | R |
| 10 | ST |  |  | Message Control ID | R |
| 11 | PT |  |  | Processing ID | R |
| 12 | ID |  | 0104 | Version ID | R |
| 13 | NM |  |  | Sequence Number | O |
| 14 | ST |  |  | Continuation Pointer | X |
| 15 | ID |  | 0155 | Accept Acknowledgment Type | O |
| 16 | ID |  | 0155 | Application Acknowledgment Type | O |
| 17 | ID |  |  | Country Code | RE |
| 18 | ID |  | 0211 | Character Set | C |
| 19 | CE |  |  | Principal Language Of Message | RE |
| 20 | ID |  | 01317 | Alternate Character Set Handling Scheme | X |
| 21 | EI |  | 01598 | Message Profile Identifier | RE |

*Adapted from the HL7 standard, version 2.3.1*

### EVN ‑ Event Type Segment

| HL7 |  |
| --- | --- |
| SEQ | DT | LEN | TBL# | ELEMENT NAME | USAGE |
| 1 | ID |  | 0003 | Event Type Code | O |
| 2 | TS |  |  | Recorded Date/Time | R |
| 3 | TS |  |  | Date/Time Planned Event | O |
| 4 | IS |  | 0062 | Event Reason Code | O |
| 5 | XCN |  | 0188 | Operator ID | O |
| 6 | TS |  |  | Event Occurred | RE |

 *Adapted from the HL7 standard, version 2.3.1*

Field *EVN-1 Event Type Code* is optional; however, if present, its value shall be equal to the second component of the field *MSH-9 Message Type*.

### PID - Patient Identification Segment

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that is not likely to change.

| HL7 |  |
| --- | --- |
| SEQ | DT | LEN | TBL# | ELEMENT NAME | USAGE |
| 1 | SI |  |  | Set ID - Patient ID | O |
| 2 | CX |  |  | Patient ID (External ID) | O |
| 3 | CX |  |  | Patient ID (Internal ID) | R |
| 4 | CX |  |  | Alternate Patient ID 04.01 – Identifier | O |
| 04.05 – ID Type |  |
| 5 | XPN |  |  | Patient Name05.01 – Last Name | R |
| 05.02 – First Name |  |
| 05.03 – Middle Name  |  |
| 6 | XPN |  |  | Mother’s Maiden Name | O |
| 7 | TS |  |  | Date/Time of Birth | R2 |
| 8 | IS |  | 0001 | Sex | R |
| 9 | XPN |  | 0200 | Patient Alias09.01 – Last Name | O |
| 09.02 - First Name |  |
| 09.02 - Middle Name |  |
| 09.07 – Type |  |
| 10 | IS |  | 0005 | Race | R2 |
| 11 | XAD |  |  | Patient Address11.01 - Address | R2 |
| 11.02 - Other Designation |  |
| 11.03 - City |  |
| 11.04 – State |  |
| 11.05 – Zip |  |
| 11.06 – Country |  |
| 11.07 – Address Type |  |
| 11.9 - County |  |
| 12 | IS |  |  | County Code | O |
| 13 | XTN |  |  | Phone Number – Home | O |
| 13.2 – telecommunication use code |  |
| 13.3 – telecommunication equipment type |  |
| 14 | XTN |  |  | Phone Number – Business | O |
| 13.3 – telecommunication equipment type |  |
| 15 | CE |  | 0296 | Primary Language15.01 – Identifier | O |
| 15.02 – Description |  |
| 16 | IS |  | 0002 | Marital Status | O |
| 17 | IS |  | 0006 | Religion | O |
| 18 | CX |  |  | Patient Account Number | C |
| 19 | ST |  |  | SSN Number – Patient | O |
| 20 | CM |  |  | Driver's License Number – Patient | O |
| 21 | CX |  |  | Mother's Identifier | O |
| 22 | IS |  | 0189 | Ethnic Group | O |
| 23 | ST |  |  | Birth Place | O |
| 24 | ID |  | 0136 | Multiple Birth Indicator | O |
| 25 | NM |  |  | Birth Order | O |
| 26 | IS |  | 0171 | Citizenship | O |
| 27 | CE |  | 0172 | Veterans Military Status | O |
| 28 | CE |  |  | Nationality  | O |
| 29 | TS |  |  | Patient Death Date and Time | O |
| 30 | ID |  | 0136 | Patient Death Indicator | O |

Adapted from the HL7 standard, version 2.3.1

### NK1 - Next of Kin / Associated Parties segment

| HL7  |  |
| --- | --- |
| SEQ | DT | LEN | TBL# | ELEMENT NAME | USAGE |
| 1 | SI |  |  | Set ID - NK1 | O |
| 2 | XPN |  |  | Name02.01 Last Name | R |
|  | 02.02 First Name | C |
|  |  |  |
| 3 | CE |  | 0063 | Relationship:03.01 Identifier | O |
|  |  |  |  | 03.04 Alternate Identifier |  |
| 4 | XAD |  |  | Address04.01 – Address | O |
|  | 04.02 - Other Designation |  |
|  | 04.03 - City |  |
|  | 04.04 – State |  |
|  | 04.05 – Zip |  |
|  | 04.06 – Country |  |
| 5 | XTN |  |  | Phone Number | O |
| 6 | XTN |  |  | Business Phone Number | O |
| 7 | CE |  | 0131 | Contact Role | O |
| 8 | DT |  |  | Start Date | O |
| 9 | DT |  |  | End Date | O |
| 10 | ST |  |  | Next of Kin / Associated Parties Job Title | O |
| 11 | CM |  |  | Next of Kin / Associated Parties Job Code/Class | O |
| 12 | CX |  |  | Next of Kin / Associated Parties Employee Number | O |
| 13 | XON |  |  | Organization Name | O |
| 14 | IS |  | 0002 | Marital Status | O |
| 15 | IS |  | 0001 | Sex | O |
| 16 | TS |  |  | Date/Time of Birth | O |
| 17 | IS |  | 0223 | Living Dependency | O |
| 18 | IS |  | 0009 | Ambulatory Status | O |
| 19 | IS |  | 0171 | Citizenship | O |
| 20 | CE |  | 0296 | Primary Language | O |
| 21 | IS |  | 0220 | Living Arrangement | O |
| 22 | IS |  | 0215 | Publicity Indicator | O |
| 23 | ID |  | 0136 | Protection Indicator | O |
| 24 | IS |  | 0231 | Student Indicator | O |
| 25 | IS |  | 0006 | Religion | O |
| 26 | XPN |  |  | Mother’s Maiden Name | O |
| 27 | CE |  | 0212 | Nationality | O |
| 28 | IS |  | 0189 | Ethnic Group | O |
| 29 | CE |  | 0222 | Contact Reason | O |
| 30 | XPN |  |  | Contact Person’s Name | O |
| 31 | XTN |  |  | Contact Person’s Telephone Number | O |
| 32 | XAD |  |  | Contact Person’s Address | O |
| 33 | CX |  |  | Next of Kin/Associated Party’s Identifiers | O |
| 34 | IS |  | 0311 | Job Status | O |
| 35 | IS |  | 0005 | Race | O |
| 36 | IS |  | 0295 | Handicap | O |
| 37 | ST |  |  | Contact Person Social Security Number | O |

 *Adapted from the HL7 standard, version 2.3.1*

### PV1 ‑ Patient Visit Segment

| HL7 |  |
| --- | --- |
| SEQ | DT | LEN | TBL# | ELEMENT NAME | USAGE |
| 1 | SI |  |  | Set ID - PV1 | O |
| 2 | IS |  | 0004 | Patient Class(admit class) | R |
| 3 | PL |  |  | Assigned Patient Location | C |
|  | 03.01 – Point of Care |  |
|  | 03.02 - Room |  |
|  | 03.03 Bed |  |
|  | 03.04 – Facility |  |
|  |  |  |  | 03.08 – Location Description |  |
| 4 | IS |  | 0007 | Admission Type | O |
| 5 | CX |  |  | Preadmit Number | O |
| 6 | PL |  |  | Prior Patient Location | O |
| 7 | XCN |  | 0010 | Attending Doctor | C |
|  | 07.01 – ID Number |  |
|  | 07.02 – Family Name |  |
|  | 07.03 – Given Name |  |
|  | 07.04 – Middle Name or Initial |  |
|  | 07.13 – Identifier Type Code |  |
|  | 07.14 – Assigning Facility |  |
| 8 | XCN |  | 0010 | Referring Doctor | C |
|  | 08.01 – ID Number |  |
|  | 08.02 – Family Name |  |
|  | 08.03 – Given Name |  |
|  | 08.04 – Middle Name or Initial |  |
|  | 08.13 – Identifier Type Code |  |
|  | 08.14 – Assigning Facility |  |
| 9 | XCN |  | 0010 | Consulting Doctor09.01 – ID^09.10 – ID Type | RE |
| 10 | IS |  | 0069 | Hospital Service | C |
| 11 | PL |  |  | Temporary Location | O |
| 12 | IS |  | 0087 | Preadmit Test Indicator | O |
| 13 | IS |  | 0092 | Readmission Indicator | O |
| 14 | IS |  | 0023 | Admit Source | O |
| 15 | IS |  | 0009 | Ambulatory Status | C |
| 16 | IS |  | 0099 | VIP Indicator | O |
| 17 | XCN |  | 0010 | Admitting Doctor17.01 – ID^ | C |
|  |  |  |  | 17.10 – ID Type |  |
| 18 | IS |  | 0018 | Patient Type | O |
| 19 | CX |  |  | Visit Number | C |
| 20 | CM |  | 0064 | Financial Class | O |
| 21 | IS |  | 0032 | Charge Price Indicator | O |
| 22 | IS |  | 0045 | Courtesy Code | O |
| 23 | IS |  | 0046 | Credit Rating | O |
| 24 | IS |  | 0044 | Contract Code | O |
| 25 | DT |  |  | Contract Effective Date | O |
| 26 | NM |  |  | Contract Amount | O |
| 27 | NM |  |  | Contract Period | O |
| 28 | IS |  | 0073 | Interest Code |  |
| 29 | IS |  | 0110 | Transfer to Bad Debt Code |  |
| 30 | DT |  |  | Transfer to Bad Debt Date |  |
| 31 | IS |  | 0021 | Bad Debt Agency Code |  |
| 32 | NM |  |  | Bad Debt Transfer Amount |  |
| 33 | NM |  |  | Bad Debt Recovery Amount | O |
| 34 | IS |  | 0111 | Delete Account Indicator | O |
| 35 | DT |  |  | Delete Account Date | O |
| 36 | IS |  | 0112 | Discharge Disposition | O |
| 37 | CM |  | 0113 | Discharged to Location | O |
| 38 | IS |  | 0114 | Diet Type | O |
| 39 | IS |  | 0115 | Servicing Facility | O |
| 40 | IS |  | 0116 | Bed Status | O |
| 41 | IS |  | 0117 | Account Status | O |
| 42 | PL |  |  | Pending Location | O |
| 43 | PL |  |  | Prior Temporary Location | O |
| 44 | TS |  |  | Admit Date/Time | O |
| 45 | TS |  |  | Discharge Date/Time | O |
| 46 | NM |  |  | Current Patient Balance | O |
| 47 | NM |  |  | Total Charges | O |
| 48 | NM |  |  | Total Adjustments | O |
| 49 | NM |  |  | Total Payments | O |
| 50 | CX |  | 0192 | Alternate Visit ID | O |
| 51 | IS |  | 0326 | Visit Indicator | C |
| 52 | XCN |  | 0010 | Other Healthcare Provider | O |
|  |  |  |  | 52.01 – ID |  |
|  |  |  |  | 52.13 – ID Type |  |

 *Adapted from the HL7 standard, version 2.3.1*

### AL1 Segment

| HL7 |  |
| --- | --- |
| SEQ | DT | LEN | TBL# | ELEMENT NAME | USAGE |
| 1 | SI | 4 |  | Set ID – AL1 | R |
| 2 | IS | 2 | 0127 | Allergy Type | O |
| 3 | CE | 60 |  | Allergy Code / Mnemonic / Description | R |
| 4 | IS | 2 | 0128 | Allergy Severity | O |
| 5 | ST | 15 |  | Allergy Reaction | O |
| 6 | DT | 8 |  | Identification Date | O |

 *Adapted from the HL7 standard, version 2.3.1*

### OBX Segment

OBX segment shall be primarily used for the purposes of communicating patient height and weight.

OBX-3 – Observation identifier has been changed to R2.

| HL7 |  |
| --- | --- |
| SEQ | DT | LEN | TBL# | ELEMENT NAME | USAGE |
| 1 | SI | 4 |  | Set ID – OBX | O |
| 2 | IS | 3 | 0125 | Value Type  | C |
| 3 | CE | 80 |  | Observation Identifier  | R2 |
| 4 | ST | 20 |  | Observation Sub-ID  | C |
| 5 | \* | 65536 |  | Observation Value  | C |
| 6 | CE | 60 |  | Units  | O |
| 7 | ST | 60 |  | References Range  |  |
| 8 | ID | 5 | 0078 | Abnormal Flags  |  |
| 9 | NM | 5 |  | Probability  | O |
| 10 | ID | 2 | 0080 | Nature of Abnormal Test  | O |
| 11 | ID | 1 | 0085 | Observe Result Status  | R |
| 12 | TS | 26 |  | Date Last Obs Normal Values  | O |
| 13 | ST | 20 |  | User Defined Access Checks  | O |
| 14 | TS | 26 |  | Date/Time of the Observation  | O |
| 15 | CE | 60 |  | Producer's ID  | O |
| 16 | XCN | 80 |  | Responsible Observer  | O |
| 17 | CE | 60 |  | Observation Method  | O |

 *Adapted from the HL7 Standard, version 2.3.1*

# Appointment Scheduling Integration (SIU)

The purpose of the scheduling integration between TMS and HIS is to integrate the patient’s calendars between the two systems and eliminate the need to double enter schedules between the two systems.

## Events

### S12 – Notification of new appointment booking

An S12 event is sent from a filler application to notify other applications that a new appointment has been booked. The information provided in the SCH segment and the other detail segments, as appropriate, describe the appointment that has been booked by the filler application.

### S13 – Notification of appointment rescheduling

An S13 notifies other applications that an existing appointment has been rescheduled. The information in the SCH segment and the other detail segments, as appropriate, describe the new date(s) and time(s) to which the previously booked appointment has been moved. Additionally, it describes the unchanged information in the previously booked appointment.

### S14 – Notification of appointment modification

For all changes to an existing appointments date or time, resources and comments an S14 is triggered outbound with the same filler number.

### S15 Notification of appointment cancellation

A S15 is a notification of appointment cancellation and is sent by the filler application to other applications when an existing appointment has been canceled. A cancel event is used to stop a valid appointment from taking place. For example, if a patient scheduled for an exam cancels his/her appointment, then the appointment is canceled on the filler application.

### S17 Notification of appointment deletion

An S17 notification of appointment deletion is sent by the filler application to other applications when an appointment that had been entered in error has been removed from the system. A delete trigger event should only be used when an appointment has been erroneously scheduled. It must be removed from the schedule so that it does not affect any statistical processing. A delete trigger event differs from a cancel trigger event in that a delete acts to remove an error, whereas a cancel acts to prevent a valid request from occurring. This trigger event should not be used for any appointment that has already begun, or that has already been completed.

### S26 Notification that patient did not show up for scheduled appointment

A S26 notification is sent by the filler application to other applications when that a patient did not show up for a scheduled appointment. For example, when a patient was scheduled for a clinic visit, and never arrived for that appointment. This trigger event can be used to set a status on the appointment record for statistical purposes, as well as to free resources assigned to the appointment (or any other application level actions that must be taken in the event a patient does not appear for an appointment).

## Segments

|  |  |  |
| --- | --- | --- |
| *Segment* | *Segment Name* | *Event Name* |
| MSH | Message Header |  |
| PID | Patient Identification |  |
| PV1  | Patient Visit |  |
| SCH | Scheduled Activity Information  |  |
|  {[NTE]} | Notes and comments |  |
|  RGS | Resource Segment Group |  |
|  [AIS] | Appointment Information – Service |  |
|  [AIG] | Appointment Information – General Resource |  |
|  [AIL] | Appointment Information – General Location |  |
|  [AIP] | Appointment Information – Personnel |  |