**CVIS/XPER ADT Requirements**

**Version 7.3**

**Prepared By: Tiffany Bohall**

**Date: 7/29/2019**

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# **Document Control**

## Resources

|  |  |  |
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## Project Distribution List

N/A

## Document Version Control

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Modifier** | **Description** |
| V1.0 | 2/12/2015 | Tiffany Bohall | Originally Created |
| V2.0 | 2/27/2015 | Tiffany Bohall | Added heights/weights and allergies |
| V3.0 | 3/2/2015 | Tiffany Bohall | Added detail to section 4.2 –data transformations |
| V4.0 | 3/12/2015 | Tiffany Bohall | Renamed document, added sample ADT messages and project scope details |
| V5.0 | 4/17/2015 | Tiffany Bohall | Updated MSH.5 facility logic, PID.2 MRN and PID.3 CPI mappings and provided updated sample transactions to reflect recent changes |
| V6.0 | 5/4/2015 | Tiffany Bohall | Updated connectivity details (IP/port) |
| V7.0 | 5/30/2015 | Tiffany Bohall | Updated CPI field iteration logic and added new outbound connection details per vendor change request |
| V7.1 | 12/11/2017 | Tiffany Bohall | Updated the nonfunctional requirements to include filtering |
| V7.2 | 7/12/19 | Tiffany Bohall | Updated requirements for ht/wt changes from the Cerner Model project |
| V7.3 | 07/29/2019 | Yitzhak Magoon | Updated requirements to include ht/wt changes from Cerner Model project from FSI |

1. Introduction

## 1.1 Purpose

This document outlines the changes required to accommodate outbound Admission, Discharge and Transfer messages from Soarian to CVIS Xper. Additionally, there is a need to also send heights/weights and allergies from Cerner to CVIS Xper. All gaps will be identified and mitigated as well as any non-functional requirements needed to support the solution post implementation.

## 1.2 Project Scope

Phase 1:Implementing the foundation for a consolidated Cardiology PACS (CPACS) vendor solution. Physician and Clinician satisfaction will be increased and team members will directly benefit as images from Echo, Cardiac Cath Labs and Hemodynamcs will become available enterprise wide.

Phase 2: Will leverage these initial systems as a Cardiovascular Information System (CVIS) is to provide an integrated network for connectivity between the Cardiology solutions and Cerner.

## 1.3 Terminology Standards

### 1.3.1 Acronyms

CVIS: Cardio Vascular Information Systems

### 1.3.2 Glossary

Xper Flex Cardio: Cardiology application

## 1.4 Document References

**Philips Specification:**

* Xper Connect HL7 Conformance Claim
* Xper Connect Clinical Results Specification 1 5x

# *2.* Diagram -N/A

Provide a solution diagram that depicts the integration of components specified in this IDBB. This diagram must include the data flow for the interfaces (source and target).



# 3. Requirements

## 3.1 Functional Requirements

Provide detail for the below functional requirements. The message transformation requirements for the components defined in this specification should be specified in section 4.2 of this document.

|  |  |  |
| --- | --- | --- |
| **Cloverleaf** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
| FR.2015.2.27 | Height / Weight Message Type | Cerner sends heights and weights out on an ORU result event type which is converted to an A08 update. |
| FR.2019.6.24.1 | Convert ORM messages from Cerner to ORU\_R01 messages going to downstream applications | The Cerner Model project converted height and weight transactions outbound from Cerner, from ORU to ORM transactions. In order to avoid complete rebuild of variants/routes and translates, Cloverleaf added a tpsHL7ChangeData2 proc that converts MSH.8. |
| FR.2019.6.24.2 | tpsCernerHeightWeightUnits | The Cerner Model project required that Cloverleaf add units of measure to height and weight transactions: add ‘cm’ to OBX.6, when OBX.3 = HIEGHT and add ‘kg’ to OBX.6 when OBX.3 = WEIGHT |
| FR.2019.6.24.3 | tpsCernerCommonCode | The Cerner Model project required common coded elements on multiple interfaces: copy PV1.3.7 to MSH.5.1, remove email address from PID.11, only send Home address in PID.11, null SSN if all 999’s, replace & characters with the word ‘and’ in OBR.13, OBR.27 and OBR.31. |

|  |  |  |
| --- | --- | --- |
| **Cerner** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
| FR.2019.7.8.1 | Discern Rule | The Cerner Model project required that PowerChart team update their Discern Rules BCC\_DISCERN\_HT\_WT and BCC\_DISCERN\_BIRTH\_HT\_WT. The logic was changed to properly send out the height and weight in an OBX segment as well as add encounter type filtering at the rule level. Encounter type filtering was removed from the global suppression script. |
| FR.2019.7.8.2 | Order Entry Flexing | The Cerner Model Project required that the PowerChart team remove flexing from the Order Entry Format for the two height and weight orders that get triggered from the rule. |
| FR.2019.7.8.3 | ORM\_HT\_WT\_OUT | The Cerner Model Project required a new dedicated height and weight interface to be created. This is a standard TCP/IP interface with no modobj or modorig scripts. |

## 3.2 Non-Functional Requirements

Provide concise detail for the below non-functional requirements. The below requirements must be evaluated for every project.

|  |  |  |
| --- | --- | --- |
| **Cloverleaf** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
| NFR.2017.12.11 | MPMDC suppression | Updated filter to suppress all allergies from Cerner where MSH.4 = MDC and updated the heights and weights filter to suppress MDCDC, MDCDM, MDCDN in MSH.4 |
| **Cerner** |  |  |
| Number | Requirement Name | Requirement Description |
| NFR.2019.7.8.1 | Encounter type suppression for height and weight | Height and weight is not sent out BMG / BUC patients with one of the following encounter types:  AMBULATORYMATERNITYOFFICE  AMBULATORYOFFICE  WORKERSCOMP  URGENTCARE  URGENTCAREOCCMED |

## 3.3 Messaging Protocols

Below are listed the details for the messaging protocols that will be leveraged for this integration.

### 3.3.1 Inbound to the BayCare Cloverleaf

* Cer\_adt\_in
* Cer\_soarf\_adt\_in
* Cer\_ord\_in

### Outbound from the BayCare Cloverleaf

**Test:** xper\_adt\_out

Port Number: 14005

IP Address: 10.44.142.187

**Test:** xper\_cer\_adt\_out

Port Number: 14006

IP Address: 10.44.142.187

**Prod:** xper\_adt\_out

Port Number: 14001

IP Address: 10.44.142.185

**Prod:** xper\_cer\_adt\_out

Port Number: 14002

IP Address: 10.44.142.185

### 3.3.3 Outbound from the BayCare Cerner

Test

Port Number: N/A

IP Address: N/A

Prod

Port Number: N/A

IP Address: N/A

# 

# 4. HL7 Messaging

## 4.1 Messaging Format

* Soarian ADT messages follow HL7 variant version 2.6, Soarian ADT\_A01
* Cerner heights and weights ORU converted to ADT follow HL7 variant version 2.3 cerner\_emr ORU R01 inbound to variant version 2.3 cerner\_emr ADT\_A08 outbound
* Cerner allergies follow HL7 variant version 2.3 cerner\_emr ADT\_A01

### 4.1.1 Segments

The segments utilized for this interface are:

**Soarian**

MSH

EVN

PID

[PV1]

**Cerner heights and weights**

MSH

{

[

PID

PV1

[OBX]

**Cerner allergies**

MSH

[ EVN ]

PID

[PV1]

AL1

*Message Construction Notes:*

*[Square Brackets] – Optional*

*MSH – Message Header*

*EVN – Event segment*

*PID – Patient ID segment*

*PV1 – Patient Visit segment*

### 4.1*.*2 Messaging Event Types

Below are the messages types necessary for this integration

|  |  |
| --- | --- |
| **Event Type** | **Description** |
| A01 | Inpatient admission |
| A02 | Transfer |
| A03 | Discharge |
| A04 | Outpatient arrival |
| A05 | Preadmission |
| A06 | Status transfer out to in |
| A07 | Status transfer in to out |
| A08 | Update |
| A09 | Outpatient departing  (for Invision ADT only) |
| A11 | Cancel admit |
| A13 | Cancel discharge |

### 4.1*.*3 Cloverleaf Configuration Files

* Translation: soarf\_xper\_adt
* Translation: cerner\_xper\_al1
* Translation: cerner\_xper\_hw\_oru

### 4.1.4 Cloverleaf Site Location

* Test and Prod: Cardiology

## 

## 4.2 Data Transformation Requirements

### 4.2.1 Soarian

| **Field Description** | **HL7 Field Loc.** | **Required Y/N** | **Data Type** | **Length** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| Sending Application | MSH.3 | N | HD | 180 | Hard Coding “SOARIAN” for Soarian facilities. |
| Sending Facility | MSH.4 | N | HD | 180 | Copy |
| Receiving Application | MSH.5 | N | HD | 180 | Copy |
| Patient ID (External) | PID.2 | N | CX | 20 | copy from PID.3. |
| Patient ID (Internal) | PID.3 | Y | CX | 27 | copy from PID.2. |
| Patient Name: Last, First, Middle | PID.5 | Y | XPN | 48 | Copy |
| Date/Time of Birth | PID.7 | Y | NM | 26 | Copy |
| Sex | PID.8 | N | IS | 1 | Copy |
| Race | PID.10 | N | CE | 80 | copy of this field. |
| Patient Address: Street 1, Street 2, City, State, Zip, Country. | PID.11 | N | XAD | 106 | Copy |
| Phone Number - Home | PID.13 | N | XTN | 40 | Copy |
| Patient Account Number | PID.18 | N | CX | 27 | Copy |
| Patient Class | PV1.2 | Y | SI | 1 | Copy |
| Assigned Patient Location | PV1.3 | N | PL | 80 | For Soarian, IF PV2.24 =Scheduled and PV1.2 = I, copy ‘PRAD’ to PV1.3. |
| Servicing Facility | PV1.39 | N | IS | 2 | Take the output of MSH.4 and copy. |
| Admit Date/Time | PV1.44 | Y | DTM | 26 | Copy |
| Discharge Date/Time | PV1.45 | N | DTM | 26 | Copy |

### 4.2.2 Cerner heights and weights

| **Field Description** | **HL7 Field Loc.** | **Required Y/N** | **Data Type** | **Length** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| Sending Application | MSH.3 | N | HD | 180 | Hard coding “CERNER” |
| Sending Facility | MSH.5 | N | HD | 180 | Copying facility value |
| Message Type | MSH.9.1 | Y | MSG | 20 | Converting all ADT message types to an A08. Hard coding “A08”. |
| Patient ID (External) | PID.2 | N | CX | 20 | Copy from PID.2 source field |
| Patient ID (Internal) | PID.3 | Y | CX | 27 | Iterating through PID.3 source field and copying the associated value with the “BayCare CMN” tag |
| Patient Name: Last, First, Middle | PID.5 | Y | XPN | 48 | Copy |
| Date/Time of Birth | PID.7 | Y | NM | 26 | Copy |
| Sex | PID.8 | N | IS | 1 | Copy |
| Patient Account Number | PID.18 | N | CX | 27 | Copy |
| Patient Class | PV1.2 | Y | SI | 1 | Copy |
| Assigned Patient Location | PV1.3 | N | PL | 80 | Copy |
| Admit Date/Time | PV1.44 | Y | DTM | 26 | Copy |
| Discharge Date/Time | PV1.45 | N | DTM | 26 | Copy |
| Observation Identifier | OBX.3 | N | CE | 590 | Iterating through OBX.3.0 and IF 3.0 =HEIGHT, copy ‘HEIGHT’ to OBX.3.0, group 0.  Iterating through OBX.3.0 and IF 3.0 =WEIGHT, copy ‘WEIGHT’ to OBX.3.0, group 1. |
| Observation Value | OBX.5 | N | ST | -1 |  |
| Unites | OBX.6 | N | CE | 60 |  |

### 4.2.3 Cerner allergies

| **Field Description** | **HL7 Field Loc.** | **Required Y/N** | **Data Type** | **Length** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| Sending Application | MSH.3 | N | HD | 180 | Hard coding “CERNER” |
| Sending Facility | MSH.5 | N | HD | 180 | Copying facility value |
| Message Type | MSH.9.1 | Y | MSG | 20 | Converting all ADT message types to an A08. Hard coding “A08”. |
| Event Type Code | EVN.1 | N | ID | 3 | Hard coding “A08” to match MSH.9.1. |
| Patient ID (External) | PID.2 | N | CX | 20 | Copy from PID.2 source field |
| Patient ID (Internal) | PID.3 | Y | CX | 27 | Iterating through PID.3 source field and copying the associated value with the “BayCare CMN” tag |
| Patient Name: Last, First, Middle | PID.5 | Y | XPN | 48 | Copy |
| Date/Time of Birth | PID.7 | Y | NM | 26 | Copy |
| Sex | PID.8 | N | IS | 1 | Copy |
| Patient Account Number | PID.18 | N | CX | 27 | Copy |
| Patient Class | PV1.2 | Y | SI | 1 | Copy |
| Assigned Patient Location | PV1.3 | N | PL | 80 | Copy |
| Admit Date/Time | PV1.44 | Y | DTM | 26 | Copy |
| Discharge Date/Time | PV1.45 | N | DTM | 26 | Copy |
| Allergy Code/Mnemonic/Description | AL1.3 | Y | CWE | 100 | Iterating through ZAL.6 to determine if the allergy is ‘Active” and if yes, check if AL1.3 is not null, then copy AL1.2 and AL1.3 group iterations for full details. |

## 4.3 Sample Message

### 4.3.1 Soarian

MSH|^~\&|**SOARIAN**|SJS|SJS||201504161002||ADT^A03|290a07c1-c2ee-4cba-b502-526892b5ec10|P|2.3

EVN|A03|201504161002||CO|lxm57363|201503011702|9072

PID||2104708134|300136550||matneytest^linkingahca||19490925|F||White|3986 Tampa Road^^Oldsmar^FL^34677^USA||8138523900|||||1100097900

PV1||E|||||||||||||||||||||||||||||||||||||SJS|||||201503010954|201503011702

### 4.3.2 Cerner heights and weights

MSH|^~\&|CERNER|CERNER|SJH|BAYCARE|20190711132621||ADT^A08|Q4432193694T58259179|P|2.3||||||8859/1

PID|1|7000111572|810123589||SJCTEST^EIGHT H||20180802|F||||||||||6000144832

PV1||I|1CP^1CP^04|||||||||||||||||||||||||||||||||||||||||20190708164500

OBX|||HEIGHT||60.96|cm

OBX|||WEIGHT||15|kg

### 4.3.3 Cerner allergies

MSH|^~\&|CERNER|CERNER|WHH|SOARIAN|20150416162044||ADT^A08|Q1915979605T21979818|P|2.3||||||8859/1

EVN|A08|20150416162044|||13473805

PID|1|2104708005|300136389||WHHITRTHREE^INPTSEVENTEEN^S||19531024|M||||||||||1100097774

PV1||I|NEU^149^01|||||||||||||||||||||||||||||||||||||||||20150413141700

AL1||FA|Soy

AL1||FA|Peanuts

# **5. Testing**

## 5.1. Unit Testing Scenarios

|  |  |
| --- | --- |
| **Scenario** | **Expected Result** |
| Send an A01, A04 and A08 from Invision | Post to Xper application |
| Send an allergy transactions from Cerner | Post to Xper application |
| Send a height and weight transaction from Cerner | Post to Xper application |
|  |  |

## 5.2 Integrated Testing Scenarios

|  |  |
| --- | --- |
| **Scenario** | **Expected Result** |
| Tested all event types A01-A13 for Invision fac’s | Post to Xper application |
| Testing of multiple allergies both active and de-active | Post or not to Xper application based on stauts |
| Testing of heights and weights | Post to Xper application |
|  |  |

## 5.3 Testing Approvals

|  |  |  |  |
| --- | --- | --- | --- |
| **Testing Phase** | **Date** | **Department** | **Team Member** |
| PH1.UNIT | 4/6/15 | IS Diagnostic Imaging | Susan Benhart |
| PH1.INTEGRATED | 4/17/15 | IS Diagnostic Imaging | Susan Benhart |

### 

## 5.4 Piloting

No piloting will take place; this will be a facility roll out.

## 5.5 Approvals

|  |  |  |  |
| --- | --- | --- | --- |
| **Testing Phase** | **Date** | **Department** | **Team Member** |
| PH1.0 |  |  |  |
|  |  |  |  |
|  |  |  |  |

# 6. Deployment / Implementation Model

Implementation will take place via rolling go live dates per facility.

# Appendix A: Risks and Concerns –N/A

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Name** |  |  | | |  |  |  |  |
| **Number** | **Risk / Concern** | **Comment** | **Mitigation** | | |  |  |  |
|  |  |  | |  | |  |  |  |
|  |  |  | |  | |  |  |  |

# Appendix B: Issues List

This is a dynamic list of the open issues related to the IDBB that remain to be solved, including but not limited to TBDs, pending decisions, information needed, conflict awaiting resolution, and the like.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Name** |  |  | | |  |  |  |  |
| **Number** | **Issue** | **Comment** | **Fix** | | |  |  |  |
| I.2015.3.2 | Have not obtained connectivity information | If a connection is not established, we will not meet dates for testing, etc. | | Have obtained test connectivity | |  |  |  |

* End of document