**Cerner to PatientSafe ORU HTWT Requirements**

**Version 1.2**

**Prepared By: Levy Lazarre**

**Date: 7/29/2019**

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# **Document Control**

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## Project Distribution List

## Document Version Control

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Modifier** | **Description** |
| V1.0 | 01/28/2019 | Levy Lazarre | Original document |
| V1.1 | 07/12/2019 | Tiffany Bohall | Updated to include ht/wt changes from the Cerner Model project |
| V1.2 | 07/29/2019 | Yitzhak Magoon | Updated requirements to include ht/wt changes from Cerner Model project from FSI |
|  |  |  |  |

# 1. Introduction

## 1.1 Purpose

The purpose of this document is to describe the ADT Interface going from Cerner EMR to PatientSafe Solutions.

**PatientTouch** is a PatientSafe application used by physicians, nurses, and other clinicians for collaboration in patient care. It runs on a smartphone and consolidates secure messaging, voice, alerts, and nurse calls with EMR data and clinical workflows in one mobile app on one device.

## 1.2 Project Scope

The scope of this project is to automate the integration of the PatientSafe Solutions PatientTouch application with the Soarian HIS via HL7 ADT interface and the Cerner EMR via HL7 ADT and Results interfaces. There is also integration of Orders via Sansoro API. **The current document describes the ORU interface from Cerner EMR to PatientSafe for the purpose of sending patient height and weight** **information to PatientSafe.** **ORU messages from Cerner are transformed into ADT^A08 messages to PatientSafe.**

## 1.3 Terminology Standards

### 1.3.1 Acronyms

**ADT** – Admission, Discharge, Transfer: mainly demographic and patient location data

**ORU** – Observation Result - Unsolicited

**HIS** – Health Information System, the source and keeper of patient demographic data

**PSS** – PatientSafe Solutions

### 1.3.2 Glossary

**ADT Event** – Trigger event associated with a patient event: registration, admission, discharge, transfer, update…

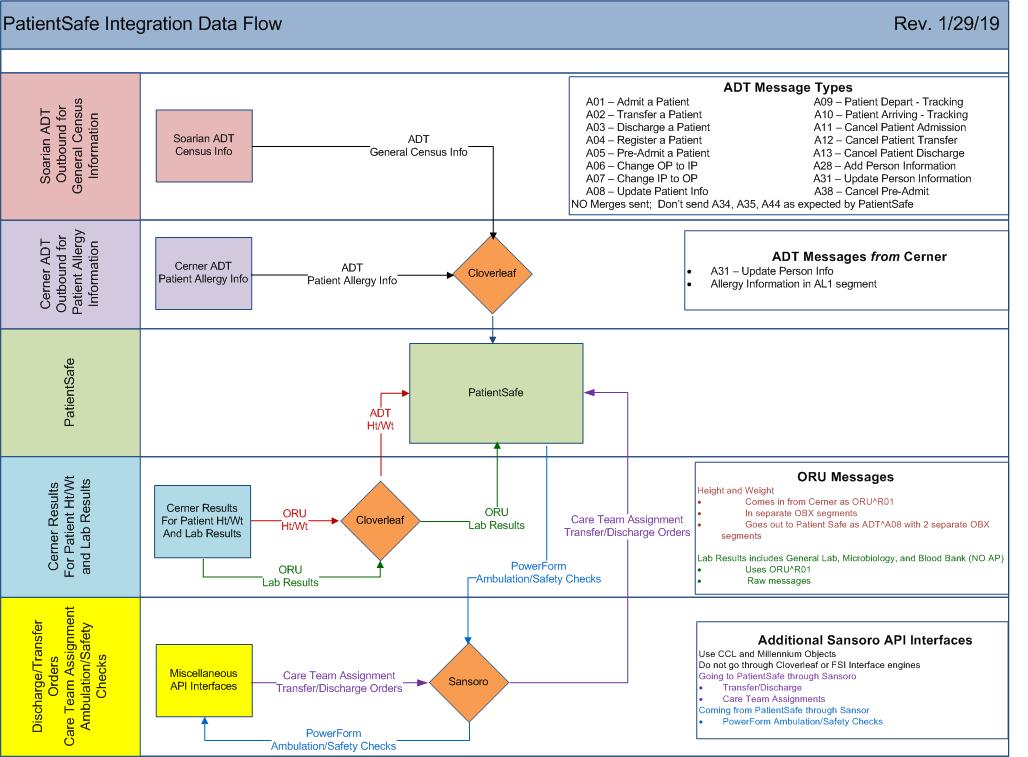
## 1.4 Document References

1. IP\_Baycare\_Workflow\_101718.pdf

2. ADT Test cases.rev0-20181126.xlsx

# 2. Diagram

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.2019.1.0 | For the pilot project, only send Mease Countryside Hospital patients to PatientSafe. | Only MCS is included in the pilot project. A Tcl advanced filter is used to only let patients from MCS hospital go to PatientSafe in this first phase. |
| FR.2019.2.0 | Only send ORU messages with height/weight information through this interface. | When height and/or weight is entered on a patient in MedManager, PowerForm, or Direct Flow Sheet Charting, a Discern Order is generated. Accordingly, a Tcl advanced filter is used to select messages with an **OBR.4.0** value of "**DEHTWT**". |
| 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 = WIEGHT |
| 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.20XX.1.0 | Click here to enter text. | Click here to enter text. |
| **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 From Cerner

* TCP MLLP Server Connection

### 3.3.2 Outbound to PatientSafe

* TCP MLLP Client Connection

# 4. HL7 Messaging

## 4.1 Messaging Format

### 4.1.1 Segments

The segments utilized for this interface are:

MSH

[EVN]

PID

PV1

[PV2]

[ORC]

[OBR]

[NTE]

{OBX}

*Message Construction Notes:*

*[Square Brackets] – Optional*

*{Curly Brackets} – Repeatable*

*MSH – Message Header*

*EVN – Event segment*

*PID – Patient ID segment*

*PV1 – Patient Visit segment*

*PV2 – Patient Visit – Additional Information*

*ORC – Common Order segment*

*OBR – Observation Request segment*

*NTE – Notes and Comments segment*

*OBX – Observation segment*

### 4.1*.*2 Messaging Event Types

Below are the messages types necessary for this integration

Supported HL7 Events

|  |  |
| --- | --- |
| **Event Type** | **Description** |
| ORU^R01 | Observation Result - Unsolicited |
| ADT^A08 | Update Patient Information |

### 4.1*.*3 Cloverleaf Configuration Files

For each HL7 interface specified in Section 2 of this document, identify the Cloverleaf Configuration Files: Variants, TCL Scripts, Xlates, etc.

HL7 Variants: 2.3 sms, 2.2 comp\_emr

Xlate: cerner\_patientsafe\_hw\_oru.xlt

TCL Script: tpsAdvHL7Filter.tcl

### 4.1.4 Cloverleaf Site Location

Production = soarf\_adt\_ent\_18\_p, cerner\_results\_7\_p

Test = soarf\_adt\_ent\_18, cerner\_results\_7

## 4.2 Data Transformation Requirements

| **Field Description** | **HL7 Field Loc.** | **Required R/O/C** | **Data Type** | **Length** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| **Message Header Segment** | **MSH** | R |  |  | PathCopy |
| Sending Application | MSH.3 | C |  |  | Hardcode “CERNER” |
| Sending Facility | MSH.4 | R |  |  | Copy inbound MSH.5 |
| Receiving Application | MSH.5 | O |  |  | Hardcode “PATIENTSAFE” |
| Receiving Facility | MSH.6 | R |  |  | Copy inbound MSH.5 |
| Message Type | MSH.9.1  MSH.9.2 | R |  |  | Hardcode “ADT”  Hardcode “A08” |
| Version ID | MSH.12 | R |  |  | Copy |
| **Event Type Segment** | **EVN** | O |  |  |  |
| Event Type Code | EVN.1 | R |  |  | Hardcode “A08” |
| **Patient Identifier Segment** | **PID** | R |  |  |  |
| Set ID - PID | PID.1 | O |  |  | Copy | |
| Patient ID (Internal) | PID.3 | R |  |  | Copy the BayCare MRN from incoming PID.2 |
| Patient Name | PID.5 | R |  |  | Copy |
| Date of Birth | PID.7 | R |  |  | Copy |
| Gender | PID.8 | R |  |  | Copy |
| Patient Account Number | PID.18.1 | R |  |  | Copy (first component of PID.18) |
| **Patient Visit Segment** | **PV1** | R |  |  |  |
| Set ID – PV1 | PV1.1 | R |  |  | Copy |
| Patient Class | PV1.2 | R |  |  | Copy |
| Assigned Patient Location | PV1.3.1  PV1.3.2  PV1.3.3  PV1.3.4 | R |  |  | Copy (first four components of PV1.3) |
| Admission Type | PV1.4 | O |  |  | Copy |
| Patient Type | PV1.18 | O |  |  | Copy |
| Visit Number | PV1.19 | R |  |  | Copy |
| Admit Date/Time | PV1.44 | R |  |  | Copy |
| Discharge Date/Time | PV1.45 | O |  |  | Copy |
| **Observation (OBX) Segments** | **OBX** | R |  |  | **ITERATE over the group. For each OBX do:** |
| **Check the value of OBX.3.1** | **OBX.3.1** | R |  |  | **If OBX.3.1 = “HEIGHT” do:** |
| Set ID - OBX | OBX.1 | O |  |  | Copy |
| Value Type | OBX.2 | R |  |  | Copy |
| Observation Identifier | OBX.3.1  OBX.3.2  OBX.3.3 | R |  |  | Hardcode “1010.3”  Hardcode “HEIGHT”  Hardcode “AS4” |
| Observation Value | OBX.5 | R |  |  | Copy |
| Units | OBX.6 | R |  |  | Copy |
| Date/Time of the Observation | OBX.14 | R |  |  | Copy inbound MSH.7 (Date/Time of Message) |
|  |  |  |  |  | **If OBX.3.1 = “WEIGHT” do:** |
| Set ID - OBX | OBX.1 | O |  |  | Copy |
| Value Type | OBX.2 | R |  |  | Copy |
| Observation Identifier | OBX.3.1  OBX.3.2  OBX.3.3 | R |  |  | Hardcode “1010.3”  Hardcode “WEIGHT”  Hardcode “AS4” |
| Observation Value | OBX.5 | R |  |  | Copy |
| Units | OBX.6 | R |  |  | Copy |
| Date/Time of the Observation | OBX.14 | R |  |  | Copy inbound MSH.7 (Date/Time of Message) |

## 4.3 Sample Message

Inbound to Cloverleaf from Cerner: (Inpatient)

MSH|^~\&|HNAM|CERNER|INVISION|BAYCARE|20190702142410||ORM^O01|Q4432183806T5825903436||2.3||||||8859/1

PID|1|7000110186^^^BayCare MRN^MRN^SOARIAN|2104711992^^^BayCare MRN^MRN^SOARIAN~300128396^^^BayCare CMRN^Community Medical Record Number^SOARIAN~6007262^^^BMGMRN^MRN^BMG~7000110186^^^BayCare MRN^MRN^SOARIAN~7000011122^^^BayCare MRN^MRN^SOARIAN|300128396^^^BayCare EAD CPI^Historical CMRN^SOARIAN~URN:CERNER:IDENTITY-FEDERATION:REALM:3272B0CB-1B63-4AC0-83F5-FE3A7CE3323F-CH:PRINCIPAL:9Z3JF8V39PL9FR8P^^^CD:3179178087^CD:2737258875~CAEAA4AA9AED4E6DB94842B34B65E8D0^^^DONOTSEND^Messaging|TEST^TEST^K^^^^Current||19550626|F||B|CANEL WAY^^Oldsmar^FL^34677^USA^Home~rob@gmail.com^^^^^^e-mail||(813)299-9999^PRN~^PRN^^rob@gmail.com||ENG|S|BUD|6000144671^^^BayCare FIN^FIN NBR^SOARIAN|122222222|||HIS|||0

PV1|1|I|4NMC^4102^W^MCS^^Bed(s)^MCS|R|||13943^Lfgsl^Fdc^I^FFF^^^^MDU^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^MPH^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^NBY^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SFB^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SAH^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SJH^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SJN^Personnel^^^ORGANIZATION DOCTOR^CACTUS~OTH000^Lfgsl^Fdc^I^FFF^^^^UPIN^Personnel^^^DOCUPIN~1639370281^Lfgsl^Fdc^I^FFF^^^^NPI Number^Personnel^^^National Provider Identifier^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^MCS^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SJW^Personnel^^^ORGANIZATION DOCTOR^CACTUS~MS028557^Lfgsl^Fdc^I^FFF^^^^Username^Personnel^^^Username^CACTUS~ME107376^Lfgsl^Fdc^I^FFF^^^^Doctor License Number^Personnel^^^LICENSENBR^CACTUS~FS2045804^Lfgsl^Fdc^I^FFF^^^^DEA No^Personnel^^^DOCDEA^CACTUS~MS028557^Lfgsl^Fdc^I^FFF^^^^BayCare Dr Number^Personnel^^^ORGANIZATION DOCTOR^CACTUS~6293999648013^Lfgsl^Fdc^I^FFF^^^^SureScripts Prescriber ID^Personnel^^^SureScripts Prescriber Index~6293999648012^Lfgsl^Fdc^I^FFF^^^^SureScripts Prescriber ID^Personnel^^^SureScripts Prescriber Index||^Lang^Eric^^^^^^^Personnel|MED||||RP|||13943^Lfgsl^Fdc^I^FFF^^^^MDU^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^MPH^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^NBY^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SFB^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SAH^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SJH^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SJN^Personnel^^^ORGANIZATION DOCTOR^CACTUS~OTH000^Lfgsl^Fdc^I^FFF^^^^UPIN^Personnel^^^DOCUPIN~1639370281^Lfgsl^Fdc^I^FFF^^^^NPI Number^Personnel^^^National Provider Identifier^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^MCS^Personnel^^^ORGANIZATION DOCTOR^CACTUS~13943^Lfgsl^Fdc^I^FFF^^^^SJW^Personnel^^^ORGANIZATION DOCTOR^CACTUS~MS028557^Lfgsl^Fdc^I^FFF^^^^Username^Personnel^^^Username^CACTUS~ME107376^Lfgsl^Fdc^I^FFF^^^^Doctor License Number^Personnel^^^LICENSENBR^CACTUS~FS2045804^Lfgsl^Fdc^I^FFF^^^^DEA No^Personnel^^^DOCDEA^CACTUS~MS028557^Lfgsl^Fdc^I^FFF^^^^BayCare Dr Number^Personnel^^^ORGANIZATION DOCTOR^CACTUS~6293999648013^Lfgsl^Fdc^I^FFF^^^^SureScripts Prescriber ID^Personnel^^^SureScripts Prescriber Index~6293999648012^Lfgsl^Fdc^I^FFF^^^^SureScripts Prescriber ID^Personnel^^^SureScripts Prescriber Index|I||CD:2926842581|||||||||||||||||||MCS||Active|||20190619133900

PV2||Acute|^headache|||||||0||||||||||||CONFID|^^589745

ORC|NW|15198622551^HNAM\_ORDERID|||65||||20190702142410|^SYSTEM^Donotchange^^^^^^^Personnel||^SYSTEM^Donotchange^^^^^^^Personnel|||20190702142410|||Discern Expert^Discern Expert|^SYSTEM^Donotchange^^^^^^^Personnel

OBR|1|15198622551^HNAM\_ORDERID||DEHTWT^Discern HT WT||||||||||||^SYSTEM^Donotchange^^^^^^^Personnel||||||20190702142410||Discern Rule Order|||1^^0^20190702142410

NTE|1|ORDCOM| Discern Order entered secondary to height and/or weight being entered on a patient in MedManager, PowerForm, or Direct Flow Sheet Charting.

OBX|1|ST|HEIGHT^DE Height||172.72

OBX|2|ST|WEIGHT^DE Weight||60

Outbound from Cloverleaf to PatientSafe: (Inpatient)

MSH|^~\&|CERNER|MCS|PATIENTSAFE|MCS|20190702142410||ADT^A08|Q4432183806T58259034|P|2.3

EVN|A08|20190702142410

PID|1||7000110186||TEST^TEST^K||19550626|F||||||||||6000144671

PV1|1|I|4NMC^4102^W^MCS|R||||||||||||||I||||||||||||||||||||||||||20190619133900

OBX|1|ST|1010.3^HEIGHT^AS4||172.72|cm||||||||20190702142410

OBX|2|ST|1010.1^WEIGHT^AS4||60|kg||||||||20190702142410

**Go Live Date for PSS ADT interface: January 22, 2019**

# Appendix A: Risks and Concerns

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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** | | |  |  |  |
|  |  |  | |  | |  |  |  |

* End of document