**ORM Order messages from Cerner to MUSE Requirements**

**Version 1.6**

**Prepared By: Tiffany Bohall & Sailaja Parimi**

**6/18/2019**

[Document Control 3](#_Toc16761485)

[Resources 3](#_Toc16761486)

[Project Distribution List – N/A 3](#_Toc16761487)

[Document Version Control 3](#_Toc16761488)

[1.1 Purpose 4](#_Toc16761489)

[1.2 Project Scope 4](#_Toc16761490)

[1.3 Terminology Standards –N/A 4](#_Toc16761491)

[1.3.1 Acronyms 4](#_Toc16761492)

[1.3.2 Glossary 4](#_Toc16761493)

[1.4 Document References 4](#_Toc16761494)

[2. Diagrams 5](#_Toc16761495)

[3. Requirements 7](#_Toc16761496)

[3.1 Functional Requirements -N/A 7](#_Toc16761497)

[3.2 Non-Functional Requirements –N/A 8](#_Toc16761498)

[3.3 Messaging Protocols 8](#_Toc16761499)

[3.3.1 Inbound to the BayCare Cloverleaf N/A 8](#_Toc16761500)

[3.3.2 Outbound to Muse 8](#_Toc16761501)

[3.3.3 Inbound to the Vendor –N/A 9](#_Toc16761502)

[3.3.4 Outbound to the Vendor 9](#_Toc16761503)

[3.3.5 Inbound to the BayCare Cerner –N/A 9](#_Toc16761504)

[3.3.6 Outbound from BayCare Cerner 9](#_Toc16761505)

[4. HL7 Messaging 9](#_Toc16761506)

[4.1 Messaging Format 9](#_Toc16761507)

[4.1.1 Segments 10](#_Toc16761508)

[4.1*.*2 Messaging Event Types 10](#_Toc16761509)

[4.1*.*3 Cloverleaf Configuration Files 10](#_Toc16761510)

[4.1.4 Cloverleaf Site Location 10](#_Toc16761511)

[4.2 Data Transformation Requirements 11](#_Toc16761512)

[4.3 Sample Message 13](#_Toc16761513)

[5. Testing 14](#_Toc16761514)

[5.1. Unit Testing Scenarios –N/A 14](#_Toc16761515)

[5.2 Integrated Testing Scenarios –N/A 14](#_Toc16761516)

[5.3 Testing Approvals –N/A 14](#_Toc16761517)

[5.4 Piloting 15](#_Toc16761518)

[5.5 Approvals 15](#_Toc16761519)

[6. Deployment / Implementation Model 15](#_Toc16761520)

[Appendix A: Risks and Concerns –N/A 15](#_Toc16761521)

[Appendix B: Issues List –N/A 16](#_Toc16761522)

# **Document Control**

## Resources

|  |  |  |
| --- | --- | --- |
| **Name** | **Role** | **Email** |
| Bob O’Shea | BayCare IS Project Management | [Bob.O'Shea@baycare.org](mailto:Bob.O'Shea@baycare.org) |
| Rich Allison | BayCare IS, SR Integration Analyst | [Rich.Allison@baycare.org](mailto:Rich.Allison@baycare.org) |
| Tiffany Bohall | BayCare IS, Integration Analyst | [Tiffany.Bohall@baycare.org](file://BCAD.Baycare.org/DATA/USERS/TAJ65074/MISC/Muse/Tiffany.Bohall@baycare.org) |
| Rick Quackenbush | Liberty Solutions, SR Integration Consultant | [rquackenbush@libertysolutionsinc.com](mailto:rquackenbush@libertysolutionsinc.com) |
| Michael Flanary | BayCare IS, Cardiology Applications Lead | [Michael.Flanary@baycare.org](mailto:Michael.Flanary@baycare.org) |
| Shelly Martin | BayCare IS, Clinical Applications | [Shelly.Martin@baycare.org](file://BCAD.Baycare.org/DATA/USERS/TAJ65074/MISC/Muse/Shelly.Martin@baycare.org) |
| Chris Cobb | MUSE HL7 Integration Analyst | [Christopher.Cobb@med.ge.com](file://BCAD.Baycare.org/DATA/USERS/TAJ65074/MISC/Muse/Christopher.Cobb@med.ge.com) |
| Yinghua Cramer | Baycare IS Project Manager | [Yinghua.Cramer@baycare.org](mailto:Yinghua.Cramer@baycare.org) |
| Christopher Constantinou | Supervisor, Clinical Systems | Christopher.Constantinou@baycare.org |
| Shannon Temming | Systems Analyst Sr. , Diagnostic Clin Applications | Shanon.Carter@baycare.org |
| Cheri Krampert | Manager, HIE | Cheryl.Krampert@baycare.org |
| Carter Shanon | Supervisor, Integration Team | Shanon.Carter@baycare.org |
| Kaczmarczyk Hope | Integration Analyst Sr., Integration Team | Hope.kaczmarczyk@baycare.org |
| Sailaja Parimi | Integration Analyst, Integration Team | Sailaja.parimi@baycare.org |
| Thomas Fredrickson II | Systems Analyst Sr., Integration Team | Thomas.Fredrickson@baycare.org |
| Shannon Carey | Systems Analyst, EHR Practice Management | Shannon.Carey@baycare.org |
| Cynthia Barone | Supervisor, Clinical Systems | Cynthia.Barone@baycare.org |

## Project Distribution List – N/A

## Document Version Control

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Modifier** | **Description** |
| V1.0 | 11/25/2015 | Tiffany Bohall | Originally Created |
| V1.1 | 1/25/2016 | Tiffany Bohall | Updated Documentation References |
| V1.2 | 3/10/2016 | Tiffany Bohall | Added Visio diagram to section 2.0 |
| V1.3 | 6/29/2016 | Sailaja Parimi | Added BMG EKG Device Integration with MUSE implementation updates from 5/19/16. |
| V1.4 | 9/13/2016 | Tom Fredrickson | Added Cloverleaf Integration Information. |
| V1.5 | 6/18/19 | Lois Whitley | Updated Diagram |
| V1.6 | 07/24/2019 | Charles Markwardt | Added Risk comments |

1. Introduction

## 1.1 Purpose

The purpose of this document is to provide the current configuration for the Cerner orders interface outbound to Muse Cardiology Information System. The intended audience would be anyone who wishes to know more about the current configurations as established in production.

## 1.2 Project Scope

The scope of the integration that is defined in this requirements document outlines the Orders interface from Cerner to MUSE Cardiology Information System portion only. BayCare Health System also has an ADT interface from Soarian to MUSE (**only for Inpatients**), and a Results interface from MUSE to Cerner, which outlines those configurations.

## 1.3 Terminology Standards –N/A

### 1.3.1 Acronyms

Define the acronyms and their associated definitions used in this document. The acronyms should be listed in alphabetical order.

**ADT –** Admission, Discharge, and Transfer.

**BMG** – BayCare Medical Group

**BOI –** BayCare Outpatient Imaging

**ORM –** A HL7 Order Message

### 1.3.2 Glossary

List the terms that require definition with respect to Cloverleaf and the product whose requirements are defined in this document. The definitions are specific to this document and may not be identical to the definitions of these terms in common use.

## 1.4 Document References

List all documents or Web addresses to which this IDBB refers;

**On the Enterprise Integration Services SharePoint site: ADT and ORU requirements**

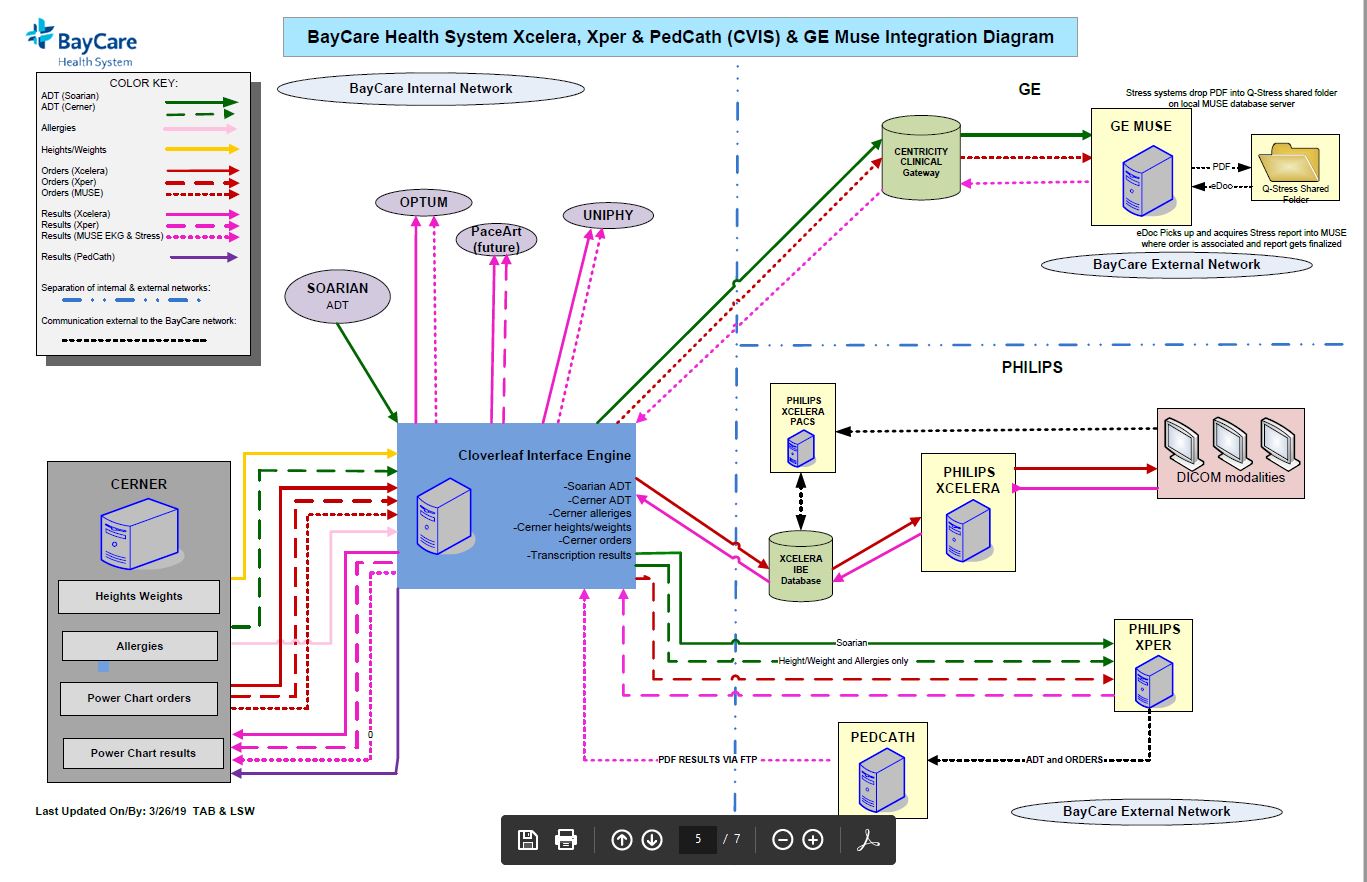
* Enterprise Integration Services team > Applications and Systems > 01-EIT Requirements > ADT\_Soarian\_MUSE Reqs
* Enterprise Integration Services team > Applications and Systems > 01-EIT Requirements > ORU\_MUSE\_Cerner Reqs

**MUSE v8 HL7 Reference Document:**

Enterprise Integration Services team > Applications and Systems > Muse Cardiology >

Cerner Reference Pages for Orders Message Processing Outbound: <https://wiki.ucern.com/display/public/reference/Unit+09o+-++Order+Message+Processing+Outbound>

# 2. Diagrams





# 3. Requirements

## 3.1 Functional Requirements -N/A

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.

**Functional requirements for BMG EKG Device Integration with MUSE for Orders Outbound interface:**

|  |  |  |
| --- | --- | --- |
| **Cerner** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
| FR.2016.06.1 | Mod object script  orm\_muse\_outv10 on Comserver: ORM\_TCP\_MUSE\_OUT | Updated code to add BMGFN value to the list of other facilities to ignore the logic to send orders outbound.  Added code to start MUSE worklist for BMG by BMGFN |
| FR.2016.06.2 | Mod Object Script  MSH\_FAC\_MODOBJ\_OUT | Added code to start MSH logic for BMG based upon PID-18. |
| FR.2016.06.3 | Route Script  Route\_outv42 | Added code to route Ambulatory Order messages for EKG to route via the existing comserser ORM\_TCP\_MUSE\_OUT |
| FR.2016.06.4 | Global Script  eso\_get\_order\_selection | Added code to unsuppress the Ambulatory EKG orders |
|  |  |  |
| FR.2016.06.5  FR.2016.06.7  FR.2016.06.8  FR.2016.06.9 | New activity type with a display of AMBULATORY CARDIOVASCULAR with a CDF meaning of EKG was required to build by the Core/Orders team.  Core team required to build BMG EKG order aliases on cs 72 on the EKG folder.  New BMG EKG Orders were built by Diagnostic Clin Apps team.  Core team build new Order aliases on code set 72 on the EKG folder | FSI coding requires the CDF meaning of EKG for route script and global script. |

## 3.2 Non-Functional Requirements –N/A

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.xx.xx |  |  |

## 3.3 Messaging Protocols

Below are listed the details for the messaging protocols that will be leveraged for this integration. Please see the reference document located on the Integration SharePoint server: <insert link to document here>

### 3.3.1 Inbound to the BayCare Cloverleaf N/A

**Test C30**

Port Number: 13203

**Test M30**

Port Number: 18187

**Test B30**

Port Number: 18176

IP Address: 10.5.250.103

**Prod**

Port Number: 13081

IP Address: 10.5.250.101

### 3.3.2 Outbound to Muse

**Test**

Port Number: 12111

IP Address: 10.44.184.187

**Prod**

Port Number: 11011

IP Address: 10.44.184.209

### 3.3.3 Inbound to the Vendor –N/A

* Click here to enter text.

### 3.3.4 Outbound to the Vendor

**Test**

Port Number: 12011 23068

IP Address: 10.44.143.233 localhost

**Prod**

Port Number: 11011

IP Address: 10.44.143.232

### 3.3.5 Inbound to the BayCare Cerner –N/A

* Click here to enter text.

### 3.3.6 Outbound from BayCare Cerner

**Test –M30**

Interface: ORM\_TCP\_MUSE\_OUT

Port Number - 18187

IP Address: Cannot access

**Test –C30**

Interface: ORM\_TCP\_MUSE\_OUT

Port Number: 13203

IP Address: Cannot access

**Prod**

Interface: ORM\_TCP\_MUSE\_OUT

Port Number: 13081

IP Address: Cannot access:

# 

# 4. HL7 Messaging

## 4.1 Messaging Format

HL7 2.3 cerner\_emr ORM\_O01

### 4.1.1 Segments

The segments utilized for this interface are:

MSH

PID

PV1

[PV2]

IN1

[IN2]

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*

*ORC – Common Order segment*

*IN1 – Insurance segment*

*[{ – Start of optional, repeatable group*

*}] – End of optional, repeatable group*

### 4.1*.*2 Messaging Event Types

Below are the messages types necessary for this integration

|  |  |
| --- | --- |
| **Event Type** | **Description** |
| ORM | Order message |
|  |  |

### 4.1*.*3 Cloverleaf Configuration Files­

Cloverleaf translation file: cerner\_muse\_orm

### 4.1.4 Cloverleaf Site Location

Cloverleaf site location: cardiology\_3\_p.

## 4.2 Data Transformation Requirements

| **Field Description** | **HL7 Field Loc.** | **Required Y/N** | **Data Type** | **Length** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| Message Segment Header | MSH | Y | Varies | Varies | Pathcopy the entire segment. |
| Sending Facility | MSH.4 | Y | HD | 227 | Hard copy “BAYCARE” |
| Receiving Application | MSH.5 |  |  |  | Hard copy “MUSE” |
| Receiving Facility | MSH.6 | Y |  |  | Sending MSH.5 to @fac variable and copying value outbound |
| Patient Identifier List | PID.3 | Y | CX | 250 | Copying “BayCare CMRN” to an @cpi-tag. Iterating through PID.3 and if PID.3.3 = @cpi\_tag, copy PID.3.0 outbound to PID.3.  Pad a leading 0 if 8 digits. |
| Patient Name: last, first, suffix | PID.5.0  PID.5.1  PID.5.3 |  |  |  | Copy |
| Date/time of Birth | PID.7 |  |  |  | Copy |
| Sex | PID.8 |  |  |  | Copy |
| Patient Account Number | PID.18  PID-18.1  PID.18.4  PID.18.5 |  |  |  | Copy  PID-18.1 is populated with the value of FIN.  Cerner populates PID-18.4 with either BMGFN or BayCareFIN.  And it sends FIN identifiers to Cloverleaf in PID-18.4. The identifiers are required for Results messages to process accurately.  Cerner populates with a value of FIN NBR  Cloverleaf logic: If “BayCare FIN” is populated in PID-18.4, blank the field and hard code “BCFN” in PID-18.5. If “BMGFN” is populated in PID-18.4, blank the field and hard code “BMGFN” in PID-18.5. |
| Patent Class | PV1.2 |  |  |  | Copy |
| Assigned Patient Location | PV1.3 | Y | PL | 80 | Copy |
| Attending Doctor | PV1.7.0  PV1.7.1  PV1.7.2  PV1.7.3 | Y |  |  | If PV1.7.0 does not = null, copy PV1.7.0, PV1.7.1, PV1.7.2 and PV1.7.3 outbound. |
| Consulting Doctor | PV1.9.0  PV1.9.1  PV1.9.2  PV1.9.3 | Y |  |  | If PV1.9.0 does not = null, copy PV1.9.0, PV1.9.1, PV1.9.2 and PV1.9.3 outbound. |
| Admit Date/Time | PV1.44 | N | DTM | 24 | Copy |
| Order Control | ORC.1 | Y |  |  | If ORC.1 = NW, copy NW outbound. Else, if ORC.1 = SN, copy NW outbound. Else, if ORC.1 = CA, copy CA outbound. Else, If  ORC.1 = SC and ORC.5 = 77, copy CA outbound. Else, suppress the message. |
| Placer order Number | ORC.2 |  |  |  | Copy |
| Placer order number entity ID | OBR.2.1  OBR-2.2 |  |  |  | Copy  OBR-2.1 - Cerner populates order\_id (numeric value  OBR-2.2 Cerner populates with a value of HNAM\_ORDERID |
| Universal service identifier ID | OBR.4.0 |  |  |  | Copy |
| Universal service identifier text | OBR.4.1 |  |  |  | Copy |
| Ordering provider ID, last name, first name, middle initial | OBR.16.0  OBR.16.1  OBR.16.2  OBR.16.3 | Y |  |  | If OBR.16.0 does not = null, copy OBR.16.0, OBR.16.1, OBR.16.2 and OBR.16.3 outbound. |
| Quantity timing priority | OBR.27.5 |  |  |  | Copy |
| Reason for study text | OBR.31.1 |  |  |  | If any iteration of OBX.3.0 contains “Reason for Procedure” copy OBX.5.0 into OBR.31.1 outbound. |

## 4.3 Sample Message

**OUTBOUND to MUSE:**

MSH|^~\&|HNAM|BAYCARE|MUSE|**SJS**|20151201110305||ORM^O01|Q1919724276T22042914|P|2.3||||||8859/1

PID|||300134252||SNICKERS^ALMOND||19500112|F||||||||||1100094857

PV1||I|SFA3EA^3217^A^SJS^^Bed(s)^SJS||||MS007397^Feldman^Alan|||||||||||||||||||||||||||||||||||||20150126150800

ORC|CA|4416070249

OBR||4416070249||NEKG^NM Cardiac Stress Test EKG Tracing||||||||||||MS009852^Held^Jeffrey^A|||||||||||^^^20150827115000^^Routine

MSH|^~\&|HNAM|BAYCARE|MUSE|**NBY**|20151201130748||ORM^O01|Q1919724580T22042917|P|2.3||||||8859/1

PID|||100393788||VOSJJ^OYNYXXT||19530619|F||||||||||40802981

PV1||I|NB3RDN^0309^01^NBY^^Bed(s)^NBY||||MS020141^Tnwwg^Ylxnwlopr^M|||||||||||||||||||||||||||||||||||||20140404224600

ORC|CA|3880321925

OBR||3880321925||EKG^EKG 12 Lead||||||||||||MS009852^Held^Jeffrey^A|||||||||||^^^20140404201800^^Stat||||^Chest Pain

Outbound from Cerner to Cloverleaf for BMG Suncoast site:

MSH|^~\&|HNAM|BAYCARE|SCA|BAYCARE|20160509135712||ORM^O01|Q2631892269T3251957009||2.3||||||8859/1

PID|1|45938^^^BMGMRN^MRN^BMG|2104793529^^^BayCare MRN^MRN^SOARIAN~300145993^^^BayCare CMRN^Community Medical Record Number^BMG~45938^^^BMGMRN^MRN^BMG~2104716283^^^BayCare MRN^MRN^SOARIAN|300145993^^^BayCare EAD CPI^Historical CMRN^BMG|TEST^AMBER^^^^^Current||19320101|F||W|PO BOX 222222^^Tampa^FL^33622^^Home~NONE^^^^^^e-mail||(813)555-2356^PRN^^^^^^^PRIMARY~(813)555-2356^PRN||ENG|U||1600388^^^BMGFN^FIN NBR^BMG|987561235|||NOH|||0

PV1|1|O|BMGSCA^^^SCA^^Ambulatory(s)^SCA||||MS006151^Ecm^Bguvxg^D^^^^^Username|MS006151^Ecm^Bguvxg^D^^^^^Username||\*NA||||RP||N||A||Managed Care|||||||||||||||||||SCA||Active|||20160504091900

PV2||S|^test|||||20160504103000||0||||||||||||CONFID|^^6149193

IN1|1|94294106^Aetna Choice EPO^^^Aetna Choice EPO|6197526|AETNA CHOICE EPO|FX SXT 94057^^EUTJZHBXZ^ YL^40298-4057||(888)632-3862|||||20160504091723|21001231000000||O|TEST^AMBER^^^^^Current|1|19320101|PO BOX 222222^^Tampa^FL^33622~NONE|||0|||||||||||||F||||||||F||||||124388

IN2|0|987561235|||||||||||||||||||||||124388||||||||||||||||||||||||||||||||||||124388||(813)555-2356

IN3|1|124388^^^^Authorization|||||||20160504091948|21001231000000

ORC|SN|7711549439^HNAM\_ORDERID|||20||||20160509134529|||MS006151^Ecm^Bguvxg^D^^^^^Username|||20160509135711|||Written^Written/Paper/Fax

OBR|1|7711549439^HNAM\_ORDERID||ECGP12^ECG, Routine, min 12 Leads, Interp & Report Only||||||||||||MS006151^Ecm^Bguvxg^D^^^^^Username||||||20160509135711||EKG|||1^^0^20160509134500^^Routine

OBX|1|IS|CD:1988920665^Ambulatory Reason for Procedure - CV||Chest Pain

# **5. Testing**

## 5.1. Unit Testing Scenarios –N/A

|  |  |
| --- | --- |
| **Scenario** | **Expected Result** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## 5.2 Integrated Testing Scenarios –N/A

|  |  |
| --- | --- |
| **Scenario** | **Expected Result** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## 5.3 Testing Approvals –N/A

|  |  |  |  |
| --- | --- | --- | --- |
| **Testing Phase** | **Date** | **Department** | **Team Member** |
| PH1.UNIT |  |  |  |
| PH1.INTEGRATED |  |  |  |

### 

## 5.4 Piloting

List the facilities and associated networks in scope for pilot testing.

## 5.5 Approvals

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

# 6. Deployment / Implementation Model

Provide the detail as to how to deploy the solution defined in the IDBB from both the BAYCARE and vendor perspective.

# Appendix A: Risks and Concerns –N/A

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Name** |  |  | | |  |  |  |  |
| **Number** | **Risk / Concern** | **Comment** | **Mitigation** | | |  |  |  |
| RC.2013.1.0 | 2019.07.24 | Orders will not match up if the CPI is in the legacy range of less than 80000. CL will pad the CPI to 9 digit characters  The Muse GUI was also originally setup to use the MRN instead of the CPI. So for 30 days a process in place to manually correct the Patient ID in muse to the CPI | |  | |  |  |  |

# Appendix B: Issues List –N/A

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.2013.1.0 |  |  | |  | |  |  |  |

* End of document