



# OSEHRA

*Open Source Electronic Health Record Alliance*

## **Open Source Technical Support and Working Group Services for VA VistA**

**Prioritization Description Document  
For VA Open Source Intake Candidates**



**Contract Number: VA118-16-C-0841**

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# 1. Introduction

## 1.1. Executive Summary

The purpose of this Prioritization Description Document (PDD) is to compile and document the analysis findings for the open source software (OSS) intake candidates identified during the quarter. The candidates reviewed in the 2017 third quarter (Q3) document are listed below:

- Pharmacy On-Demand Labels – enhancement to the inpatient pharmacy module that allows pharmacy labels to be created for patient self-medication, which can then be administered through Bar Code Medication Administration (BCMA); recommended for intake, most likely through a funded project.
- Date of Death Entry – enhancement allows date of death information to be entered without being a result of inpatient disposition; hold until VHA can perform a business case analysis and determine that the benefit provided by this enhancement offsets the effort that may be required to integrate the data with the Social Security Administration (SSA) and Veterans Benefits Administration (VBA).
- Victory Programmer Environment (VPE) – tool that consists of a number of integrated programmer utilities that increase productivity and decrease the number of key strokes required to complete normal programming tasks in the VistA environment; recommended for intake.

Including the two recommended candidates listed above, a total of 24 OSS candidates have been recommended for intake to date.

## 1.2. Overview

The PDD incorporates findings from the OSS and Product Selection Criteria analysis and the SWOT analysis. The PDD then expands the assessment with additional analysis across multiple areas. A high-level business case is outlined for each intake candidate. Ultimately, this document serves to position the candidates for the VA intake assessment process. To facilitate the intake process, suggested Epic statements are included for each candidate. VA uses Epics to define user needs and initiate the project planning phase of the Veteran Focused Integration Process (VIP).

The PDD includes multiple analysis elements for the intake candidates, including the following:

1. Provides a mapping and functional description of open source software features proposed for Veterans Health Information Systems & Technology Architecture (VistA) intake as they correlate to defined VA VistA 4 Feature Sets (FS).

2. Elaborates how the alternatives for the same VistA feature set compare to one another.
3. Identifies and estimates the scope of additional development needed to meet VA requirements.
4. Provides supporting technical detail regarding supported and/or required/missing components (such as client and server operating systems, database managers, application program interfaces, etc.).
5. Provides recommendations regarding any required/missing components necessary for full operation of VA VistA that may be addressed through either open source or other channels.
6. Identifies the level of maturity and supportability requirements associated with the intake of the respective open source code.
7. Identifies any licensing implications affecting intake.
8. Identifies risks (technical, operational, programmatic) for each open source alternative.
9. Identifies proposed mitigation strategies for risks associated with VA VistA intake that may affect deployment at VAMCs nation-wide.

## 2. Approach

Several deliverables converge to create the PDD. The approach to developing this PDD included four main steps:

1. Incorporate the 2017 Q3 Gap Analysis findings into the PDD as appropriate
2. Incorporate the 2017 Q3 Product Selection Criteria content into the PDD as appropriate
3. Incorporate the SWOT content for each candidate as appropriate
4. Organize the analysis and develop a business case summary for each candidate:
  - o Overview
  - o Rationale / Summary of Business Case
  - o Fit to Requirements / Benefits
  - o Costs
  - o Risks
  - o Epic Statements

The PDD then summarizes and provides prioritization guidance for all the OSS items recommended to date.

### 3. Analysis of Pharmacy On-Demand Labels

#### 3.1. Overview and Rationale

An overview of Pharmacy On-Demand Labels is presented in Table 1.

| PDD Element                              | Analysis  |
|--|---|
| Overview                                 |   |
| Overview of Open Source Intake Candidate | The Pharmacy On-Demand Labels candidate is an enhancement to the inpatient pharmacy module that allows pharmacy labels to be created for patient self-medication, which can then be administered through Bar Code Medication Administration (BCMA). Pharmacy On-Demand Labels was developed by Document Storage Systems (DSS), Inc. to support the vxVista EHR and was released to the open source community as part of the full vxVista release to OSEHRA. It has not been deployed within VA. |
| Recommendation                           |   |
| Recommendation                           | The recommendation for Pharmacy On-Demand Labels is to proceed with VA intake and OSEHRA Certification.   |
| Rationale                                |   |
| Rationale / Summary of Business Case     | The primary benefit associated with intake of Pharmacy On-Demand Labels is the ability to generate labels for patient self-medication that are functionally similar to VA-provided medication. VHA Directive 1108.06, Inpatient Pharmacy Services, requires outpatient medication that is authorized for inpatient use to be relabeled prior to reissue. <sup>1</sup>   |
| Assessment of Alternatives               | The primary alternative to Pharmacy On-Demand Labels is to continue with the current system, which requires individual medical facilities to establish a process for managing these medications.  |

**Table 1. Overview and Rationale**

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<sup>1</sup> Department of Veterans Affairs / Veterans Health Administration. (2017). VHA Directive 1108.06: Inpatient Pharmacy Services. Washington, DC: Author. Retrieved September 8, 2017 from [https://www.va.gov/vhapublications/ViewPublication.asp?pub\\_ID=5333](https://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=5333)

### 3.2. Fit to Requirements / Benefits

Pharmacy On-Demand Labels is evaluated based on the fit to requirements and benefits offered by the candidate in Table 2.

| PDD Element                              | Analysis  |
|--|---|
| Fit to Requirements / Benefits           |   |
| Fit with Roadmap                         | This functionality is not specifically referenced in the Roadmap, but is also not in conflict with it.  |
| Mapping to Feature Sets                  | This functionality generally aligns with enhancements to pharmacy included in Feature Sets 3 and 4.   |
| Functional Fit with Requirements         | Pharmacy On-Demand Labels is an enhancement to the inpatient pharmacy module that allows pharmacy labels to be created for patient self-medication, which can then be administered through BCMA. It supports requirements in VHA Directive 1108.06, Inpatient Pharmacy Services, bullet 8.e which states, "When an outpatient medication is authorized for inpatient use, the Pharmacy Service must relabel the medication in accordance with the provider's instructions. This must be done using standard labeling as required for inpatient dispensing, prior to reissue." <sup>2</sup> This code may also support VHA's self-medication programs, VHA Directive 1108.03. <sup>3</sup> This enhancement adds value, but does not fill a significant gap. |
| Technical / Architectural Fit with VistA | Pharmacy On-Demand Labels has a strong technical and architectural fit with VistA. The code was developed by DSS, Inc. for use with vxVistA, and is included in the full vxVistA distribution released to OSEHRA. Implementation of code involves Pharmacy KIDS build for inpatient medications (PSJ) and a change to BCMA. There is no impact to CPRS.   |
| Business Benefits to VA                  | Code has the potential to improve delivery of healthcare and patient convenience by allowing patient's normal medications (e.g. blood pressure pills) to be administered through BCMA in an inpatient pharmacy setting. It may support compliance with the requirements in VHA Directive 1108.06, Inpatient Pharmacy Services, pertaining to the administration of outpatient medication that is authorized for inpatient use. Pharmacy On-Demand Labels does not impact CPRS, and may qualify for intake through the Existing Product Intake Program (EPIP).   |

**Table 2. Analysis of Fit to Requirements / Benefits**

<sup>2</sup> Department of Veterans Affairs / Veterans Health Administration. (2017). VHA Directive 1108.06: Inpatient Pharmacy Services. Washington, DC: Author. Retrieved September 8, 2017 from [https://www.va.gov/vhapublications/ViewPublication.asp?pub\\_ID=5333](https://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=5333)

<sup>3</sup> Department of Veterans Affairs / Veterans Health Administration. (2016). VHA Directive 1108.03: Self-Medication Programs (SMP). Washington, DC: Author. Retrieved October 2, 2017 from [https://www.va.gov/vhapublications/ViewPublication.asp?pub\\_ID=4302](https://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=4302)

### 3.3. Costs

An overview of the costs associated with intake of Pharmacy On-Demand Labels is presented in Table 3.

| PDD Element  | Analysis   |
|--|--|
| Costs  |  |
| Size and Scope of Any Additional Development       | There is no known additional development required for intake of Pharmacy On-Demand Labels. Implementation of code involves Pharmacy KIDS build for inpatient medications (PSJ) and a change to BCMA. This code has not been released as an independent KIDS build package, so the routines will need to be extracted for intake. There is no impact to CPRS.   |
| Supported and / or Required / Missing Components   | No supported and/or required missing components have been identified.  |
| Recommendations for Required or Missing Components | There are no constraints due to required or missing components.  |
| Level of Maturity and Support Requirements         | Pharmacy On-Demand Labels was developed by DSS, Inc. to support the vxVistA EHR and was released to the open source community as part of the full vxVistA release to OSEHRA. It is in use in DSS production accounts, but has not been deployed within VA. The code has not been reviewed or certified by OSEHRA. Documentation and test cases may need to be developed to support the OSEHRA certification process. |

**Table 3. Analysis of Costs**

### 3.4. Risks

The level of risk associated with intake of Pharmacy On-Demand Labels is evaluated in Table 4.

| PDD Element                             | Analysis  |
|---|---|
| Risks                                   |   |
| Technical Risks                         | No technical risks associated with implementation of this code have been identified.  |
| Operational Risks                       | Some minor operational risks exist related to intake of this code. Pharmacists would have a new process allowing them to gather patient medications and print labels for patient self-medication. Once labels are printed, the BCMA process would be the same as for other medications. VA medical facilities are required to implement processes to comply with the requirements in VHA Directive 1108.06, Inpatient Pharmacy Services, including outpatient medication that is authorized for inpatient use. Use of this enhancement will impact existing procedures and processes. |
| Programmatic Risks                      | No programmatic risks associated with implementation of this code have been identified.   |
| Licensing Implications and Code Quality | There are no licensing or copyright issues; Pharmacy On-Demand Labels is licensed under the Apache License 2.0. It has been in use in production DSS environments outside VA.   |
| Mitigation Strategies                   | Fully completed testing will mitigate most of the implementation risks.   |

**Table 4. Analysis of Risks**

### 3.5. Epic Statements

To support funding and agile development requirements, Epic statements for this candidate are provided in Table 5. Formatting and categories are consistent with VA's Epic statement format.

| <b>Epic Category</b>   | <b>Description</b>  |
|--|---|
| Candidate  | Pharmacy On-Demand Labels   |
| <b>For</b> <target customers>  | pharmacists   |
| <b>Who</b> <need or opportunity>   | need to administer outpatient medication that is authorized for inpatient use in compliance with VHA Directive 1108.06  |
| <b>the</b> <solution>  | Pharmacy On-Demand Labels   |
| <b>Is</b> <something – the “how”>  | an enhancement to the VistA inpatient pharmacy module and BCMA  |
| <b>That</b> <provides this value>  | allows pharmacy labels to be created for patient self-medication, which can then be administered through BCMA.          |
| <b>Unlike</b> <the primary alternative, current solution or non-existing solution >                  | the current system, which requires individual medical facilities to establish a process for managing these medications  |
| <b>Our solution</b> <does something better – the “why”>  | provides a standardized technical approach that integrates with BCMA to align with the process for inpatient medication |
| Scope  |   |
| <b>Success Criteria</b> <how success will be measured, quantified if possible>                       | Ability to generate labels for patient self-medication, compliance with VHA Directive 1108.06                           |
| <b>In Scope</b> <features that are in scope>   | Generation of labels for outpatient medication that is authorized for inpatient use, corresponding updates to BCMA      |
| <b>Out of Scope</b> <items not needed for this Epic>   | N/A   |
| <b>Non-Functional Requirements</b> <shall statements for usability, reliability, etc. if applicable> | N/A   |

**Table 5. Epic Statements**

## 4. Analysis of Date of Death Entry

### 4.1. Overview and Rationale

An overview of the Date of Death Entry candidate is presented in Table 6.

| PDD Element                              | Analysis  |
|--|---|
| Overview                                 |   |
| Overview of Open Source Intake Candidate | The Date of Death Entry enhancement allows date of death information to be entered without being a result of inpatient disposition. This information could then be sent back to the Veterans Affairs Central Office (VACO) or populated by VACO for improved record keeping and benefits tracking. Date of Death Entry was developed by Document Storage Systems (DSS), Inc. to support the vxVistA EHR. Date of Death Entry was released to the open source community as part of the full vxVistA release to OSEHRA. It has not been deployed within VA. |
| Recommendation                           |   |
| Recommendation                           | The recommendation for Date of Death Entry is to hold until VHA can perform a business case analysis and determine that the benefit provided by this enhancement offsets the effort that may be required to integrate the data with the Social Security Administration (SSA) and Veterans Benefits Administration (VBA).  |
| Rationale                                |   |
| Rationale / Summary of Business Case     | The primary benefit associated with intake of Date of Death Entry is improved administrative efficiency.  |
| Assessment of Alternatives               | The primary alternative to Date of Death Entry is to continue with the current system functionality, which requires date of death to be entered as an inpatient disposition.  |

**Table 6. Overview and Rationale**

## 4.2. Fit to Requirements / Benefits

Date of Death Entry is evaluated based on the fit to requirements as well as benefits offered by the candidate in Table 7.

| PDD Element                              | Analysis  |
|--|---|
| Fit to Requirements / Benefits           |   |
| Fit with Roadmap                         | This functionality is not specifically referenced in the Roadmap, but is also not in conflict with it.  |
| Mapping to Feature Sets                  | This functionality is not specifically referenced in the Roadmap, but is also not in conflict with it.  |
| Functional Fit with Requirements         | The Date of Death Entry enhancement allows date of death information to be entered without being a result of inpatient disposition. This functionality currently does not exist in CPRS / VistA. This enhancement adds value, but does not fill a significant gap.  |
| Technical / Architectural Fit with VistA | Date of Death Entry has a strong technical and architectural fit with VistA and CPRS. Code was developed by DSS, Inc. for use with vxVistA, and is included in the full vxVistA distribution released to OSEHRA. Integrating the data with the SSA and VBA could require data integration that may require funding to accomplish. |
| Business Benefits to VA                  | The primary benefit associated with intake of Date of Death Entry is improved administrative efficiency. The code is not Veteran facing, and there is no impact on the Veteran experience from intake of this code. The limited scope / impact associated with this code provides for a low process and change risk.              |

**Table 7. Analysis of Fit to Requirements / Benefits**

### 4.3. Costs

An overview of the costs associated with intake of Date of Death Entry is presented in Table 8.

| PDD Element  | Analysis   |
|--|--|
| Costs  |  |
| Size and Scope of Any Additional Development       | There is no known additional development required for intake of Date of Death Entry.   |
| Supported and / or Required / Missing Components   | Integrating the data with the SSA and VBA could require data integration that may require funding to accomplish.   |
| Recommendations for Required or Missing Components | Due to the need to integrate with SSA and VBA, assignment to a funded project will likely be required for intake. VHA should perform a business case analysis to determine if the benefit provided by this enhancement offsets the effort that may be required to integrate the data.  |
| Level of Maturity and Support Requirements         | The Date of Death Entry enhancement was developed by DSS, Inc. to support the vxVistA EHR and was released to the open source community as part of the full vxVistA release to OSEHRA. It is in use in DSS production accounts, but has not been deployed within VA. The code has not been reviewed or certified by OSEHRA. Documentation and test cases may need to be developed to support the OSEHRA certification process. |

**Table 8. Analysis of Costs**

## 4.4. Risks

The level of risk associated with intake of Date of Death Entry is evaluated in Table 9.

| PDD Element                             | Analysis   |
|---|--|
| Risks                                   |  |
| Technical Risks                         | No technical risks associated with implementation of this code have been identified.   |
| Operational Risks                       | Some minor operational risks exist related to intake of this code. While the limited scope / impact associated with this code provides for a low process and change risk, integration of the data with SSA and VBA would need to be coordinated.   |
| Programmatic Risks                      | Some minor programmatic risks exist related to intake of this code. This code involves a change to CPRS; prior conversations with VA stakeholders have raised concern that changes involving CPRS may involve a longer lead-time as near term CPRS GUI changes are already largely determined. |
| Licensing Implications and Code Quality | There are no licensing or copyright issues; Date of Death Entry is licensed under the Apache License 2.0. It has been in use in production DSS environments outside VA.  |
| Mitigation Strategies                   | Fully completed testing will mitigate most of the implementation risks.  |

**Table 9. Analysis of Risks**

## 4.5. Epic Statements

To support funding and agile development requirements, Epic statements for this candidate are provided in Table 10. Formatting and categories are consistent with VA's Epic statement format.

| <b>Epic Category</b>   | <b>Description</b>  |
|--|---|
| Candidate  | Date of Death Entry   |
| <b>For</b> <target customers>  | VA administrative staff   |
| <b>Who</b> <need or opportunity>   | need to enter a Veteran's date of death other than as an inpatient disposition  |
| <b>the</b> <solution>  | Date of Death Entry   |
| <b>Is</b> <something – the "how">  | an enhancement to CPRS / VistA  |
| <b>That</b> <provides this value>  | allows date of death information to be entered without being a result of inpatient disposition.   |
| <b>Unlike</b> <the primary alternative, current solution or non-existing solution >                  | the current system functionality, which requires date of death to be entered as an inpatient disposition  |
| <b>Our solution</b> <does something better – the "why">  | allows date of death to be entered even if not an inpatient disposition to support health care and death benefit claims coordination across VA. |
| Scope  |   |
| <b>Success Criteria</b> <how success will be measured, quantified if possible>                       | Improved administrative efficiency  |
| <b>In Scope</b> <features that are in scope>   | Ability to enter date of death other than as an inpatient disposition   |
| <b>Out of Scope</b> <items not needed for this Epic>   | N/A   |
| <b>Non-Functional Requirements</b> <shall statements for usability, reliability, etc. if applicable> | N/A   |

Table 10. Epic Statements

## 5. Analysis of Victory Programmer Environment (VPE)

### 5.1. Overview and Rationale

An overview of VPE is presented in Table 11.

| PDD Element                              | Analysis   |
|--|--|
| Overview                                 |  |
| Overview of Open Source Intake Candidate | <p>Victory Programmer Environment (VPE) consists of a number of integrated programmer utilities that increase productivity and decrease the number of key strokes required to complete normal programming tasks in the VistA environment. It includes a VistA-friendly programmer shell with improved routine and global management tools, and an Electronic Data Dictionary that complements and extends the FileMan data dictionary options. VPE was developed by David Buldoc, a programmer with VA until he retired in 1999. VPE was released to the MUMPS programming community in 1997. It has recently been revived and enhanced by the open source community. Version 14.1 was released August 16, 2017 and is available through both GitHub and the OSEHRA Technical Journal. It is currently in use within VA Regions 1 and 2. Version 14.2 provides additional testing support and has now been recommended to OSEHRA Level 3™ Certification.</p> |
| Recommendation                           |  |
| Recommendation                           | <p>The recommendation for VPE is to proceed with VA intake and OSEHRA Certification. The candidate is currently in use locally, and is recommended for intake nationally.</p>  |
| Rationale                                |  |
| Rationale / Summary of Business Case     | <p>The primary benefit associated with intake of VPE is improved programmer efficiency. It aligns with an identified implementation gap related to inefficient development tools, and has the potential for rapid intake through the Technical Reference Model (TRM).</p>  |
| Assessment of Alternatives               | <p>The primary alternative to VPE is to continue using the current less efficient VistA developer environment.</p>   |

**Table 11. Overview and Rationale**

## 5.2. Fit to Requirements / Benefits

VPE is evaluated based on the fit to requirements as well as benefits offered by the candidate in Table 12.

| PDD Element                              | Analysis  |
|--|---|
| Fit to Requirements / Benefits           |   |
| Fit with Roadmap                         | This functionality is not specifically referenced in the Roadmap, but is also not in conflict with it.  |
| Mapping to Feature Sets                  | This functionality is not specifically referenced in the Roadmap, but loosely fits the implementation gap associated with inefficient development tools.  |
| Functional Fit with Requirements         | VPE consists of a number of integrated programmer utilities that increase productivity and decrease the number of key strokes required to complete normal programming tasks in the VistA environment.   |
| Technical / Architectural Fit with VistA | VPE has a strong technical and architectural fit with VistA. VPE is legacy code that was developed by VA programmers and recently enhanced by the open source community. At the core of VPE is the VShell, which is a series of MUMPS routines and global nodes that are used to simulate advanced programmer mode. The VShell (^%ZVEMS*) is the common way to access the other VPE modules: VRoutine Reader (^%ZVEMR*), VRoutine Editor, VElectronic Data Dictionary (^%ZVEMD*), and VGlobal Lister/Editor (^%ZVEMG*). <sup>4</sup> The VPE routines are designed to function in the presence or absence of VA FileMan and VA Kernel software. VPE is installed by loading the routine archive and then running ^XV. On both GT.M and Cache, the routine archive is loaded by using D ^%RI. <sup>5</sup> |
| Business Benefits to VA                  | The primary benefit associated with intake of VPE is improved programmer efficiency. The code is not Veteran facing, and the Veteran experience would not be impacted by intake of this code. The limited scope / impact associated with this code provides for a low process and change risk. VPE is a tool with the potential for rapid intake through the TRM. It is currently used in Regions 1 and 2. Addition to the TRM would allow for expanded VPE use at the national level.  |

**Table 12. Analysis of Fit to Requirements / Benefits**

<sup>4</sup> Kreis, G. (1997). *VPE User Guide*. Pioneer Data Systems, Inc. Retrieved September 11, 2017 from <http://www.pioneerdatasys.com/hardhats/VPEUSER.pdf>

<sup>5</sup> Victory Programmer Environment. Retrieved September 11, 2017 from [http://www.hardhats.org/tools/vpe/vpe\\_db.html](http://www.hardhats.org/tools/vpe/vpe_db.html)

### 5.3. Costs

An overview of the costs associated with intake of VPE is presented in Table 13.

| PDD Element  | Analysis  |
|--|---|
| Costs  |   |
| Size and Scope of Any Additional Development       | There is no known additional development required at this time.   |
| Supported and / or Required / Missing Components   | No supported and/or required missing components have been identified.   |
| Recommendations for Required or Missing Components | There are no constraints due to required or missing components.   |
| Level of Maturity and Support Requirements         | VPE was developed by a VA programmer with VA and released to the MUMPS programming community in 1997. It has recently been revived and enhanced by the open source community. It is currently in use within VA Regions 1 and 2. VPE was submitted to the OSEHRA Technical Journal in July 2017. This code has been recommended to receive OSEHRA Level 3™ Certification. As of version 14.2, VPE includes a Unit Testing suite that covers approximately 50% of the code. Certification is expected to begin October 2017, with a target certification level of OSEHRA Level 3™. The User Guide was released in 1997, and is not current with the latest release. |

**Table 13. Analysis of Costs**

## 5.4. Risks

The level of risk associated with intake of VPE is evaluated in Table 14.

| PDD Element                             | Analysis   |
|---|--|
| Risks                                   |  |
| Technical Risks                         | No technical risks associated with implementation of this code have been identified.   |
| Operational Risks                       | No operational risks associated with implementation of this code have been identified.   |
| Programmatic Risks                      | No programmatic risks associated with implementation of this code have been identified.  |
| Licensing Implications and Code Quality | There are no licensing or copyright issues; VPE is licensed under the Apache License 2.0. VPE is currently in use locally within VA Regions 1 and 2. |
| Mitigation Strategies                   | Not applicable given the low level of risk.  |

**Table 14. Analysis of Risks**

## 5.5. Epic Statements

To support funding and agile development requirements, Epic statements for this candidate are provided in Table 15. Formatting and categories are consistent with VA's Epic statement format.

| <b>Epic Category</b>   | <b>Description</b>  |
|--|---|
| Candidate  | Victory Programmer Environment (VPE)  |
| <b>For</b> <target customers>  | Programmers   |
| <b>Who</b> <need or opportunity>   | want a streamlined development environment  |
| <b>the</b> <solution>  | Victory Programmer Environment (VPE)  |
| <b>Is</b> <something – the “how”>  | a development tool  |
| <b>That</b> <provides this value>  | consists of a number of integrated programmer utilities that increase productivity and decrease the number of key strokes required to complete normal programming tasks in the VistA environment. |
| <b>Unlike</b> <the primary alternative, current solution or non-existing solution >                  | the less efficient current VistA development environment  |
| <b>Our solution</b> <does something better – the “why”>  | provides an advanced programmer mode that allows for a more efficient development process   |
| Scope  |   |
| <b>Success Criteria</b> <how success will be measured, quantified if possible>                       | Improved programmer efficiency  |
| <b>In Scope</b> <features that are in scope>   | VPE code  |
| <b>Out of Scope</b> <items not needed for this Epic>   | N/A   |
| <b>Non-Functional Requirements</b> <shall statements for usability, reliability, etc. if applicable> | N/A   |

Table 15. Epic Statements

## 6. OSS Candidate Review and Summary

A summary ranking of all OSS candidates recommended for intake to date is displayed in Table 16. The table includes the priority ranking of the candidates as determined by VA. For additional context, the candidates were also rated on a high / medium / low scale in the Veteran Experience and Speed to Implement categories.

The full candidate list (other than the three candidates described in this document) has been reviewed with VA and prioritized based on factors such as overall need, technical and programmatic fit, potential to fill existing gaps, and interest from the target customer group. The candidates receiving the highest prioritization scores are:

- Complex Orders “Then” Conjunction
- Mental Health eScreening (MHE)
- Maternity Tracker

In the Veteran Experience category, a high score (3) indicates there is a direct positive impact to the Veteran, a medium score (2) indicates there is an indirect positive impact to the Veteran, and a low score (1) indicates there is no tangible impact to the Veteran. The prioritized candidates receiving the best scores in the Veteran Experience category are:

- Mental Health eScreening (MHE)
- Maternity Tracker
- Patient Pictures Modules
- Appointment Postcard Notification Letter v4.0
- Veteran Appointment Notification System (VANS)

In the Speed to Implement category, a high score (3) indicates there are no constraints to implementation, a medium score (2) indicates the code is ready for implementation but will likely experience a longer implementation timeline, and a low score (1) indicates additional development is required or the code is not ready to implement. The prioritized candidates receiving the best scores in the Speed to Implement category are:

- Complex Orders “Then” Conjunction
- NDC Code Capture
- Prostate Clinical Outlook Visualization System
- Enhanced XML Utilities for VistA
- Auto Resize Margins to Fit Terminal Size
- Victory Programmer Environment (VPE)

| OSS Candidate                                   | Current VA Priority | Impact to Veteran | Speed to Implement | Status   |
|---|---------------------|-------------------|--------------------|--|
| <b>2017 Q3 (current quarter)</b>                |                     |                   |                    |  |
| Pharmacy On-Demand Labels                       | Pre-CBA             | 2                 | 2                  | New intake recommendation  |
| Date of Death Entry                             | Pre-CBA             | 1                 | 1                  | On hold  |
| Victory Programmer Environment (VPE)            | Pre-CBA             | 1                 | 3                  | New intake recommendation  |
| <b>2017 Q2 (CBA submitted August 7, 2017)</b>   |                     |                   |                    |  |
| Patient Characteristics                         | 10                  | 2                 | 2                  | Demonstration conducted  |
| Alternate ID                                    | Unprioritized       | 2                 | 1                  | Awaiting VA business review  |
| Prostate Clinical Outlook Visualization System  | 9                   | 2                 | 3                  | Certified to OSEHRA Level 4 <sup>TM</sup> ; demo conducted but not a priority at this time   |
| <b>2017 Q1 (CBA submitted May 1, 2017)</b>      |                     |                   |                    |  |
| Auto Resize Margins to Fit Terminal Size        | Unprioritized       | 1                 | 3                  | Certified to OSEHRA Level 3 <sup>TM</sup> ; tested by Pharmacy team; rejected for intake through EPIP; needs alternate intake path |
| Patient Picture Modules                         | 4                   | 3                 | 2                  | In review, demonstration for VA could be a next step; aligns with NSR  |
| NDC Code Capture                                | 5                   | 2                 | 3                  | Demonstration conducted for Pharmacy team; awaiting results of VA testing  |
| <b>2016 Q4 (CBA submitted January 24, 2017)</b> |                     |                   |                    |  |
| Mental Health eScreening (MHE)                  | 2                   | 3                 | 2                  | Selected as a priority product by Clinical Capability Management Board (CCMB) for FY19   |
| Chemotherapy Ordering Management System (COMS)  | Unprioritized       | 2                 | 1                  | On hold  |
| Apelon DTS                                      | Unprioritized       | 1                 | 2                  | On hold  |
| <b>2016 Q3 (CBA submitted October 31, 2016)</b> |                     |                   |                    |  |
| Complex Orders "Then" Conjunction               | 1                   | 2                 | 3                  | Certified to OSEHRA Level 2 <sup>TM</sup> ; will be released in next version of CPRS (v32)   |

| OSS Candidate                                  | Current VA Priority | Impact to Veteran | Speed to Implement | Status   |
|--|---------------------|-------------------|--------------------|--|
| Maternity Tracker                              | 3                   | 3                 | 1                  | Certified to OSEHRA Level 2™; expected to be available for download by sites by January 2018 |
| Enhanced Problem List                          | 6                   | 1                 | 2                  | Demonstrations conducted   |
| Veteran Appointment Notification System (VANS) | 12                  | 3                 | 1                  | Awaiting VA business review  |
| On-the-Fly Alerts                              | Unprioritized       | 1                 | 2                  | Demonstration conducted  |
| Patient Search Tool                            | 11                  | 2                 | 2                  | Functionality exists in eHMP; evaluating interim benefit                                     |
| bbClear  | Unprioritized       | 2                 | 2                  | Awaiting VA business review  |
| <b>2016 Q2 (CBA submitted August 2, 2016)</b>  |                     |                   |                    |  |
| RAPTOR   | 7                   | 2                 | 1                  | Awaiting funding; OSEHRA certification in process, needs namespace update                    |
| Enhanced XML Utilities                         | 13                  | 1                 | 3                  | Awaiting IT response   |
| HIEOS  | Unprioritized       | 1                 | 1                  | Awaiting VA business review  |
| Perceptive Reach                               | Unprioritized       | 2                 | 1                  | Portions of code have been extracted and used in the REACH VET application                   |
| <b>2017 Q1 (CBA submitted May 11, 2016)</b>    |                     |                   |                    |  |
| Appointment Postcard Notification Letter v4.0  | 8                   | 3                 | 2                  | NSR submitted, not an EPIP candidate; awaiting funding                                       |
| OpenInfobutton                                 | Unprioritized       | 2                 | 2                  | v1.7 implemented in eHMP; v2.1 provides considerable updates                                 |

*Note: For Impact to Veteran - high score (3) indicates there is a direct positive impact to the Veteran, medium score (2) indicates there is an indirect positive impact to the Veteran, and low score (1) indicates there is no tangible impact to the Veteran. For Speed to Implement - high score (3) indicates there are no constraints to implementation, medium score (2) indicates the code is ready for implementation but will likely experience a longer implementation timeline, and low score (1) indicates additional development is required or the code is not ready to implement.*

**Table 16. Summary of OSS Candidate Ranking by Quarter**

## **7. Next Steps**

The results of the Gap Analysis, Open Source Software and Product Selection Criteria, SWOT Analysis, and Prioritization Description Document will be combined into the quarterly CBA package. The OSS candidates included in the CBA package will be discussed at the next In Progress Review. The next quarterly cycle will then be initiated to search for and assess open source candidates, align the candidates with an updated Gap Analysis, and continue to mature the analysis approach and content.

## Appendix A. Additional Documentation for OSS Candidates

Additional information regarding the candidates is available through online resources. Links to these resources are provided in Table 17.

| Description                          | Link  |
|--------------------------------------|---|
| Victory Programmer Environment (VPE) |   |
| OSEHRA Technical Journal Entry       | <a href="http://code.osehra.org/journal/journal/view/1051">http://code.osehra.org/journal/journal/view/1051</a>     |
| Description on Hardhats.Org          | <a href="http://hardhats.org/tools/vpe/vpe_db.html">http://hardhats.org/tools/vpe/vpe_db.html</a>                   |
| User Guide                           | <a href="http://www.pioneerdatasys.com/hardhats/VPEUSER.pdf">http://www.pioneerdatasys.com/hardhats/VPEUSER.pdf</a> |
| GitHub Release Page                  | <a href="https://github.com/shabiel/VPE/releases">https://github.com/shabiel/VPE/releases</a>                       |

Table 17. Additional Documentation for OSS Candidates

## Appendix B. Cross Reference of PDD Analysis Elements to the Statement of Work

| PDD Element  | SOW Cross Reference - Section 5.2.1, Page 37   |
|--|--|
| Overview   |  |
| Overview of Open Source Intake Candidate           | Additional analysis.   |
| Rationale  |  |
| Rationale / Summary of Business Case               | Additional analysis.   |
| Assessment of Alternatives                         | PDD Item 2: Elaborate how the alternatives for the same VistA feature set compare to one another.  |
| Fit to Requirements / Benefits                     |  |
| Fit with Roadmap                                   | Additional analysis.   |
| Mapping to Feature Sets                            | PDD item 1: Provide a mapping and functional description of open source software features proposed for VA VistA intake as they correlate to defined VA VistA 4 Feature Sets.                                   |
| Functional Fit with Requirements                   | Additional analysis.   |
| Technical / Architectural Fit with VistA           | Additional analysis.   |
| Business Benefits to VA                            | Additional analysis.   |
| Costs  |  |
| Size and Scope of Any Additional Development       | PDD Item 3: Identify and size the scope of additional development required to meet VA requirements.  |
| Supported and / or Required / Missing Components   | PDD Item 4: Provide supporting technical detail regarding supported and/or required/missing components (such as client and server operating systems, database managers, application program interfaces, etc.). |
| Recommendations for Required or Missing Components | PDD Item 5: Provide recommendations regarding any required/missing components necessary for full operation of VA VistA that may be addressed through either open source or other channels.                     |
| Level of Maturity and Support Requirements         | PDD Item 6: Identify the level of maturity and supportability requirements associated with the intake of the respective open source code.  |
| Risks  |  |
| Technical Risks                                    | PDD Item 8: Identify risks (technical, operational, programmatic) for each open source alternative.  |
| Operational Risks                                  | PDD Item 8: Identify risks (technical, operational, programmatic) for each open source alternative.  |
| Programmatic Risks                                 | PDD Item 8: Identify risks (technical, operational, programmatic) for each open source alternative.  |

| PDD Element                             | SOW Cross Reference - Section 5.2.1, Page 37  |
|---|---|
| Licensing Implications and Code Quality | PDD Item 7: Identify any licensing implications affecting intake.   |
| Mitigation Strategies                   | PDD Item 9: Identify proposed mitigation strategies for risks associated with VA VistA intake that may affect national deployment at VAMCs nation-wide. |

**Table 18. Cross Reference to Statement of Work**