

## **CDVA Ew-VHIS Project**

**Request for Proposal (RFP) CDVA 28GS0030**

**California Department of Veterans Affairs**



## **SECTION IV – PROPOSED SYSTEM**

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## **SECTION IV**

### **PROPOSED SYSTEM**

**Note to Bidders:** This section is intended to present an overview of the proposed system and as such does not specify any detailed technical requirements. The general functional and technical requirements supporting this overview are included in Section VI. In the event an ambiguity or discrepancy between the general requirements described in this Section IV: Proposed System, and the technical requirements set forth in Section VI: Technical Requirements, is detected after the opening of bids, Section VI and the Bidder's response thereto, shall have priority over Section IV, and the Bidder's response thereto. Refer to RFP Section II, Paragraph II.2.4, Questions Regarding the RFP, for directions on seeking clarification.

#### **IV.1 BACKGROUND**

##### **IV.1.1 PROBLEM STATEMENT**

The California Department of Veterans Affairs has approval to undertake a multi-million dollar information technology project covering a period of five fiscal years. The project objective is to replace the current Veterans Homes Information system and provide both new and existing Veterans Homes with an enterprise-wide health care and financial system that fits its mission of providing the highest standard of comprehensive long-term care to California Veterans.

The scope of this project includes implementing a new system at the three existing Veterans Homes located in Yountville, Barstow, and Chula Vista and the five (5) new Homes that CDVA is in the process of opening. The initial three new Homes, located in West Los Angeles, Lancaster, and Ventura, are being developed in conjunction with the United States Department of Veterans Affairs (USDVA) and are collectively referred to as the Greater Los Angeles and Ventura County (GLAVC) Homes. The Lancaster and Ventura Homes are currently scheduled to open in May/June 2009 and the larger facility in West Los Angeles is scheduled to open in June 2010. Two additional new Homes, to be located in Redding and Fresno, are also fully funded but construction has not started. Construction at Redding is currently expected to be completed in April 2011 and Fresno in June 2011 with opening approximately thirty (30) days later.

## **IV.1.2 BUSINESS OBJECTIVES**

The CDVA seeks to achieve the following business objectives through the procurement of a Commercial Off-the-Shelf (COTS)/Modified Off-the-Shelf (MOTS) Enterprise-Wide VHIS:

- Improve integration of administrative procedures, business processes and clinical data management by 100% by providing an automated system that can effectively support the Long Term Care (LTC) process at all CDVA Homes.
- Fully mitigate risk to patient care and reimbursement by implementing a system that has effective Contractor support.
- Improve care quality to veterans and support a consistent, secure and integrated LTC system that enhances provider work flow and user interface.
- Maximize the ability to avoid redundant tests by 100% via enabling care providers to have immediate access to all clinical data, progress notes and summaries regardless of where the care is provided.
- Maximize the ability to avoid 100% of medication and laboratory errors by providing immediate access to clinical data and interdisciplinary team implementation of prescription intervention.
- Improve ability to capture clinical documentation.
- Improve care management by enabling 100% tracking of quality indicators.
- Reduce costs by ensuring that information from diagnostic testing is immediately and readily available to 100% of all providers of care 100% of the time.
- Fully mitigate the risk of losing vital records in the event of a disaster by standardizing and enforcing the electronic capture and storage of patient information.

## **IV.2 OVERVIEW OF THE PROPOSED SYSTEM**

The proposed solution for the Ew-VHIS project is to implement a Commercial Off-the-Shelf (COTS)/Modified Off-the-Shelf (MOTS) to provide the functionality described in this Request for Proposal (Section VI: Technical Requirements). The solution Contractor would validate and refine the requirements to reflect the implementation of CDVA current business processes in a “to-be” environment based on the Ew-VHIS, configure and implement the system to support these processes, train the users, and support the CDVA user community thorough on-

going education and on-site support to ensure effective use of the system, provide on-going maintenance and support including upgrades, enhancements and security patches, and transition support to the department at the end of the project. The system would be implemented at the three existing homes in Barstow, Chula Vista, and Yountville, the Greater Los Angeles and Ventura County (GLAVC) homes and in the new homes under construction in Redding and Fresno.

The following statement was developed by CDVA staff and reflects a stakeholder's view of what business needs the proposed solution will meet and a vision for the desired improvements the system will provide for CDVA.

**EW-VHIS Statement of Scope**

The next CDVA enterprise-wide system will be an integrated, real time, user-friendly system that supports Residents across the entire continuum of care with an emphasis on Long Term Care functionality while also providing acute care functionality. This solution will include capabilities for the electronic flow of health information with emphasis on Resident care and safety while maintaining a complete record on each Resident, regardless of where he/she receives services.

The solution will include both direct and indirect Resident care, such as order entry, pharmacy, laboratory, radiology, and therapy services.

The solution will use a data repository to support business/financial and Resident care while also interfacing with other systems to support business and clinical functions. It will offer flexible, interoperability with other internal and external entities based on national (e.g., EHR) and business standards.

The solution will also support enterprise-wide business needs, which include financial information for budget planning, accurate reports for financial management, and regulatory compliance. The system must also provide operational support such as materials management and purchasing functionality.

The system will enhance CDVA's quality of care in alignment with the project objectives. (See Section IV.1.2)

**-CDVA, August 2007**

The scope of services provided by CDVA span the acute care, ambulatory care and LTC settings. Acute care services are hospital-like services that are oriented towards clinically complex patients who need a high level of care. Ambulatory care is similar to a physician's office where patients are treated on an outpatient

basis. As the name implies LTC, is delivered over a longer period of time and includes skilled nursing home services, rehabilitation, assisted living and other services.

### IV.3 FUNCTIONAL SCOPE

The Ew-VHIS must include the following functionality as shown in the figure below.

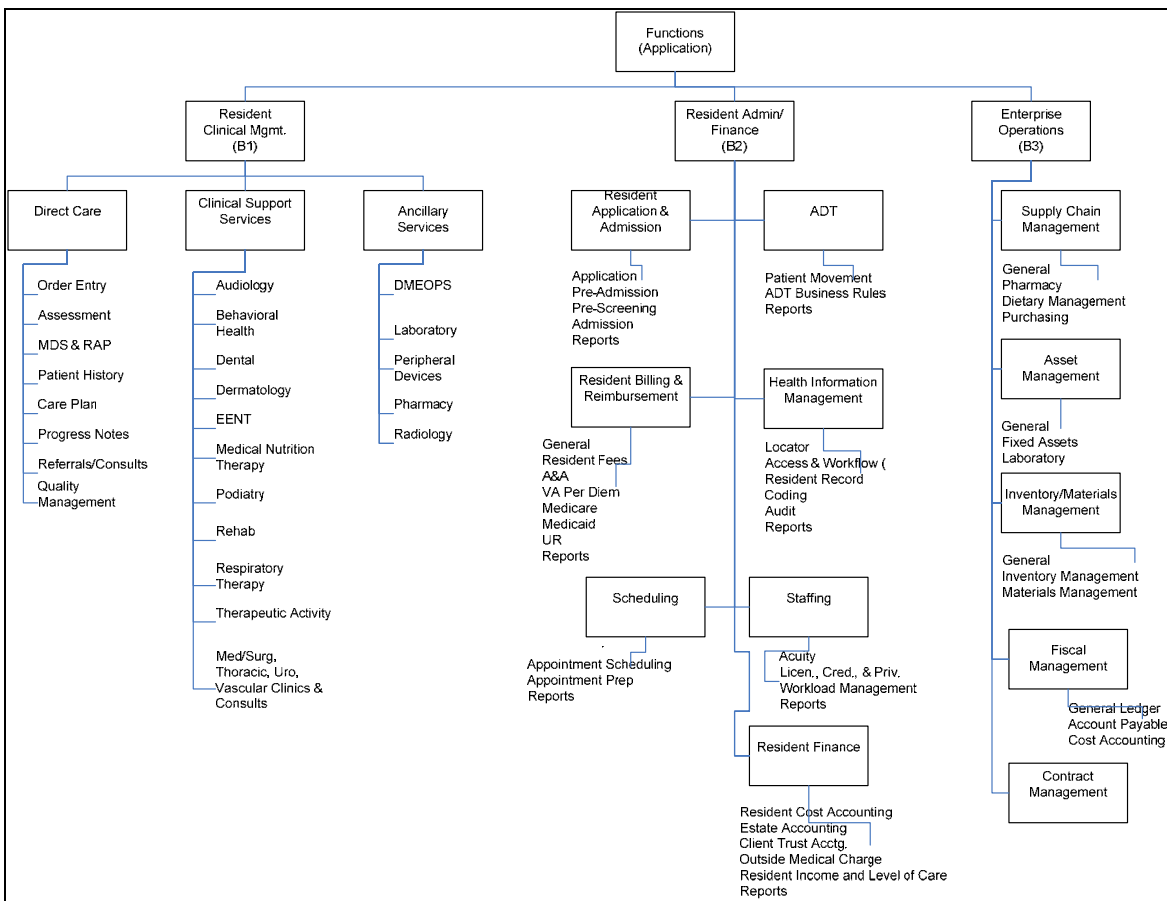


Figure 1: Ew-VHIS Functional Scope

The emphasis of the solution is on the specialized needs of the CDVA LTC mission, with no loss of current functionality for acute care, ancillary services, and administrative processes. The system solution will address the following major functional components:

- **Resident Clinical Management:** The system will support the process of delivering quality care, treatment, and services to Residents to meet medical, nursing, pharmaceutical, therapeutic, nutrition, psychosocial, behavioral wellness and recreational needs. The system will also support documentation (e.g., retaining notes, orders, assessments, and care plans) and history associated with providing the above care, treatment, and services throughout the CDVA continuum of care. The system will improve service to California's veterans and their families and ensure Resident safety while meeting regulatory agency requirements. This functional component directly relates to the implementation of an electronic health record (EHR) within the Ew-VHIS.

Many of the expectations of what Ew-VHIS functionality can provide in this area are summarized by the thoughts of a CDVA physician:

"The Resident arrives for a scheduled visit or activity on time.  
I have the information I need in front me to evaluate his or her health status and make quality decisions regarding needs and treatment.  
I can document the visit at the point of service.  
I feel confident the appropriate members of the Interdisciplinary Team will know and understand the actions I took.  
I can view the follow-up to my instructions on-line at my convenience.  
Billing is taken care of when the Resident and I complete the visit."

CDVA Physician  
August 22, 2007

- **Resident Administration/Finance:** The system will support services provided to, and on behalf of, Residents and includes the following functions: Resident Application (for acceptance into the CDVA continuum of care) and Admission into a Veterans Home, Resident Admission, Discharge, and Transfer within the CDVA continuum of

care, Resident Billing and Reimbursement, Health Information Management, Scheduling, Staffing, and Resident Finance.

Resident Administration/Finance contains CDVA-unique requirements that may require custom programming of any off-the-shelf product, even one that supports LTC. Examples where customizations may be required include the calculation, collection, and management of Resident fees and the calculation of VA Per Diem and Aid and Attendance.

- **Enterprise Support Operations and Logistics:** The system will support the automation and standardization of support and logistics processes across the CDVA, including: Supply Chain Management, Asset Management (including fixed assets), Materiel/Inventory Management, Fiscal Management, Cost Accounting, and Contract Management.

The emphasis for this set of functions is, first, for the Homes to be more effective in the management of their operations and, second, for CDVA to develop enterprise processes in the areas of fiscal management and cost accounting. Although CDVA Headquarters must continue to use the State accounting system, CALSTARS, the Ew-VHIS will provide fiscal management tools that will be used by the entire Department, both the Homes and Headquarters, to address the daily operations of CDVA that are funded by the State general fund. Additionally, CDVA has recently established a cost accounting unit that will depend on the Ew-VHIS for its tools. The direct costs for supplies and services will be drawn from Ew-VHIS and indirect costs will be provided via an interface with CALSTARS or other State systems.

The following sections describe each functional area in greater detail.

### **IV.3.1 Resident Clinical Management**

The Resident Clinical Management system function supports the process of delivering quality care, treatment, and services to Residents to meet medical, nursing, pharmaceutical, therapeutic, nutrition, psychosocial, behavioral wellness and recreational needs. The system will also support documentation (e.g., retaining notes, orders, assessments, and care plans) and history associated with providing the above care, treatment, and services throughout the CDVA continuum of care. The system will improve service to California's veterans and their families and ensure Resident safety while meeting regulatory agency requirements.

The specific elements of Resident Clinical Management include:

- **Direct Care:** The system supports the provision of Resident care through:
  - Order Entry/Results Reporting
  - Assessments
  - Minimum Data Set (MDS) & Resident Assessment Protocol (RAP) Functionality
  - Care Planning
  - Progress Notes
  - Referrals and Consults
  - Clinical Quality Management
  
- **Clinical Support Services:** The system supports the provision of Resident care through its functions to provide clinical support services to include: audiology, behavioral health, dental, dermatology, EENT (Ear, Eye, Nose and Throat), medical nutrition therapy, podiatry, rehabilitation services, respiratory therapy, therapeutic activities, and other clinics and consults.
  
- **Ancillary Support Services:** The system supports the provision of Resident care through ancillary services, including but not limited to: Durable Medical Equipment/Orthotics and Prosthesis, laboratory, pharmacy, radiology, and interfacing to other clinically-related peripheral devices.

### IV.3.2 Resident Administration/Finance

The Resident/Administration/Finance system function supports services provided to and on behalf of Residents. It includes the following specific elements:

- **Resident Application and Admission:** The Resident Application and Admission system function supports the initial admission of a Resident into a home, including the Application, Pre-Admission, Pre-Admission Assessment and Screening, and Admission functions.
  
- **Resident Admission, Discharge, and Transfer (ADT):** This system function supports a Resident's admission, discharge, and transfer within the CDVA system based on Resident care needs.
  
- **Resident Billing and Reimbursement:** This system function supports an integrated, enterprise-wide process that provides the ability to produce, track, and report on billing and reimbursement functions, and transmit in real-time a bill for services and to accept responses and payments that comply with HIPAA Transactions and Code Sets regulations. The

Resident Billing system function also supports producing and transmitting electronic claims at the enterprise and Home level, as well as Utilization Review for meeting quality criteria for level of care for Medicare SNF and acute care billing.

- **Health Information Management:** This system function automates the access to and storage and maintenance of a Resident's electronic and paper clinical record using industry standard code sets and identifiers.
- **Scheduling:** This system function supports activities related to booking, tracking, coordinating, and reporting of Resident care resources and services.
- **Staffing:** This system function supports activities related to providing the required staffing resources for the best level of Resident care.
- **Resident Finance and Legal:** This system function supports the financial services provided to Residents, and tracks, accounts, and reports costs and expenses related to Resident services and legal affairs.

### IV.3.3 Enterprise Support Operations and Logistics

The Enterprise Support Operations and Logistics functions support the automation and standardization of support and logistics processes for the Homes. This function contains the following elements:

- **Supply Chain Management:** This function provides CDVA users with the ability to view supplier catalogs, generate electronic orders, and accept received items into the CDVA inventory/materiel or asset management system(s). This area includes purchasing support and contract/catalog management with prime Contractors and suppliers. It includes including prime Contractor operations, research and price comparison, and purchasing.
- **Asset Management:** This function provides full life cycle management of CDVA equipment, including medical equipment, information technology assets, transportation resources, and CDVA capital equipment, supporting related processes such as equipment requests, authorization, procurement, in-use accountability, maintenance, replacement budgeting, and disposition. It includes fixed assets, property accounting, capital equipment management, and biomedical equipment management (including maintenance).
- **Material/Inventory Management:** This function automates inventory control and materiel management for CDVA, providing CDVA users the ability to order, receive, issue, track, and monitor supplies and costs

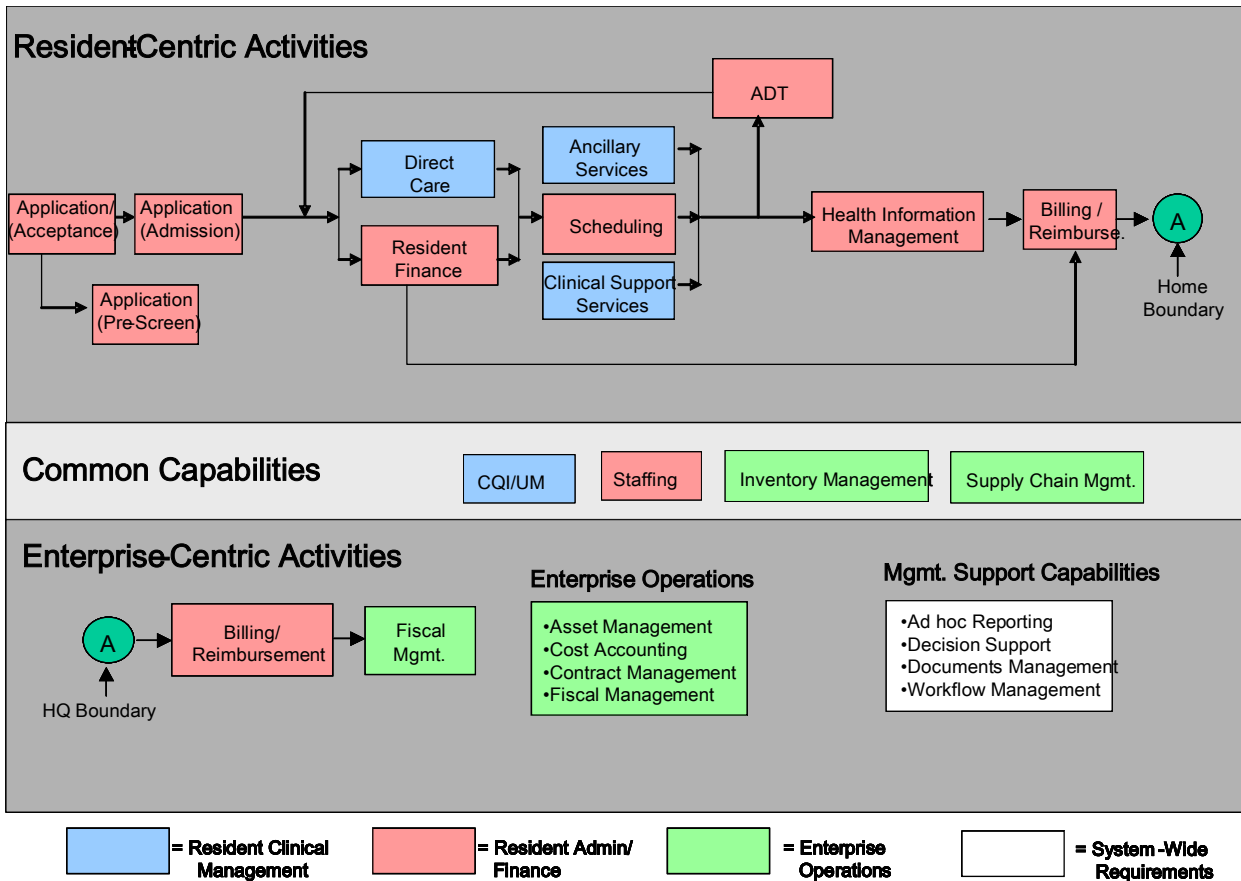
throughout the enterprise, including medical and non-medical supplies at the unit, department, Home, and enterprise-wide levels. It includes stock control

- **Fiscal Management:** Fiscal Management standardizes fiscal management functions throughout CDVA, including General Ledger, Accounts Receivable, Accounts Payable, and Cost Accounting for all operations related to the State General Fund. It also encompasses Cost Accounting. Note: CDVA is not seeking an enterprise resource planning (ERP) functionality but rather fiscal management capabilities that would be associated with a facilities-based healthcare information system.
- **Contract Management:** This functionality supports activities related to managing the coordination and administration of contracts between CDVA, their Contractors and providers.

#### **IV.4 Ew-VHIS Business Process Model (aka Meta-Flow)**

One can also view the Ew-VHIS functionality in terms of the overall flow of CDVA business-related processes or activities as shown in Figure 2. CDVA activities can be separated into three general levels:

- **Resident-centric activities** are largely performed at the Homes for the care and/or benefit of a Resident. The supporting Ew-VHIS functionality would, for example, include the electronic health record, the billing and reimbursement modules, and the tools needed for health information management.
- **Common capabilities** reflect those activities which may be either Resident- or enterprise-centric. For example, inventory management needs to allow the dispensing of supplies at the point of service for a Resident (i.e., a Home level, resident-centric activity) and allow reorder when stock reaches a certain level (i.e., an enterprise-centric activity involving both the Home and Headquarters).
- **Enterprise-centric activities** are activities that support issues related to operating the business, both at the Home and Headquarter levels, and include fiscal management, asset management, and contract management.



**Figure 2 Ew-VHIS Functionality Related to CDVA Business Activities**

The CDVA implementation of MEDITECH has always remained fractured because of the inconsistency in business practices across the Homes. CDVA is looking for to the Ew-VHIS Project to address this challenge by leveraging the new system to create real opportunities for CDVA. These include:

- **Development of Consistent Business Practices:** From the beginning of this project, CDVA executive management has expressed the desire to see the business practices of the Homes better aligned across the enterprise. Currently, each Home has variations in procedures reflected by unique elements of its environment. There is room for standardization and this project is the catalyst for that to happen. The Department has already begun the initial work to achieve this goal with initiatives in policy and procedure standardization and the documentation of “as-is” processes.

- **Reap the benefits of an electronic health (EHR) record:** CDVA has realized that the procurement of a system with a comprehensive EHR could provide timely and accurate clinical and quality assurance data, help improve the quality of patient care, monitor the effectiveness and quality of diagnostic and treatment services, and evaluate the outcome of services and procedures.
- **Provide improved tools for the administration and management of the Homes:** CDVA is looking for the Ew-VHIS to provide cost accounting tools to support and improve the management decision-making process. In the same manner, the Ew-VHIS should allow CDVA to develop an enterprise approach to quality management and outcome measures.
- **Establish enterprise-wide processes:** The Ew-VHIS will be a centralized system, accessible to any CDVA authorized user at any location within the CDVA enterprise. A natural outcome is to consider improvements in enterprise-wide processes for Resident care, such as standardization in procurement, inventory management, and development of prime Contractor relationships that are available to the whole CDVA enterprise, not just a single Home.

## IV.5 OPERATING ENVIRONMENT

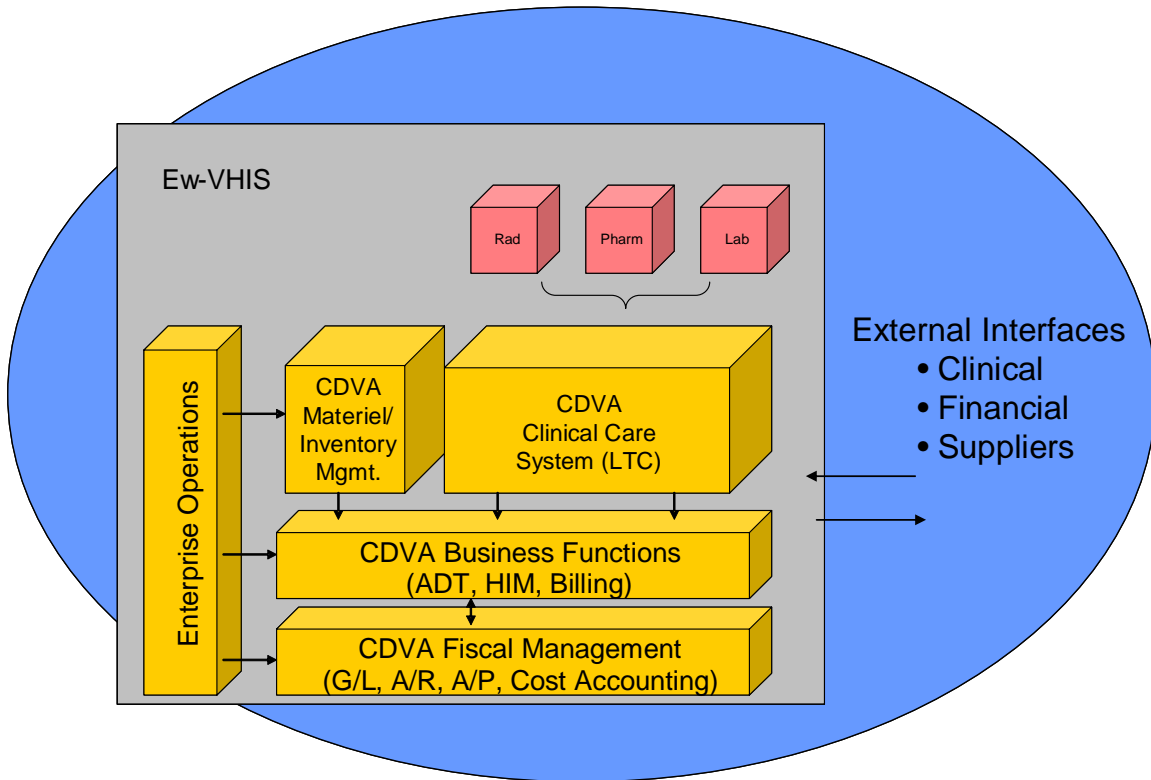
**Figure 3** provides a high-level view of the proposed Ew-VHIS solution. The box encloses the core set of integrated functions proposed for the Ew-VHIS, supplied through off-the-shelf components with minimal modification to meet CDVA business and clinical needs.

The Ew-VHIS will include a number of internal and external interfaces. Interfaces between the functions in the box shown in

**Figure 3** are considered internal to the Ew-VHIS. The exact nature of these internal interfaces will depend on the integration approach taken by the successful Bidder, the modules and/or products used, and how tightly they are coupled in the final design. All modules, products, and interfaces considered part of the 'internal system' must be well-defined, demonstrable, and stable, preferably have been previously implemented by the Bidder and can be supported under the Bidder's standard maintenance agreement.

External interfaces include those to the State accounting system (CALSTARS), other CDVA accounting tools, exchange of information (both clinical and claims related) with external laboratories, Centers for Medicare and Medicaid Services (CMS), payer organizations and external reference Contractors. External interfaces have been abstracted in this diagram for presentation clarity. The

detailed list of external interfaces can be found in Appendix C, Attachment C-4: Ew-VHIS External System Interfaces.



**Figure 3: Ew-VHIS Solution Description**

The primary Ew-VHIS server and other hardware will be housed in the CDVA Data Center at 1227 O Street, Sacramento, CA. CDVA currently maintains a disaster recovery center at the Yountville Home. Both data centers have sufficient capacity and connectivity to house the new equipment.

Physical operation of the Ew-VHIS system, servers and databases, including database backup and recovery, will be managed by CDVA. Ew-VHIS backup and recovery processes will be integrated with CDVA Data Center tools so that these processes can be supported by CDVA ISD staff. The successful Bidder will provide maintenance as per the licensing agreement, to include updates and/or upgrades to the base products. CDVA, together with the successful Bidder, will also be responsible for maintaining the logical database(s), application interfaces, business rules related to workflow and policy, and custom reports.

CDVA has also identified a set of technical requirements that are needed to support the Ew-VHIS functional requirements. These technical requirements address underlying services and support applications (like document management and workflow), ensure that the Ew-VHIS will integrate with the CDVA computing and network infrastructures, and define required interfaces with external systems. Additional information and/or specifications are located in the Procurement Library.

CDVA views the Ew-VHIS as an enabling technology for clinical care, being able to interface a Resident electronic health record with mobile and medical devices from vital sign monitoring and bedside administration to sophisticated robotics for pharmacy and materiel management. The scope of this procurement is not to procure the end-user and point of service equipment but rather acquire a system that will provide enterprise information services for clinical support and data management. The Ew-VHIS will support interface specification, standardization, and control so that CDVA will be able – as part of future initiatives –to interface a variety of devices with the EHR. The procurement, testing, and deployment of the actual end-user and point of service equipment will remain the responsibility of the State, not the Bidder.

#### **IV.5.1 System**

This section describes several general areas related to the system infrastructure that will support all functions and use of the system to include:

- **General Configuration:** The system will be located at the CDVA Data Center in Sacramento and contain five (5) available environments: Development, Test, Training, Staging, and Production/Reporting.
- **Applicable Standards and Regulations:** The system will comply with standards that include various Federal and State statues and regulations, accreditation standards (USDVA and State), healthcare industry standards, and information system standards (e.g., State) and best practices (e.g., industry). A complete list of standards and regulatory business drivers is provided in the Procurement Library.
- **Performance:** The design of the system will take into account the network, the capacity of the server design, and the planning needed to establish and maintain performance and capacity.
- **Usability/User Interfaces:** The system should complement, not impede, the process of care for a Resident. Therefore, the project as a whole will maintain a strong emphasis on usability of the system.

### **IV.5.2 Application Support**

This Ew-VHIS will include common system services that support the specific functionality in the Ew-VHIS. These following groupings represent major system functionality that is normally integrated with the specific application and may be provided by a third party product:

- Audit and Compliance
- Decision Support
- Document Imaging / Management
- Workflow Development and Management.

### **IV.5.3 Data**

The Ew-VHIS will include tools that support access to, management of, and quality assurance for all data contained in and managed by the Ew-VHIS, including clinical, administrative, and financial data and all associated documentation, imaging and other binary data. Specific areas that are addressed in the requirements include:

- Data Management
- Forms Development and Management
- Health Information Management
- Reports Development and Management
- Query Development and Management

### **IV.5.4 Platform, Operating System, and Utilities**

The Ew-VHIS is dependent on hardware, operating systems, and utilities. This area addresses system administration and management tools that include:

- Backup/Recovery
- End-User Devices
- Peripherals
- Servers
- System Management, Maintenance, and Customization.

### **IV.5.5 Network**

This area addresses all network and communication-related issues and requirements. CDVA is responsible for the maintenance and operation of the Department's local and wide area networks. The selected Bidder is responsible for proactively defining and communicating (using CDVA-established processes)

and project schedule dependencies any Ew-VHIS network requirements. The selected Bidder's operation, support and maintenance procedures must integrate with CDVA's network problem identification, resolution, and service processes.

#### **IV.5.6 Security**

Security is an extremely important aspect of the Ew-VHIS, especially as the system contains protected healthcare information and personally identifiable information related to a Resident's financial and legal status. This area includes requirements that address all aspects of the Ew-VHIS security design including access management, data security, and system security:

- Access Management and Control
- Data Security (to include encryption)
- Security Monitoring and Auditing.

#### **IV.6 SERVICES TO BE PROVIDED BY THE SOLUTION CONTRACTOR**

The Ew-VHIS will impact the daily operations of the Homes. In anticipation of this, CDVA has placed emphasis on the involvement of the selected Bidder in effecting the cultural change management that will occur in the organization. CDVA has developed a Statement of Work (provided in Appendix B) that details the following services to be provided by the selected Bidder.

- Project Management and Reporting
- Ew-VHIS Requirements Validation and Business Process Reference Model
- Ew-VHIS System Architecture and Software Design
- Technical Infrastructure Procurement and Integration
- Ew-VHIS Detailed Design and Configuration
- Ew-VHIS Testing
- Ew-VHIS Implementation Planning
- Ew-VHIS Implementation Preparation
- Certification of Ready for Use Date
- Ew-VHIS Implementation Pilot and Statewide
- Conduct One Hundred Eighty (180) Day Production Support Period
- Achieve Full System Acceptance
- Post-Production Support and Maintenance that continues for two years

after Full System Acceptance with an option for two additional years of maintenance and support. Support will include technical (i.e., Tier Three) helpdesk and access to additional profession services, such as custom development, on-site support, and additional training.

- Support Optional Tasks as Requested by the State