

# **Cardiac Rehab App – Provider Facing**

## **Business Requirements Document**

**Ver. 1.0**



**November 15, 2013**

## Revision History

**NOTE:** The revision history cycle begins once changes or enhancements are requested after the initial Business Requirements Document has been completed.

Date	Description	Author
11/15/13	Initial draft	[REDACTED] [REDACTED] [REDACTED] [REDACTED]
	Submit to [REDACTED] [REDACTED] Manager for sign-off	

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## 1. Purpose

The Business Requirements Document (BRD) is authored by the business community for the purpose of capturing and describing the business needs of the customer/business owner. The BRD provides insight into the business area, identifying stakeholders and profiling primary and secondary user communities. It identifies what capabilities the stakeholders and the target users need and why these needs exist, providing a focused overview of the request requirements, constraints, and Information Technology (IT) options considered. This document does not state the development methodology. The intended audience for this document is the technical development team.

## 2. Overview

Cardiac rehabilitation (CR) is a behavior change intervention to promote long-term adherence to a healthy lifestyle for patients with heart disease. The components of cardiac rehabilitation are:

### Chief components:

- patient assessment
- patient self-management (physical activity, diet, medication adherence, smoking)
- exercise training
- psychosocial support

### Other components:

- physical activity counseling
- nutritional counseling
- weight management
- blood pressure management
- lipid (cholesterol) management
- diabetes management
- tobacco cessation

Performance measures jointly published by the American Heart Association (AHA), the American College of Cardiology Foundation (ACCF), and the American Association for Cardiovascular and Pulmonary Rehabilitation (AACVPR) state (Thomas et al, *Circulation*. 2010;122:1342-1350):

- 1) All patients hospitalized with a primary diagnosis of an acute myocardial infarction (MI) or chronic stable angina, or who during hospitalization have undergone coronary artery bypass graft (CABG) surgery, a percutaneous coronary intervention (PCI), cardiac valve surgery, or cardiac transplantation are to be referred to an early outpatient cardiac rehabilitation/secondary prevention (CR) program.

- 2) All patients evaluated in an outpatient setting who in the past 12 months have experienced an acute myocardial infarction (MI), coronary artery bypass graft (CABG) surgery, a percutaneous coronary intervention (PCI), cardiac valve surgery, or cardiac transplantation, or who have chronic stable angina and have not already participated in an early outpatient cardiac rehabilitation/secondary prevention (CR) program for the qualifying event/diagnosis are to be referred to such a program.

These are Class I recommendations (i.e., there is substantial evidence that benefits greatly outweigh risks and treatment **SHOULD** be performed/administered). However, only 35 VA facilities currently offer CR programs, and less than 10% of eligible Veterans receive this guideline-recommended therapy (unpublished data). Of the 9.3 million Veterans currently enrolled in VHA, only 396,000 (4%) live within 15 minutes travel time to a VA CR center, 844,000 live within 30 minutes, 1.2 million live within 60 minutes, and 6.9 million (74%) live more than 60 minutes from a VA CR center. Given these profound geographic barriers, there is an urgent need to expand CR delivery to meet the needs of Veterans.

One promising approach for improving patient participation in CR is the use of mobile technology to deliver home-based CR. Both home and center-based programs can effectively address the key components of CR: exercise training, patient self-management (nutrition, cholesterol, diabetes, blood pressure, obesity, smoking, physical activity, medication adherence), and psychosocial support. A 2010 Cochrane review (of 12 studies involving a total of 1938 participants) concluded that both home- and center-based programs have similar benefits on risk factors, health-related quality of life, clinical events, mortality and costs following acute myocardial infarction or revascularization. The 2011 AHA/ACC Guidelines for secondary prevention specifically stated that a home-based CR program can be substituted for a supervised, center-based program (Smith et al, *Circulation*. 2011;124:2458-73).

Development of a patient-facing mobile application for cardiac rehabilitation is currently underway as separate, but related project. The application being developed under this BRD will be a provider-facing application that allows providers to review patient-entered data and communicate with patients participating in cardiac rehabilitation.

### **3. Customer and Primary Stakeholders**

The Business Owner is [REDACTED].  
The Project Manager and Lead SME is [REDACTED].  
[REDACTED]. Appendix A contains a complete list of stakeholders.

## 4. Scope

The scope of this IT request includes establishing an electronic solution to facilitate provider management of veterans participating in home cardiac rehabilitation. Features of the application will include:

- Patient Assessment Tool
  - Provider will **enter** patient-specific data.
  - Data will also be pulled from the electronic health record (EHR).
- Mechanism for electronically **receiving and sending messages** from patients generated from the patient-facing mobile application.
- Interface to **view** data that was entered using the patient-facing mobile application and stored in the enterprise-supported database that contains patient-generated health data (such as HDR or alternative).
- Create a summary **report** to be pushed to the EHR.

## 5. Goals, Objectives, and Outcome Measures

Goal/Objective and Desired Outcome	Impact	Measurement
Provide veterans with access to home cardiac rehabilitation.	Improved access to home cardiac rehabilitation will increase the number of veterans able to participate.	Increase availability of cardiac rehabilitation at VA facilities.
Improve veteran participation in cardiac rehabilitation.	By improving access and promoting tools that facilitate delivery of cardiac rehabilitation, veteran participation in cardiac rehabilitation can improve.	Increase participation in cardiac rehabilitation by eligible veterans.
Improve health status of veterans participating in cardiac rehabilitation	Veterans participating in cardiac rehabilitation will receive health education and exercise training to help manage their heart disease and improve health status.	Improve patient scores on health status measures, including the Seattle Angina Questionnaire and the Kansas City Cardiomyopathy Questionnaire.

## 6. Requirements

## 6.1. Business Needs/Owner Requirements

ReqPro Tag	Business Need (BN)	OWNR Number	Owner Requirement (OWNR)	Priority
NEED1555	BN 1: Adhere to the Enterprise Level requirements within the Enterprise Requirements Management (ERM) Repository and as specifically addressed in <a href="#">Appendix C</a> of this document.			
NEED 29	BN 2: Utilize nationally standardized terminology.			
	BN 3: Provide the ability to require users to login to the application.			
		3.1	Provide the ability for Provider to login and authenticate using their VHA Logon credentials.	High
		3.2	Provide the ability for an authenticated user to gain access to application data using a role called "Provider", authorizing them to perform any and all operations within the application.	High
		3.3	Provide the ability for a Research user to login and authenticate using their VHA Logon credentials.	High
		3.4	Provide the ability for an authenticated user to gain access to application data using a role called "Research", authorizing them to view data and reports.	High
	BN 4: Provide the ability to create and manage patient records.			
		4.1	Provide the ability to create a new patient record using name and social security number.	High
		4.2	Provide the ability to access a patient record by search using name and social security number.	High
		4.3	Provide the ability to create a list of patients. (multiple lists may be created)	High
		4.4	Provide the ability to delete a list of patients.	High
		4.5	Provide the ability to add a patient to a list.	High
		4.6	Provide the ability to remove a patient.	High
		4.7	Provide the ability to view a list of patients.	High
		4.8	Provide the ability to access a patient record from a list.	High
	BN 5: Provide the ability to pull data from the EHR to display on the app.			
		5.1	Provide the ability to link the patient record to the EHR using name and social security number.	High

ReqPro Tag	Business Need (BN)	OWNR Number	Owner Requirement (OWNR)	Priority
		5.2	Provide the ability to pull data from the EHR including: age, gender, race/ethnicity, contact info, PCP name, PCP contact info, most recent lipids (LDL, HDL, Total Cholesterol, Triglycerides), most recent hemoglobin A1c, weight, height, BMI, systolic BP, diastolic BP, medications, allergies, upcoming visits.	High
		5.3	Provide the ability to display data pulled from EHR.	High
	BN 6: Provide the ability to enter and manage patient data via a structured patient assessment form.			
		6.1	Provide the ability to enter primary diagnosis from list of possible diagnoses (check all that apply from a list, with a box for other entry via free text).	High
		6.2	Provide the ability to enter physical activity history, including average number of minutes per week and types of activity (check all that apply from a list)	High
		6.3	Provide the ability to enter dietary history (free text).	High
		6.4	Provide the ability enter smoking history, including status (select one of current/former/never), number of years smoked, number of packs per year, quit date.	High
		6.5	Provide the ability to enter cardiovascular history (check all that apply from a list, with a box for other entry via free text).	High
		6.6	Provide the ability to enter cardiovascular risk factors (check all that apply from a list).	High
		6.7	Provide the ability to enter other medical history (check all that apply from a list, with a box for other entry via free text).	High
		6.8	Provide the ability to enter waist circumference (free text).	High
		6.9	Provide the ability to enter exercise test results, including date of test, type of test (from list), and result (free text with units suggested based on list selection).	High
		6.10	Provide the ability to enter exercise prescription (free text).	High



ReqPro Tag	Business Need (BN)	OWNR Number	Owner Requirement (OWNR)	Priority
		6.11	Provide the ability to enter goals (free text).	High
		6.12	Provide the ability to enter barriers (free text).	High
		6.13	Provide the ability to enter facilitators and solutions (free text).	High
		6.14	Provide the ability to view patient assessment data.	High
		6.15	Provide the ability to edit patient assessment data.	High
		6.16	Provide the ability to export patient assessment to EHR as a report titled "Cardiac Rehabilitation Patient Assessment"	High
	BN 7: Provide the ability to store, access, and upload data to a secure enterprise-supported database solution for patient-generated health data (such as Health Database Repository or alternative)			
		7.1	Provide the ability to link patient records between VISTA (EHR) and a secure enterprise-supported database that contains patient-generated health data.	High
		7.2	Provide the ability to store data to the secure enterprise-supported database that contains patient-generated health data.	High
		7.3	Provide the ability to retrieve data from the secure enterprise-supported database that contains patient-generated health data.	High
	BN 8: Provide the ability to receive, manage, and send secure messages to patients.			
		8.1	Provide the ability to see that a new message has been sent to provider.	High
		8.2	Provide the ability to see a list of new messages from any patient.	High
		8.3	Provide the ability mark a message as read or unread.	High
		8.4	Provide the ability to view a message.	High
		8.5	Provide the ability to reply to a message using text entry.	High
		8.6	Provide the ability to forward the message to another provider via the provider-facing mobile application.	High
		8.7	Provide the ability to forward the message to another provider's email.	High
		8.8	Provide the ability to write a new message.	High

ReqPro Tag	Business Need (BN)	OWNR Number	Owner Requirement (OWNR)	Priority
		8.9	Provide the ability to send a new message to an individual patient via their patient-facing mobile application.	High
		8.10	Provide the ability to send a new message to a list of patients via their patient-facing mobile applications.	High
		8.11	Provide the ability to create a notification to access a feature of the patient-facing mobile application.	High
		8.12	Provide the ability to send a notification to access a feature of the patient-facing mobile application to an individual patient.	High
		8.13	Provide the ability to send a notification to access a feature of the patient-facing mobile application to a list of patients.	High
		8.14	Provide the ability to send an educational module (from a list of educational modules) to an individual patient via their patient-facing mobile application.	High
		8.15	Provide the ability to send an educational module (from a list of educational modules) to a list of patients via their patient-facing mobile applications.	High
		8.16	Provide the ability to view a log of messages previously sent by patient along with responses from any provider.	High
	BN 9: Provide the ability to view data entered by patients using the patient-facing mobile app.			
		9.1	Provide the ability to view the following types of data in an individual patient record: physical activity, blood pressure, heart rate, weight, blood sugar, depressive symptoms, food log, and medication adherence log (select from list or menu).	High
		9.2	Provide the ability to select which types of data to display from a list.	High
		9.3	Provide the ability to store the currently selected items as the default items to display for that patient.	High
		9.4	Provide the ability to view data in a table with entries by date.	High
		9.5	Provide the ability to display data in a graphical format by date.	High
		9.6	Provide the ability to switch between a table and graphical view.	High

ReqPro Tag	Business Need (BN)	OWNR Number	Owner Requirement (OWNR)	Priority
		9.7	Provide the ability to view data by day, week, month, and year.	High
		9.8	Provide the ability to display average, maximum, and minimum values for data displays by week, month, and year.	High
		9.9	Provide the ability to select types of data, date range, and summary format (daily, weekly, monthly, yearly) for data to include in a summary of patient data.	High
		9.10	Provide the ability to export a summary of patient data to EHR as a report titled "Cardiac Rehabilitation Progress Note"	High

## 6.2. User Access/Security Requirements

Access to the application will require user login and password using VHA credentials.

## 6.3. Related Projects or Work Efforts

### *Patient-facing Cardiac Rehabilitation Mobile Application*

This project will work in collaboration with a related project to develop a patient-facing mobile application for cardiac rehabilitation (Business Owner, John Rumsfeld MD PhD, and project manager, Mary Whooley MD).

### *Health Informatics Initiative*

This project will coordinate efforts with the Health Informatics Initiative to develop and use standard terminology and processes for sharing and displaying data across multiple VHA mobile applications and systems.

## 6.4. Constraints

# 7. Other Considerations

## 7.1 Ideas for future versions of application

- More detailed entry of goals, including use of confidence scales and rulers.
- Implementation of social networking function.
- Inclusion of more assessments, such as Seattle Angina Questionnaire.

- Ability to push assessments to patients to complete on patient-facing mobile application.

## Appendix A. Stakeholders and Primary/Secondary Users

### Stakeholders

[Redacted]	
[Redacted]	[Redacted]
[Redacted]	
[Redacted]	[Redacted]
[Redacted]	[Redacted]
[Redacted]	[Redacted]
[Redacted]	[Redacted]
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[Redacted]	[Redacted]
[Redacted]	[Redacted]
[Redacted]	[Redacted]
[Redacted]	[Redacted]

Others TBD	
<b>VHA Health Informatics Initiative</b>	
<b>Agilex Software Development</b>	
TBD	

## Primary and Secondary Users

Type of User	Description	Responsibilities
Primary Users	Cardiac Rehabilitation Nurse	Full control
	Exercise Physiologist	Full control
	Dietician	Full control
	Social Worker	Full control
	Physical Therapist	Full control
	Occupational Therapist	Full control
	Primary Care Provider	Full control
	Specialty Provider (Cardiologist)	Full control
Secondary Users	Research Staff	View, Reports

## Appendix B. References

Thomas et al, *Circulation*. 2010;122:1342-1350.

Smith et al, *Circulation*. 2011;124:2458-73.

## Appendix C. Enterprise Requirements

Below is a subset of Enterprise-level Requirements that are of particular interest to the business community. These requirements **MUST** be addressed within each project resulting from this work effort. If OIT cannot address these Enterprise-level requirements, the Business Owners responsible for each area **MUST** be engaged in any waiver discussions prior to any decisions being made. This section is not meant to be a comprehensive list of all Enterprise-level requirements that may apply to this work effort and should not preclude the technical community from reviewing all Enterprise-level requirements, and identifying others that should apply to this work effort as well.

Enterprise-level requirements are contained in the VA Requirements Management Repository (RMR). Contact the RMR Team to gain access to the RMR and to obtain the comprehensive allocation of Enterprise-level requirements for the project development iteration at



ReqPro Tag	Requirement Type	Description
ENTR100	Security	<p>All VA security requirements will be adhered to. Based on Federal Information Processing Standard (FIPS) 199 and National Institute of Standards and Technology (NIST) SP 800-60, recommended Security Categorization is Moderate.</p> <p>The Security Categorization will drive the initial set of minimal security controls required for the information system. Minimum security control requirements are addressed in NIST SP 800-53 and VA Handbook 6500, Appendix D.</p>
ENTR10	Privacy	<p>All VA Privacy requirements will be adhered to. Efforts that involve the collection and maintenance of individually identifiable information must be covered by a Privacy Act system of records notice.</p>
ENTR95	508 Compliance	<p>All Section 508 requirements will be adhered to. Compliance with Section 508 will be determined by fully meeting the applicable requirements as set forth in the VHA Section 508 checklists (1194.21, 1194.22, 1194.24, 1194.31 and 1194.41) located at: <a href="http://www.ehealth.va.gov/508/resources_508.html">http://www.ehealth.va.gov/508/resources_508.html</a> or as otherwise specified. Checkpoints will be established to ensure that accessibility is incorporated from the earliest possible design or acquisition phase and successfully implemented throughout the project.</p>

ENTR7	Executive Order	All executive order requirements will be adhered to.
ENTR8	Identity Management	All Enterprise Identity Management requirements will be adhered to. These requirements are applicable to any application that adds, updates, or performs lookups on persons.
ENTR103	Terminology Services	Application/services shall reference the Standard Data Services (SDS) as the authoritative source to access non-clinical reference terminology.
ENTR104	Terminology Services	Application/Services shall use the VA Enterprise Terminology Services (VETS) as the authoritative source to access clinical reference terminology.
ENTR105	Terminology Services	Applications recording the assessments and care delivered in response to an Emergency Department visit shall conform to standards defined by the VHA-endorsed version of C 28 – Health Information Technology Standards Panel (HITSP) Emergency Care Summary Document Using Integrating the Healthcare Enterprise (IHE) Emergency Department Encounter Summary (EDES) Component.
ENTR106	Terminology Services	Applications exchanging data summarizing a patient’s medical status shall conform to standards defined by the VHA-endorsed version of C 32 – HITSP Summary Documents Using Health Level Seven (HL7) Continuity of Care Document (CCD) Component.

## Appendix D. Acronyms and Abbreviations

## OIT Master Glossary:

Term	Definition
AACVPR	American Association of Cardiovascular and Pulmonary Rehabilitaiton
ACCF	American College of Cardiology Foundation
AHA	American Heart Association
BMI	Body Mass Index
BP	Blood Pressure
BRD	Business Requirements Document
CABG	Coronary Artery Bypass Graft
CDW	Corporate Data Warehouse
CR	Cardiac Rehabilitation
EHR	Electronic Health Record
HDL	High Density Lipoprotein
IT	Information Technology
LDL	Low Density Lipoprotein
MI	Myocardial Infarction
PCI	Percutaneous Coronary Intervention
PCP	Primary Care Provider
VA	Veterans Affairs
VHA	Veterans Health Affairs

## Appendix E. Approval Signatures

The requirements defined in this document are the high level business requirements necessary to meet the strategic goals and operational plans of the Office of Informatics and Analytics. Further elaboration to these requirements will be done in more detailed artifacts.

### **Business Owner**

Signifies that the customer approves the documented requirements, that they adequately represent the customers desired needs, and that the customer agrees with the defined scope.



Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
<<Business Owner Name and title>>

Include approval message attachments HERE

### **Business Liaison**

Signifies appropriate identification and engagement of necessary stakeholders and the confirmation and commitment to quality assurance and communication of business requirements to meet stakeholder expectations.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
<<Business Liason Name and title>>

Include approval message attachments HERE

### **Customer Advocate**

Confirms that the request merits consideration and review by the Business Intake Review Board.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
<<Customer Advocate Name and title>>

Additional signature for out-of-cycle requests processed through the Business Intake Review Board: Deputy Chief Officer for Health Systems (VHA)

Include approval message attachments HERE

### **Office of Information and Technology (OIT)**

Indicates agreement that the requirements have been received, are clear, understandable, and are documented sufficiently to facilitate project planning when the project is approved and funded. It is understood that negotiations may need to occur with the business during project planning as a result of technical reviews and feasibility.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
<<OIT Name and title>>

Include approval message attachments HERE