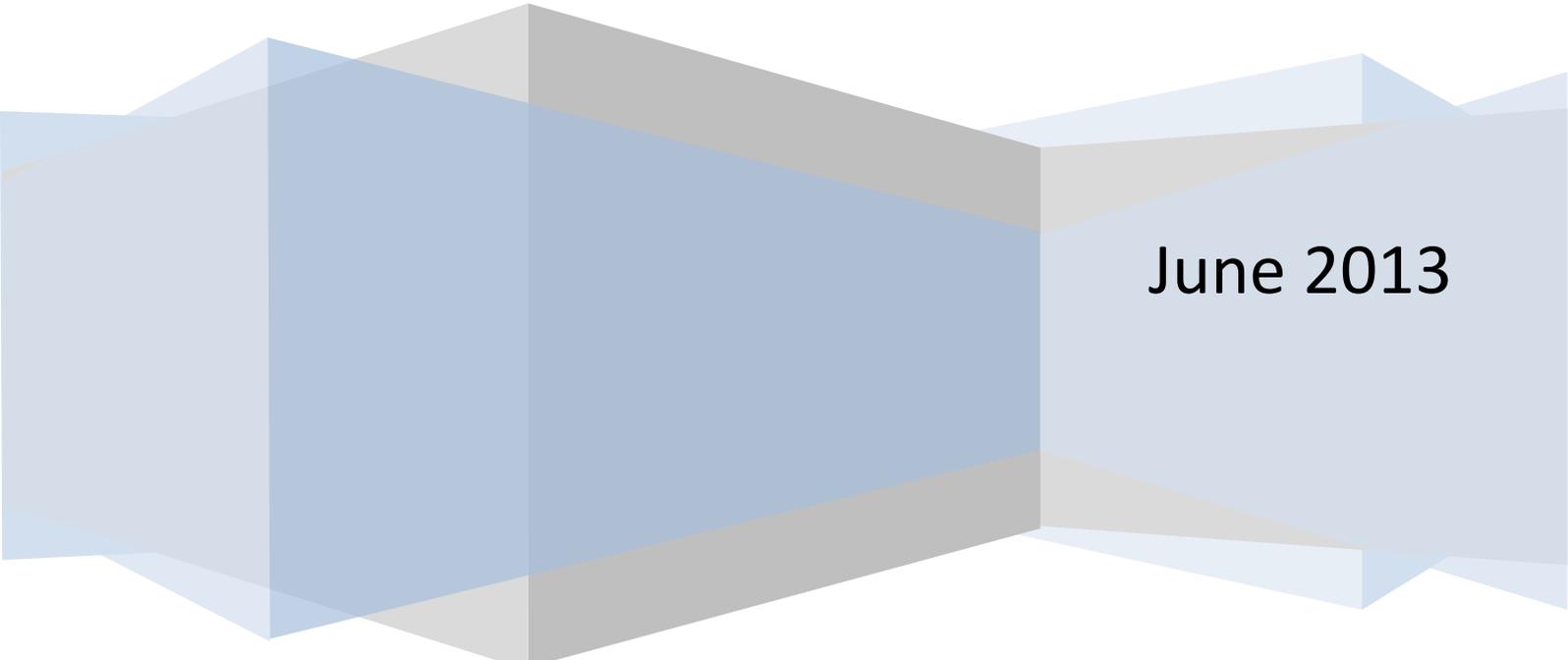


American Association of Cardiovascular and Pulmonary
Rehabilitation

AACVPR Outpatient Pulmonary Rehab Registry

General User Guide v1.0

Cissec Corporation



June 2013

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User Guide v1.0

1. Preface

1.1. Application Overview

The AACVPR Outpatient Pulmonary Rehabilitation Registry is a Web-based application which collects data on outcomes of pulmonary rehabilitation to help prove performance measures and to allow facilities to pull reports and compare their outcomes to others across the nation.

1.2. Intended Audience

This document is intended for individuals who have knowledge of pulmonary rehabilitation processes and information. The document's intent is to help a general user understand the features and information that the registry application will provide.

1.3. Supported Browsers

The AACVPR Pulmonary Rehab Registry application supports a wide variety of Web browsers. This includes Internet Explorer, Mozilla Firefox, Apple Safari, Chrome, and most other Web browsers on computers running UNIX, Apple Macintosh, or Windows. A list of support versions are indicated below.



- Chrome 3.0.195.27 and later versions



- Internet Explorer 7 and later versions



- Safari 3.2 and later versions



- Firefox 3.0.1 and later versions

1.4. Support and Contact

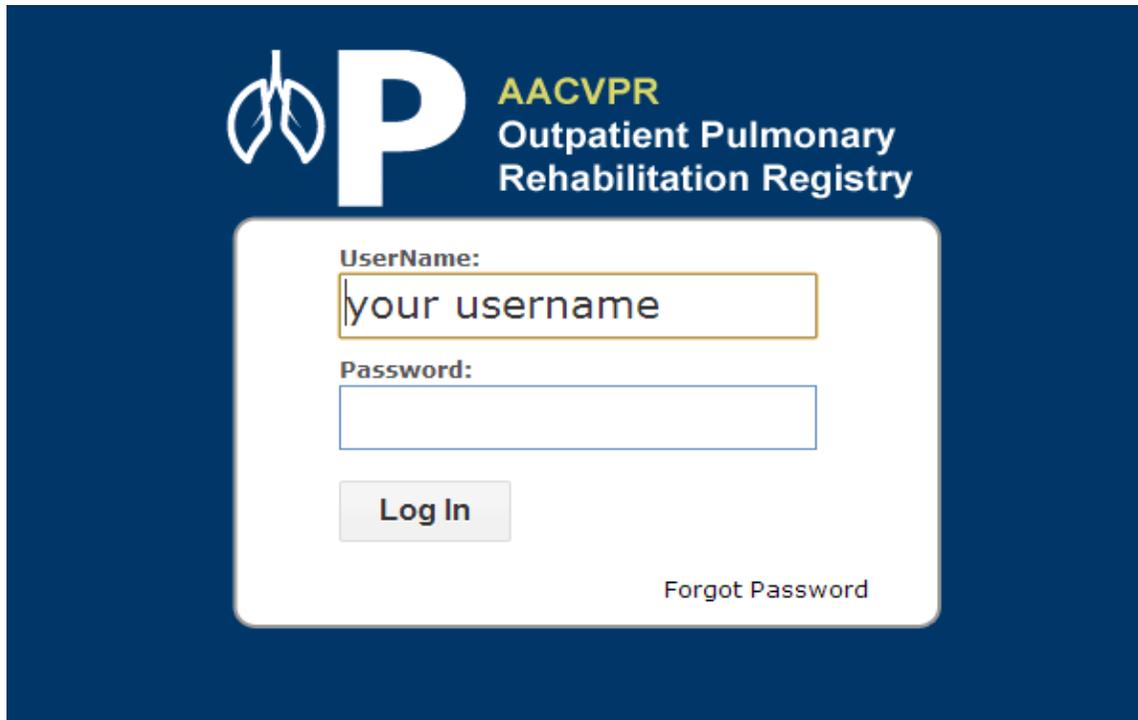
- For registry inquiries and support, please contact registry@aacvpr.org
- For general inquiries regarding AACVPR, please contact aacvpr@aacvpr.org

2. Getting Started

2.1. Launching

The AACVPR Pulmonary Rehab Registry application is a fully online application so you may gain access simply by clicking on or entering the following website URL into one of the supported browsers. (Refer to section 1.3 above.)

The AACVPR registry application is a secured website, thus is not open to the public domain. An account must be provided to you by AACVPR or by your local registry administrator. (Refer to section 1.4 to become a member of the AACVPR Pulmonary Rehab Registry.)



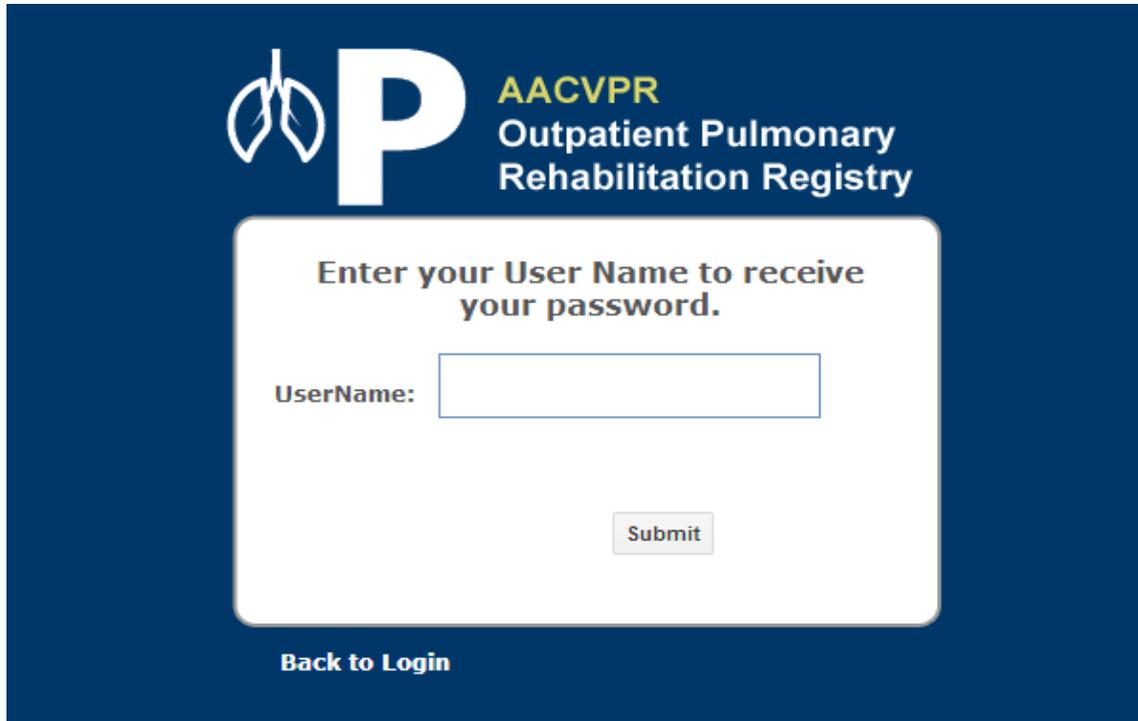
Click on or enter the following URL into your web browser:

<https://registry.pulmonary.aacvpr.org/>

To gain access to the application, simply type your username and password into the provided fields then click on the “Log In” button.

2.2. Password Recovery

If you have a registry account and you are unable to log in due to a password failure, the registry application contains a password recovery feature located on the main login page.



The screenshot shows a dark blue background with the AACVPR logo (a stylized 'P' with lungs) and the text 'AACVPR Outpatient Pulmonary Rehabilitation Registry'. Below this is a white rounded rectangle containing the text 'Enter your User Name to receive your password.' followed by a text input field labeled 'UserName:' and a 'Submit' button. At the bottom of the white box is a link that says 'Back to Login'.

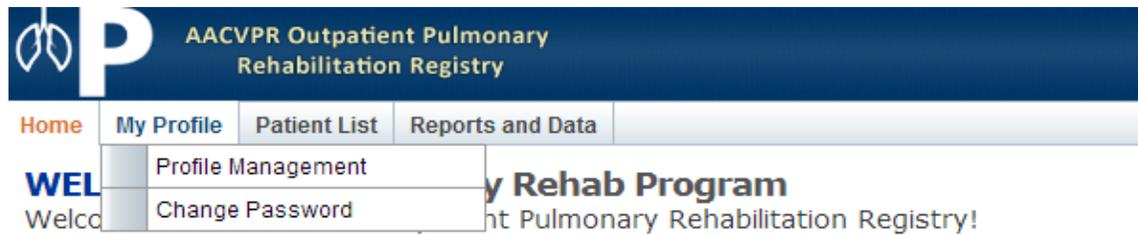
Click on the “Forgot Password” link located on the main login page. Enter the username that you used in the “My Profile” section of the system.

The registry application will automatically send an email with a new password to the registered email account.

If the issue remains, please contact your local registry administrator or the AACVPR support team. (Refer to section 1.4.)

2.3. Setting Up Your Profile

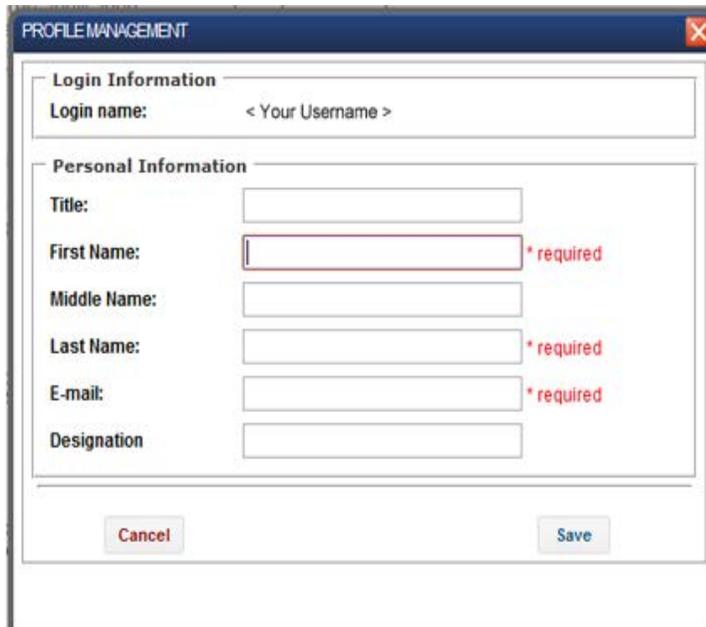
Once you have been provided with access to the registry application it is highly recommended that you verify and/or complete your profile so that features such as “Password Recovery” will be available.



To update your profile, move your cursor over the “My Profile” option located on the main menu. A drop-down menu of options will appear.

Click on the “Profile Management” item.

Please refer to Section 2.4, Interacting with the Software, for more information.



The PROFILE MANAGEMENT window contains two sections: Login Information and Personal Information. The Login Information section has a 'Login name:' field with a placeholder '< Your Username >'. The Personal Information section includes fields for 'Title:', 'First Name:', 'Middle Name:', 'Last Name:', 'E-mail:', and 'Designation'. The 'First Name:', 'Last Name:', and 'E-mail:' fields are marked as '* required' in red text. At the bottom of the window are 'Cancel' and 'Save' buttons.



The CHANGE PASSWORD window contains three fields: 'Old Password', 'Password', and 'Re-Password'. At the bottom of the window are 'Cancel' and 'Change Password' buttons.

A small window will appear with your basic user information.

Add to or update the form as necessary to provide your most accurate information.

Please note that a number of fields are required. For example the “E-mail” field is required as it is the primary mechanism used in the above mentioned “Password Recovery” feature.

When you have completed updating your profile, click the “Save” button.

To change your password click on the “Change Password” item also located under the “My Profile” menu.

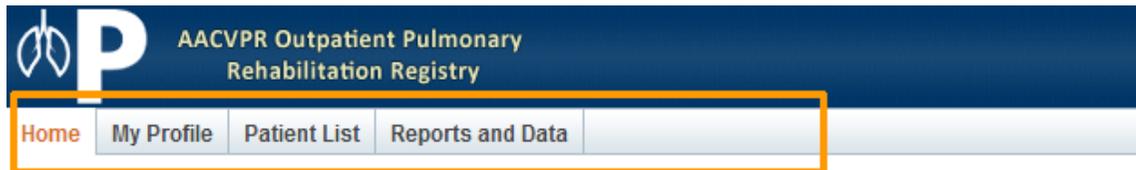
As with the “Profile Management” a small window will appear. Key in your old password in addition to your desired new password and validation into the appropriate fields.

Click on the “Change Password” button. A confirmation message will appear indicating that your password has been successfully changed.

Please refer to Section 2.4, Interacting with the Software, for more information.

2.4. Interacting with the Software

General interaction with the software is done through the primary menu system located at the top of the page. In many places the menu has sub-items which can be revealed by mousing over the visible menu item. To select an item simply click on the desired feature.



The menu system may change based on your identified role or if you are in pages specific to a patient. The fundamental “**Home**” feature is always present and allows you to return to the page you were initially presented with upon login.

WELCOME , Test Pulmonary Rehab Program

Welcome to the AACVPR Outpatient Pulmonary Rehabilitation Registry!

Getting Started

Thank you for participating in the AACVPR Outpatient Pulmonary Rehabilitation Registry. Through the registry, you will enter patient data and run reports to help analyze patient outcomes and program performance

To input patient data:

1. Go to “Patient List” in the menu above. You can “Add a Patient” or select a patient record to update.
2. For each patient, there are five sections:
 - Patient demographics
 - Medical history, including admitting diagnosis and comorbid conditions
 - Program information, such as referral and

Pulmonary Registry Resources

To access the following resources and references, [Click Here](#)

About the Registry

- Registry FAQs
- Definitions and Comments for Data Elements
- Data Sheet
- Data Sheet – Follow-up Assessment
- Performing Follow-up Assessment

Clinical Tools Listing

PROFILE MANAGEMENT

Login Information

Login name: cissec-support

Personal Information

Title: Dr.

First Name: John

Middle Name:

Last Name: Doe

E-mail: johndoe@aacvpr.org

Designation: MD

Cancel Save

In many areas of the application, the user is provided with a pop-up window to facilitate data entry.

While this pop-up is present, all features that are currently available in the background will be disabled until the pop-up is closed.

Buttons located at the bottom of the pop-up indicate completion or cancellation of the information on the form; when these buttons are clicked, the form will perform the selected action then close.

The screenshot displays the AACVPR Outpatient Pulmonary Rehabilitation Registry interface. The top navigation bar includes links for Home, Patient List, Patient Summary, Demographics, Medical History (highlighted), Program, PFT / Spirometry, Clinical/Tools, and Hospitalizations/Exacerbations. The patient's name is Example, PR6 (1111112). The primary menu is 'Patient Medical History'. An orange arrow points to the 'Save' button. Below the navigation, there are two main sections: 'Admitting/ Respiratory Diagnosis' and 'Comorbidities'.

Admitting/ Respiratory Diagnosis

Diagnosis / Procedure	Event Date	Primary	Edit	Remove
Pulmonary Hypertension/Cor Pulmonale		<input checked="" type="checkbox"/>		
Asthma	Jan-01-2009	<input type="checkbox"/>		

Comorbidities

Diagnoses and comorbidities should be based on patient's medical history, physical examination and medical records to maximize accuracy.

- AIDS
- Anxiety
- Cerebrovascular Disease
- Chronic Obstructive Pulmonary disease
- Chronic Pain Syndromes
- Chronic Renal Disease
- Connective Tissue Disease
- Depression
- Diabetes mellitus
- Gastroesophageal Reflux Disease
- History of Heart Failure
- Hypertension
- Insomnia
- Liver Disease (Moderate/Severe)
- Neuromuscular disease
- Obstructive sleep apnea
- Osteoarthritis
- Osteoporosis
- Peripheral artery disease
- Peripheral vascular disease
- Pneumonia

Within a specific patient's file the primary menu changes to allow the user access to the clinical areas housed within the registry.

In addition, a secondary navigation process is available to the user. The application provides a "Save and Next" option which will save the current information on the current page then automatically shift the user to the next page in the sequence.

This wizard-like implementation provides a consistent method for the user to access the patient's information while reducing the number of selections a user has to perform.

The "Save and Next" feature is simply an additional navigational tool; the user still has the ability to navigate through the patient's file by using the "Save" button in combination with the primary navigation menu.

Guest User | Sign Out

story Program PFT / Spirometry Clinical/Tools Hospitalizations/Exacerbations

112) Save Save & Next

Add Primary Respiratory Diagnoses

	Event Date	Primary	Edit	Remove
		✓		
	Jan-01-2009			

ould be based on patient's medical history, physical examination and medical records to maximize

Depression Neuromuscular disease

The registry offers a convenient method to log out, which is located on all pages of the system. It is recommended that when users have finished with the application, they use the "Sign Out" feature.

3. Patient Features

The basic features regarding a patient such as Add, Find, Edit, and Delete are all accessible from the “Patient List” component of the system. To navigate to the patient list simply use the main navigation menu to select “Patient List.”

3.1. Adding Patients

The screenshot shows the AACVPR Outpatient Pulmonary Rehabilitation Registry interface. At the top, there is a navigation menu with options: Home, My Profile, Patient List (selected), Reports and Data, and Administration. The main heading is "Patient Listing".

On the left, there is a "Find a Patient" section with a search form. It asks for the patient's last name or medical record number. The form has two input fields: "Last Name:" and "Medical Record ID:". Below the fields are "Search" and "Clear" buttons.

On the right, there is an "Add a Patient" section. It contains the text: "Click on the 'Add Patient' button to add a new patient to the system." Below this text is a large orange arrow pointing to a button labeled "Add Patient".

Below the search and add sections, there are "Filter Criteria" with dropdown menus for "Program" (Test Pulmonary Rehab Program), "Program Completion Status" (Complete), "File Status" (All), and "Display Count" (10). There is also a checkbox for "Filter by Enrollment date".

The main content is a table of patient records. The table has columns: Details, Medical Record ID, Last Name, Age, Sex, Enrollment Date, Discharge Date, Program Completion, File Status, and Remove. The data rows are as follows:

Details	Medical Record ID	Last Name	Age	Sex	Enrollment Date	Discharge Date	Program Completion	File Status	Remove
	1111112	Example, PR6	80	Female	Nov-02-2012	Jan-03-2013			
	1111112	Bxxxxxx	48	Male	Sep-03-2012	Nov-04-2012			
	1111113	Example	80	Female		Feb-06-2013			
	33333333	Lxxxxxx	48	Male	Sep-03-2012	Nov-04-2012			
	8686861	blaintest1	69	Female	Jan-09-2013	Feb-25-2013			

At the bottom of the page, there are three buttons: "Email ASSISTANCE", "Provide FEEDBACK", and "Live Support OFFLINE".

To add a new patient to the system, click on the “Add Patient” button located on the patient list page.

The screenshot shows the 'Patient Add' interface. At the top, there is a navigation bar with the AACVPR logo and various menu items. A prominent orange arrow points to the 'Create/Save Patient' button. Below this, the form is organized into three main sections: 'Patient Identifiers', 'Patient Information', and 'Insurers'. The 'Patient Identifiers' section includes a text input for 'Medical Record ID' and a dropdown menu for 'Pulmonary Rehab Program Name'. The 'Patient Information' section contains several fields: 'Last Name' (text input), 'Date of Birth' (calendar icon), 'Sex' (radio buttons for Male, Female, Unspecified), 'Race' (dropdown), 'Hispanic/Latino ethnicity' (radio buttons for Yes, No, Unknown), 'Zip Code' (text input), 'Highest level of Education' (dropdown), and 'Social Support' (dropdown). The 'Insurers' section has an 'Add Insurer' button.

The user will be presented with the “Patient Add” screen.

The application requires a user to enter a unique “Medical Record ID” in addition to selecting the associated “Pulmonary Rehab Program.”

Users are only permitted to add patients to programs that they, the users, are associated with, so in most cases the “Pulmonary Rehab Program” will be preselected.

The “Medical Record ID” may be any alpha-numeric combination less than 255 characters. It is important that this identifier be unique to a specific individual and relevant to the program so that others may locate this patient at a later time.

All other data fields on the form are optional; however, it is highly recommended that the patient’s “Date of Birth” and “Sex” are entered. These values are used in many calculations which will not be available if these data points are left incomplete.

Note:
The application will provide a warning if a user tries to add a patient who is already in the system and who is currently in a pulmonary rehab program cycle.

Patients are permitted to flow through a pulmonary rehab process cycle more than once as long as the dates of the process cycles do not intersect.

3.2. Finding a Patient

Locating an existing patient within the system is a quick and easy process. The application provides two methods to find a patient recorded in the system.

Find a Patient

Enter the patient's last name or medical record number to find the patient's record.

Last Name:

Medical Record ID:

Search Clear

Add a Patient

Click on the "Add Patient" button to add a new patient to the system.

Add Patient

Filter Criteria

Program: Test Pulmonary Rehab Program Program Completion Status: Complete File Status: - All - Display Count: 10

Filter by Enrollment date

Details	Medical Record ID	Last Name	Age	Sex	Enrollment Date	Discharge Date	Program Completion	File Status	Remove
	1111112	Example, PR6	80	Female	Nov-02-2012	Jan-03-2013			
	1111112	Bxxxxxx	48	Male	Sep-03-2012	Nov-04-2012			
	1111113	Example	80	Female		Feb-06-2013			
	3333333	Lxxxxxx	48	Male	Sep-03-2012	Nov-04-2012			
	8686861	blaintest1	69	Female	Jan-09-2013	Feb-25-2013			

Email ASSISTANCE Provide FEEDBACK Live Support OFFLINE

Method 1 – Find a Patient

This feature allows a user to search their catalogue of patients by Last Name or by specific Medical Record ID.

The user may enter the information into the provided textboxes within the “Find a Patient” feature and click the “Search” button.

The patient list will automatically refresh to display all matches to the user’s query.

To clear the search criteria, the user simply clicks on the “Clear” button also located within the “Find a Patient” section.

Note:
Any previously set filter options will be reset. A filter may not be applied to search criteria.

Find a Patient
Enter the patient's last name or medical record number to find the patient's record.
Last Name:
Medical Record ID:
Search Clear

Add a Patient
Click on the "Add Patient" button to add a new patient to the system.
Add Patient

Filter Criteria
Program: Test Pulmonary Rehab Program Program Completion Status: Complete File Status: - All - Display Count: 10
 Filter by Enrollment date

Details	Medical Record ID	Last Name	Age	Sex	Enrollment Date	Discharge Date	Program Completion	File Status	Remove
	1111112	Example, PR6	80	Female	Nov-02-2012	Jan-03-2013			
	1111113	Example	80	Female		Feb-06-2013			
	33333333	Looooox	48	Male	Sep-03-2012	Nov-04-2012			
	8686861	blairtest1	69	Female	Jan-09-2013	Feb-25-2013			

E-mail ASSISTANCE Provide FEEDBACK Live Support ONLINE
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Method 2 – Apply a Filter

This feature allows a user to filter the list of patients to locate a specific patient and/or subset of patients.

The user may apply the following filters to get a subset of the data:

- Pulmonary Program (if permissions allow)
- Program Status (Complete, incomplete, etc.)
- Patient enrollment date range

In addition, the patient list column headers allow the user to reorder the data according to the selected column. A single click will reorder the information in ascending order; a second click will reorder the information in descending order.

3.3. Deleting a Patient

The registry’s purpose is to gather data over time with respect to a wide variety of patients. The removal of a patient is not recommended for everyday usage or to minimise a PR Program’s list of active patients. It is recommended that the “Remove Patient” feature be used only when duplicate data is identified or when invalid information is inadvertently added to the system.

The screenshot shows the 'Patient Listing' page of the AACVPR Outpatient Pulmonary Rehabilitation Registry. It features a navigation bar with 'Home', 'My Profile', 'Patient List', 'Reports and Data', and 'Administration'. Below the navigation bar, there are two main sections: 'Find a Patient' and 'Add a Patient'. The 'Find a Patient' section has input fields for 'Last Name' and 'Medical Record ID', with 'Search' and 'Clear' buttons. The 'Add a Patient' section has an 'Add Patient' button. Below these sections are 'Filter Criteria' including 'Program' (Test Pulmonary Rehab Program), 'Program Completion Status' (Complete), 'File Status' (- All -), and 'Display Count' (10). A checkbox for 'Filter by Enrollment date' is also present. The main content is a table with columns: Details, Medical Record ID, Last Name, Age, Sex, Enrollment Date, Discharge Date, Program Completion, File Status, and Remove. The 'Remove' column contains red trash icons for each patient row. At the bottom, there are links for 'E-mail ASSISTANCE', 'Provide FEEDBACK', and 'Live Support ONLINE'. The footer contains the copyright notice: '© Copyright American Association of Cardiovascular and Pulmonary Rehabilitation'.

Details	Medical Record ID	Last Name	Age	Sex	Enrollment Date	Discharge Date	Program Completion	File Status	Remove
	1111112	Example, PR5	80	Female	Nov-02-2012	Jun-03-2013	✓	✗	🗑️
	1111113	Example	80	Female		Feb-05-2013	✓	✗	🗑️
	33333333	Lxxxxxx	48	Male	Sep-03-2012	Nov-04-2012	✓	✗	🗑️
	8686861	blaintest1	69	Female	Jan-09-2013	Feb-25-2013	✓	✓	🗑️

To remove a patient from the system use one of the “Locate Patient” features indicated in the above section 3.2.

Once a patient is located and is appearing in the patient list, the user simply need click on the “Remove” icon located in the far right column of the grid.

Warnings will appear requiring the user to confirm the removal of a patient. This will help prevent accidental or inadvertent removal of patients

At any time the user may click on the “Cancel” button to stop the remove patient process.

Note:
If the patient list does not contain a “Remove” column then your account does not have appropriate permissions to remove patients from the system.

Please contact your local registry administrator to have your account privileges increased or to request that the administrator remove the patient for you.

4. Pulmonary Rehabilitation Information and Features

The following features are with respect to a specific patient's Pulmonary Rehabilitation Program record. These features are only available when a specific patient has been selected or added from the patient list section. (Refer to section 3 above regarding adding or locating a patient.)

The term **record** refers to the set of clinical information the registry captures for a specific patient during a specific cycle through a Pulmonary Rehabilitation Program.

4.1. Patient Summary

The screenshot shows the 'Patient Summary' page for 'Example, PR6 (1111112)'. The page is divided into several sections:

- Patient Demographics:** Registry ID: 9af6bc93-97a3-4d9b-82c5-5a11155003c9f; Medical Record Number: 1111112; Pulmonary Rehab Program Name: Test Pulmonary Rehab Program; Last Name: Example, PR6; Date of Birth: Jan 05, 1933 (80 yrs); Sex: Female.
- General Information:** Referral Date: 09-Oct-2012; Enrollment Date: 02-Nov-2012; Discharge Date: 03-Jan-2013; Follow-up Date: 10-May-2013.
- File Status - Missing Elements:** A list of required fields with status indicators: Admitting/ Respiratory Diagnosis (At least one is required - ✓); Functional Capacity (Maximum Borg SOB with 6MWT (ntake) - ✓, 6Min Walk Distance (ntake) - ✓); Psychosocial (At least one mental health measure is required (ntake) - ✓); Quality of Life (At least one QOL tool one is required (ntake) - ✓); Pulmonary Function / Spirometry (FEV1 (ntake) - ✗, FRC (ntake) - ✗, FVC (ntake) - ✓).
- Individual Report:** A button to generate a report.

At the bottom, there are links for 'Email ASSISTANCE', 'Provide FEEDBACK', and 'Live Support OFFLINE'.

The "Patient Summary" page is the initial page a user is shown once a patient has been selected from the patient list.

The purpose of this page is to provide the user with a brief overview of the patient's record, in addition to being a launching point for patient-specific reports.

4.2. Demographics

The screenshot displays the 'Patient Demographics' page for 'Example, PR6 (1111112)'. A prominent yellow banner at the top indicates a required field: 'Medical Record ID is required', highlighted by a large orange arrow. The form is organized into three main sections:

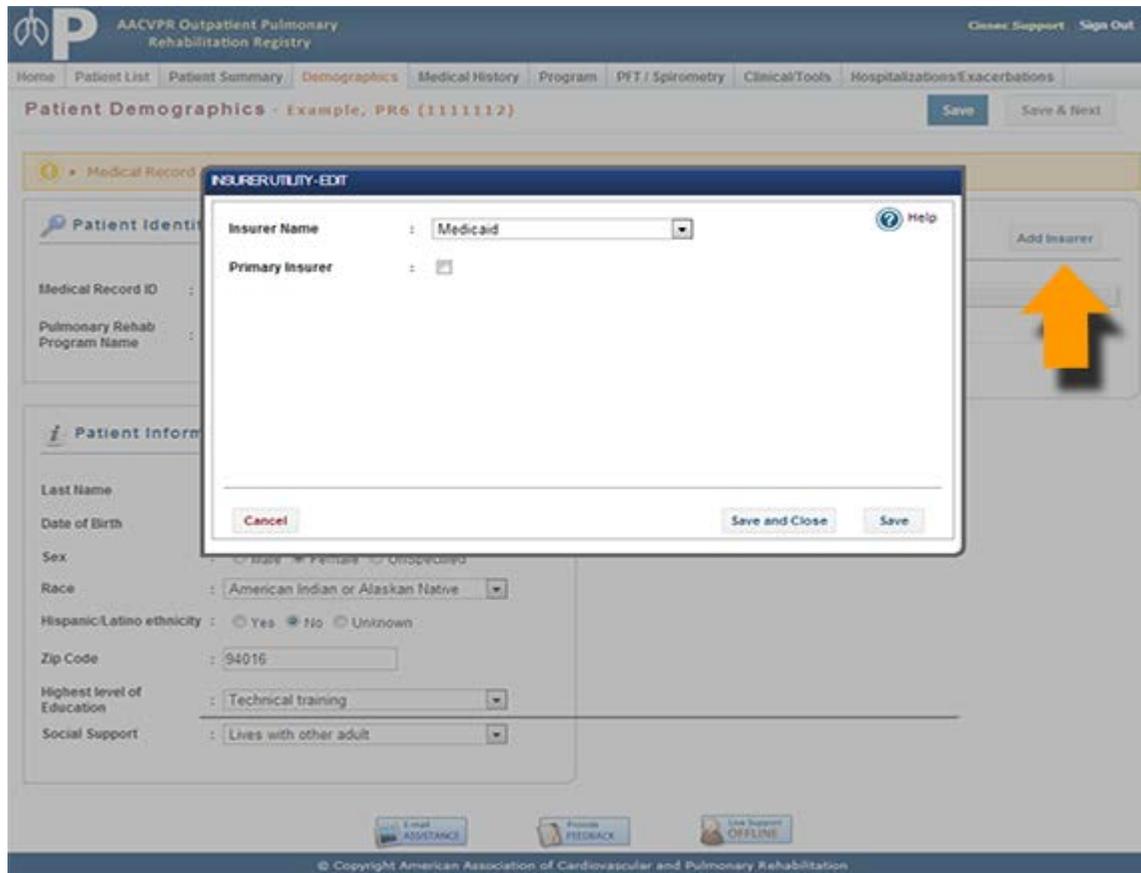
- Patient Identifiers:** Includes a text input for 'Medical Record ID' (with a red error message) and a dropdown for 'Pulmonary Rehab Program Name' (set to 'Test Pulmonary Rehab Program').
- Insurers:** Features an 'Add Insurer' button and a message stating 'No items available' with a warning icon.
- Patient Information:** Contains fields for 'Last Name' (Example, PR6), 'Date of Birth' (01/05/1933), 'Sex' (radio buttons for Male, Female, Unspecified), 'Race' (dropdown menu), 'Hispanic/Latino ethnicity' (radio buttons for Yes, No, Unknown), 'Zip Code' (94016), 'Highest level of Education' (dropdown menu), and 'Social Support' (dropdown menu).

The footer includes links for 'Email ASSISTANCE', 'Provide FEEDBACK', and 'Live Support OFFLINE', along with the copyright notice: '© Copyright American Association of Cardiovascular and Pulmonary Rehabilitation'.

The “Demographics” page contains the same information as the “Add Patient” section.

This section allows users to update information that was unavailable at the time of addition to the registry.

To assist in the data entry process, the registry application provides feedback to the user at the top of the page if information entered is invalid or required. (Refer to the example image adjacent.)



Also located on the “Demographics” page is the “Insurers Utility.” This section allows a user to enter each of the patient’s associated insurers.

Add Insurers

To add new insurers simply click on the “Add Insurers” button from the demographics page.

The “Insurers Add Utility” will appear allowing the user to select each insurer in turn. Once an insurer is selected, the user may click on the “Save and Close” button to return to the “Demographics” page.

The user may otherwise select the “Save” button, which will add the insurer then clear the form to allow the user to add additional insurers without the need to close the utility. If more than one insurer is listed, the option to mark a primary insurer is available.

Once the “Insurer Add Utility” is closed, the “Demographics” screen will update accordingly.

Edit Insurers

To edit insurers simply click on the “Edit” button located to the right of the specific insurer listed. The “Insurers Edit Utility” will appear allowing the user to modify the insurer information. To save the revised information simply click on the “Update” button provided.

Remove Insurers

To remove insurers click on the “Remove” button located to the right of the specific insurer listed. A warning will appear requiring the user to confirm the removal of the insurer. Once confirmed the item will be removed from the list.

4.3. Medical History

The screenshot displays the 'Patient Medical History' page for a patient with ID PR6 (1111112). The page includes a navigation bar with links like Home, Patient List, Patient Summary, Demographics, Medical History, Program, PFT / Spirometry, Clinical Tools, and Hospitalizations/Exacerbations. A success message at the top states 'Patient Medical History saved successfully'. The main content is divided into two sections: 'Admitting/ Respiratory Diagnosis' and 'Comorbidities'.

Admitting/ Respiratory Diagnosis

Diagnosis / Procedure	Event Date	Primary	Edit	Remove
Pulmonary Hypertension/Cor Pulmonale		<input checked="" type="checkbox"/>		
Asthma	Jan-01-2009	<input type="checkbox"/>		

Comorbidities

Diagnoses and comorbidities should be based on patient's medical history, physical examination and medical records to maximize accuracy.

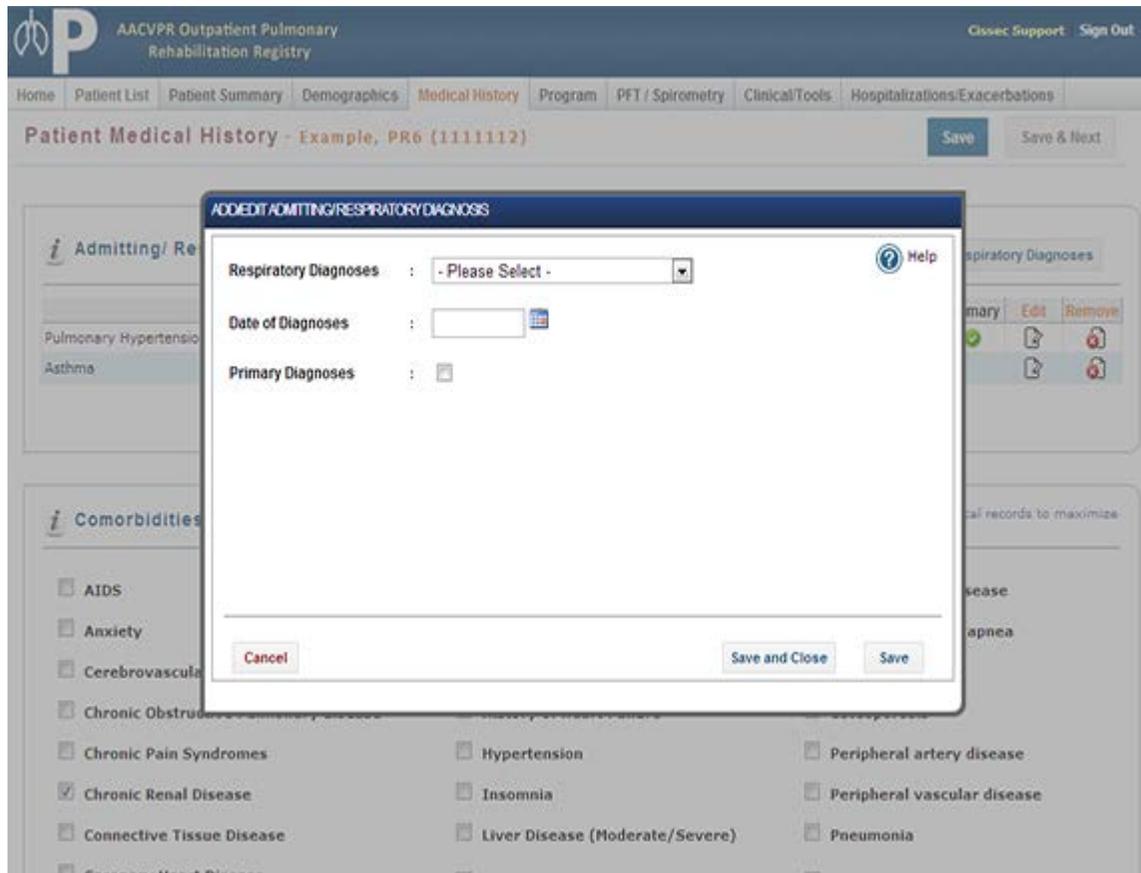
- AIDS
- Anxiety
- Cerebrovascular Disease
- Chronic Obstructive Pulmonary disease
- Chronic Pain Syndromes
- Chronic Renal Disease
- Connective Tissue Disease
- Coronary Heart Disease (excluding previous MI)
- Dementia
- Depression
- Diabetes mellitus
- Gastroesophageal Reflux Disease
- History of Heart Failure
- Hypertension
- Insomnia
- Liver Disease (Moderate/Severe)
- Malignancy
- Metastatic Cancer
- Neuromuscular disease
- Obstructive sleep apnea
- Osteoarthritis
- Osteoporosis
- Peripheral artery disease
- Peripheral vascular disease
- Pneumonia
- Previous myocardial infarction
- Ulcer Disease

Charlson Comorbidity Index Score : 1

The “Medical History” page contains information regarding the patient’s Admission/ Event and general Comorbidities.

The admission event section is an important segment within the AACVPR Pulmonary Rehab Registry. This section allows users to define the primary event and date which triggered the referral to pulmonary rehabilitation.

The primary event date is a significant indicator in the patient’s overall timeline of care.



Add Admitting/ Respiratory Diagnosis

To add a new Admission Event or Respiratory Diagnosis, simply click on the “Add Primary Respiratory Diagnoses” button from the “Patient Medical History” page.

The “Admitting/Respiratory Add Utility” will appear allowing the user to complete each event in turn. Once an Admitting/Respiratory entry is completed the user may click on the “Save and Close” button to return to the “Patient Medical History” page.

The user may otherwise select the “Save” button, which will add the Admitting/Respiratory then clear the form to allow the user to add subsequent Admitting/Respiratory entries without the need to close the utility.

Once the “Admitting/Respiratory Add Utility” is closed the “Patient Medical History” screen will update accordingly.

Edit Admitting/Respiratory Diagnosis

To edit admission events simply click on the “Edit” button located to the right of the specific Admission Event listed. The “Admitting/Respiratory Edit Utility” will appear allowing the user to modify the Admission Event information. To save the revised information simply click on the “Update” button.

Remove Admitting/Respiratory Diagnosis

To remove Admitting/Respiratory entries click on the “Remove” button located to the right of the specific Admitting/Respiratory entry listed. A warning will appear requiring the user to confirm the removal of the Admission Event. Once confirmed the item will be removed from the list.

The screenshot displays the AACVPR Outpatient Pulmonary Rehabilitation Registry interface. At the top, there is a navigation bar with the AACVPR logo and the text 'AACVPR Outpatient Pulmonary Rehabilitation Registry'. Below the navigation bar, there are tabs for 'Home', 'Patient List', 'Patient Summary', 'Demographics', 'Medical History', 'Program', 'PFT / Spirometry', 'Clinical Tools', and 'Hospitalizations/Exacerbations'. The 'Medical History' tab is selected, and the page title is 'Patient Medical History - Example, PR6 (1111112)'. There are 'Save' and 'Save & Next' buttons at the top right of the page.

The main content area is divided into two sections. The first section is 'Admitting/Respiratory Diagnosis' with a sub-header 'Add Primary Respiratory Diagnoses'. It contains a table with the following data:

Diagnosis / Procedure	Event Date	Primary	Edit	Remove
Pulmonary Hypertension/Cor Pulmonale		<input checked="" type="checkbox"/>		
Asthma	Jan-01-2009	<input checked="" type="checkbox"/>		

An orange arrow points from the 'Asthma' row in the table down to the 'Comorbidities' section. The 'Comorbidities' section has a sub-header 'Diagnoses and comorbidities should be based on patient's medical history, physical examination and medical records to maximize accuracy.' and a list of checkboxes for various conditions:

- AIDS
- Anxiety
- Cerebrovascular Disease
- Chronic Obstructive Pulmonary disease
- Chronic Pain Syndromes
- Chronic Renal Disease
- Connective Tissue Disease
- Coronary Heart Disease (excluding previous MI)
- Dementia
- Depression
- Diabetes mellitus
- Gastroesophageal Reflux Disease
- History of Heart Failure
- Hypertension
- Insomnia
- Liver Disease (Moderate/Severe)
- Malignancy
- Metastatic Cancer
- Neuromuscular disease
- Obstructive sleep apnea
- Osteoarthritis
- Osteoporosis
- Peripheral artery disease
- Peripheral vascular disease
- Pneumonia
- Previous myocardial infarction
- Ulcer Disease

At the bottom right of the 'Comorbidities' section, it says 'Charlson Comorbidity Index Score : 1'. At the bottom of the page, there are three buttons: 'Email ASSISTANCE', 'Provide FEEDBACK', and 'Live Support OFFLINE'. The footer contains the text '© Copyright American Association of Cardiovascular and Pulmonary Rehabilitation'.

Add / Update Comorbidities

To add and/or update a patient's comorbidities simply check or uncheck the provided checkbox associated with the comorbidity item.

When finished use the "Save" or "Save and Next" buttons located at the top of the page to commit the modification.

Note:

As you check or uncheck a comorbidity item you will notice the standard **Charlson Comorbidity Index** will automatically recalculate based on your selections.

4.4. Program

P AACVPR Outpatient Pulmonary Rehabilitation Registry Cissec Support Sign Out

Home Patient List Patient Summary Demographics Medical History **Program** PFT / Spirometry Clinical/Tools Hospitalizations/Exacerbations

Patient Program Information - Example, PR6 (1111112) Save Save & Next

i Intake Information

Referral Date : 10/09/2012

Enrollment Date : 11/02/2012

Age at Enrollment : 79

i Discharge Information

Program Complete : Yes

Reason For NonComplete : - Please Select -

Discharge Date : 01/03/2013 [program duration : 63 day(s)]

of Sessions Complete : 20

i Follow-up Information

Follow-up Date : 05/10/2013

Follow-up Method : Clinic Visit

Email ASSISTANCE Provide FEEDBACK Live Support OFFLINE

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The “Program” page contains information regarding the patient’s flow through the pulmonary rehabilitation process.

Each of the three fundamental stages is indicated on this page:

- Intake
- Discharge
- Follow-up

Note:

In many places throughout the registry the dates supplied on the Program form are used for validation of data in other areas.

For example: The system will prevent a referral date that is earlier than the primary admission event date.

When complete use the “Save” or “Save and Next” button located at the top of the page to complete the modification.

4.5. PFT / Spirometry & Clinical Tools

Overview

The “Clinical Tools” section refers to the medical-based set of information that is obtained throughout the patient’s pulmonary rehabilitation cycle. The information set is partitioned into eight distinct areas:

1. Pulmonary Function/ Spirometry
2. Smoking
3. Medications
4. Functional Capacity
5. Quality Of Life
6. Oxygen Usage
7. Anthropometric
8. Psychosocial

Each area provides a mechanism for users to enter information at each of the three primary stages of the pulmonary rehabilitation program: Intake, Discharge, and Follow-up. Percent change calculations will automatically occur based on the user’s entries.

The application not only calculates the percent change but also provides visual feedback to the user regarding the patient’s progress in the specific data item. The application automatically determines if the given data indicates an improvement or a worsening through the use of visual indicators. A legend of the icons is provided on each page for the user’s reference, as well as below.

Icon Legend



Value entered is within defined range.



Value entered is outside of defined range, however is still accepted by the system.



Value entered is outside of defined limits. The value must be corrected before the system will allow a save.



The % change value indicates an improvement.

(Note: Improvement is based on a change toward the norm rather than a physical increase/decrease in a value over time.)



The % change value indicates a worsening or decline.

(Note: Worsening/decline is based on a change away from the norm rather than a physical increase/decrease in a value over time.)

tilization	
Follow-Up	% Change DC-FU
110 ✓	Intake to Follow-up Discharge to Follow-up
89 ✓	11%

The AACVPR Pulmonary Rehab Registry application also provides a mechanism for the user to review the percent change value for either

- Intake to Follow-up
OR
- Discharge to Follow-up

By default the Discharge to Follow-up is pre-selected. The user may modify the displayed percent change by clicking the down arrow from the column heading and selecting the desired range from the presented menu.

	Intake	Discharge	% Change	Follow-Up	% Change
FVC (Click to expand/contract section)					
FVC Actual :	255	256	4%		
% Predicted FVC :	60	65	9%		
Pre/Post Bronchodilator	Pre	Pre		- Please Select -	
FEV1 (Click to expand/contract section)					
FEV1 Actual :					
% Predicted FEV1 :					
Pre/Post Bronchodilator	- Please Select -	- Please Select -		- Please Select -	
FEV1/FVC ratio :					
FRC (Click to expand/contract section)					
FRC Actual :					
% Predicted FRC :					
IC (Click to expand/contract section)					
IC Actual :	300	300	200%	300	67%
% Predicted IC :	25	24	4%	29	21%
DLCO (Click to expand/contract section)					
Uncorrected DLCO :	1000	1000	0%	1000	0%
% predicted uncorrected DLCO :	10	10	0%	10	0%
Airway Obstruction (Click to expand/contract section)					
Obstruction :	- Please Select -				
Restriction :	- Please Select -				

✔ Inside Expected Range
 ⚠ Outside Expected Range / Infrequent Score
 ✘ Invalid Range
 ↗ Improvement
 ↘ Worsened

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Pulmonary Function / Spirometry

The user is provided with a means to enter the patient-specific values into the appropriate data fields and timeframe.

The application will validate the legitimacy of the entered value and calculate the percent change value if applicable.

(Refer to the icon key in section 4.5 for a description of specific icons.)

Note:
Airway Obstruction/Restriction is not associated with Intake/Discharge/Follow-up as this data would be applicable throughout the duration of the Pulmonary Rehab Program.

Smoking

Intake	Discharge	Follow-up
Tobacco Status : Former smoker	Tobacco Status : - Please Select-	Tobacco Status : - Please Select-
Average Packs Per Day : 1		
Years Using Tobacco : 50		
Pack Years : 50		
Quit Year : 2008		

Medication

Intake	Discharge	Follow-up
Prescribed : Yes	Prescribed : Yes	Prescribed : Yes
Taken : No	Taken : - Please Select-	Taken : - Please Select-

Intake	Discharge	Follow-up
Prescribed : Yes	Prescribed : Yes	Prescribed : Yes
Taken : - Please Select-	Taken : - Please Select-	Taken : - Please Select-

Intake	Discharge	Follow-up
Prescribed : Yes	Prescribed : Yes	Prescribed : Yes
Taken : - Please Select-	Taken : - Please Select-	Taken : - Please Select-

Intake	Discharge	Follow-up
Prescribed : Yes	Prescribed : Yes	Prescribed : Yes
Taken : - Please Select-	Taken : - Please Select-	Taken : - Please Select-

Intake	Discharge	Follow-up
Prescribed : Yes	Prescribed : Yes	Prescribed : Yes
Taken : - Please Select-	Taken : - Please Select-	Taken : - Please Select-

Intake	Discharge	Follow-up
Prescribed : Yes	Prescribed : Yes	Prescribed : Yes
Taken : - Please Select-	Taken : - Please Select-	Taken : - Please Select-

Smoking and Medication

The user is provided with a means to enter in the patient-specific values into the appropriate data field and timeframe.

The application will validate the legitimacy of the entered value and calculate the percent change value if applicable.

(Refer to the icon key in section 4.5 for a description of specific icons.)

The screenshot shows the 'Functional Capacity' section of the AACVPR Outpatient Pulmonary Rehabilitation Registry. The interface includes a navigation bar with options like Home, Patient List, Patient Summary, Demographics, Medical History, Program, PFT / Spirometry, Clinical/Tools, and Hospitalizations/Exacerbations. The 'Clinical/Tools' section is active, showing a patient example (PR6 (1111112)).

The 'Functional Capacity' table displays data for Intake, Discharge, and Follow-Up, with columns for Functional Capacity, Intake, Discharge, % Change, and Follow-Up. The table includes rows for 6Min Walk Distance (m), 6Min Walk Distance Type, 6Min Walk Distance METs, Maximum Borg SOB with 6MWT, Maximum Borg fatigue with 6MWT, IPAQ METs minutes per week, and Symptoms (MMRC and SOBQ).

Functional Capacity	Intake	Discharge	% Change	Follow-Up	% Change
6Min Walk Distance (m):	457.20	494.39	8%	507.80	11%
6Min Walk Distance Type:	Halfway	Halfway		Halfway	
6Min Walk Distance METs:	3.2	3.4	6%	3.4	6%
Maximum Borg SOB with 6MWT:					
Maximum Borg fatigue with 6MWT:					
IPAQ METs minutes per week:					
Symptoms (Click to expand/contract section)					
MMRC:					
SOBQ:					

Legend:
 Inside Expected Range (Green checkmark)
 Outside Expected Range / Infrequent Score (Yellow checkmark)
 Invalid Range (Red X)
 Improvement (Green arrow)
 Worsened (Red arrow)

Buttons: Email ASSISTANCE, Provide FEEDBACK, Live Support OFFLINE

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Functional Capacity

The user is provided with a means to enter in the patient-specific values into the appropriate data field and timeframe.

The application will validate the legitimacy of the entered value and calculate the percent change value if applicable.

(Refer to the icon key in section 4.5 for a description of specific icons.)

	Intake	Discharge	% Change	Follow-Up	% Change
CRQ	<i>(Click to expand/contract section)</i>				
Fatigue :	4	5	25%	5	0%
Emotional Function :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Dyspnea :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Mastery :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Global score :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
SGRQ	<i>(Click to expand/contract section)</i>				
Symptoms :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Activity :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Impact :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Global :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
SF36	<i>(Click to expand/contract section)</i>				
Physical Component :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Mental Component :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
QLI Global :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Dartmouth COOP :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
CAT :	<input type="text"/>	<input type="text"/>		<input type="text"/>	

Inside Expected Range
 Outside Expected Range / Infrequent Score
 Invalid Range
 Improvement
 Worsened

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 [Provide FEEDBACK](#)
 [Let Support OFFLINE](#)

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Quality of Life

The user is provided with a means to enter in the patient-specific values into the appropriate data field and timeframe.

The application will validate the legitimacy of the entered value and calculate the percent change value if applicable.

(Refer to the icon key in section 4.5 for a description of specific icons.)

	Intake	Discharge	% Change	Follow-Up	% Change
PHQ9 :	8	5	37%	2	60%
CESD :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Geriatric Depression Scale-15 :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Geriatric Depression Scale-30 :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
HADS (Click to expand/contract section)					
HADS-Depression :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
HADS-Anxiety :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
PRFS (Click to expand/contract section)					
PRFS-Total Distress :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
PRFS-Depression :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
PRFS-Anxiety :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
PRFS-Hostility :	<input type="text"/>	<input type="text"/>		<input type="text"/>	
PRFS-Social Isolation :	<input type="text"/>	<input type="text"/>		<input type="text"/>	

Inside Expected Range
 Outside Expected Range / Infrequent Score
 Invalid Range
 Improvement
 Worsened

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Psychosocial

The user is provided with a means to enter in the patient-specific values into the appropriate data field and timeframe.

The application will validate the legitimacy of the entered value and calculate the percent change value if applicable.

(Refer to the icon key in section 4.5 for a description of specific icons.)

Oxygen Usage

	Intake	Discharge	% Change	Follow-Up	% Change
Nasal Cannula (Click to expand/contract section)					
Rest (l/min) :	2.00 ✓	2.00 ✓	0%	2.00 ✓	0%
ADLs (l/min) :	2.00 ✓	3.00 ✓	↓ 50%	3.00 ✓	0%
Exercise (l/min) :	2.00 ✓	3.00 ✓	↓ 50%	3.00 ✓	0%
Sleep (l/min) :	2.00 ✓	2.00 ✓	0%	3.00 ✓	↓ 50%
Mask (Click to expand/contract section)					
O2 evaluation used patient's ambulatory O2 system :	intermittent / pulse / t	intermittent / pulse / t		intermittent / pulse / t	
Type of O2 system patient uses :	<input checked="" type="checkbox"/> Gas E cyl <input type="checkbox"/> Gas M2 <input type="checkbox"/> Gas M4 <input type="checkbox"/> Gas M6 <input type="checkbox"/> Liquid <input type="checkbox"/> Portable oxygen concentrator (POC) <input checked="" type="checkbox"/> Stationary concentrator	<input type="checkbox"/> Gas E cyl <input type="checkbox"/> Gas M2 <input type="checkbox"/> Gas M4 <input type="checkbox"/> Gas M6 <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Portable oxygen concentrator (POC) <input checked="" type="checkbox"/> Stationary concentrator		<input type="checkbox"/> Gas E cyl <input type="checkbox"/> Gas M2 <input type="checkbox"/> Gas M4 <input type="checkbox"/> Gas M6 <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Portable oxygen concentrator (POC) <input checked="" type="checkbox"/> Stationary concentrator	

Inside Expected Range
 Outside Expected Range / Infrequent Score
 Invalid Range
 Improvement
 Worsened
 Patient dependent Improvement/Worsened

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Oxygen Usage

The user is provided with a means to enter in the patient-specific values into the appropriate data field and timeframe.

The application will validate the legitimacy of the entered value and calculate the percent change value if applicable.

(Refer to the icon key in section 4.5 for a description of specific icons.)

AACVPR Outpatient Pulmonary Rehabilitation Registry Cissec Support Sign Out

Home Patient List Patient Summary Demographics Medical History Program PFT / Spirometry **Clinical/Tools** Hospitalizations/Exacerbations

Clinical/Tools - Example, PR6 (1111112) Save Save & Next

Anthropometric Units: US (lbs/in) Metric (kg/cm)

Anthropometric	Intake	Discharge	% Change	Follow-Up	% Change DC
Weight (lbs):	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Height (in):	<input type="text"/>				
BMI					
Fat Free Mass (lbs):	<input type="text"/>	<input type="text"/>		<input type="text"/>	
Fat Free Mass Method	<input type="text" value="- Please Select -"/>	<input type="text" value="- Please Select -"/>		<input type="text" value="- Please Select -"/>	
Bode Index					

Inside Expected Range
 Outside Expected Range / Infrequent Score
 Invalid Range
 Improvement
 Worsened

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[Provide FEEDBACK](#)
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Anthropometric

The user is provided with a means to enter in the patient-specific values into the appropriate data field and timeframe.

The application will validate the legitimacy of the entered value and calculate the percent change value if applicable.

(Refer to the icon key in section 4.5 for a description of specific icons.)

4.6. Hospitalizations/Exacerbations

The screenshot shows the AACVPR Outpatient Pulmonary Rehabilitation Registry interface. The top navigation bar includes links for Home, Patient List, Patient Summary, Demographics, Medical History, Program, PFT / Spirometry, Clinical Tools, and Hospitalizations/Exacerbations. The main content area is titled 'Hospitalizations / Exacerbations - Example, PR6 (1111112)' and features a 'Save & Return to Summary' button. There are three main panels:

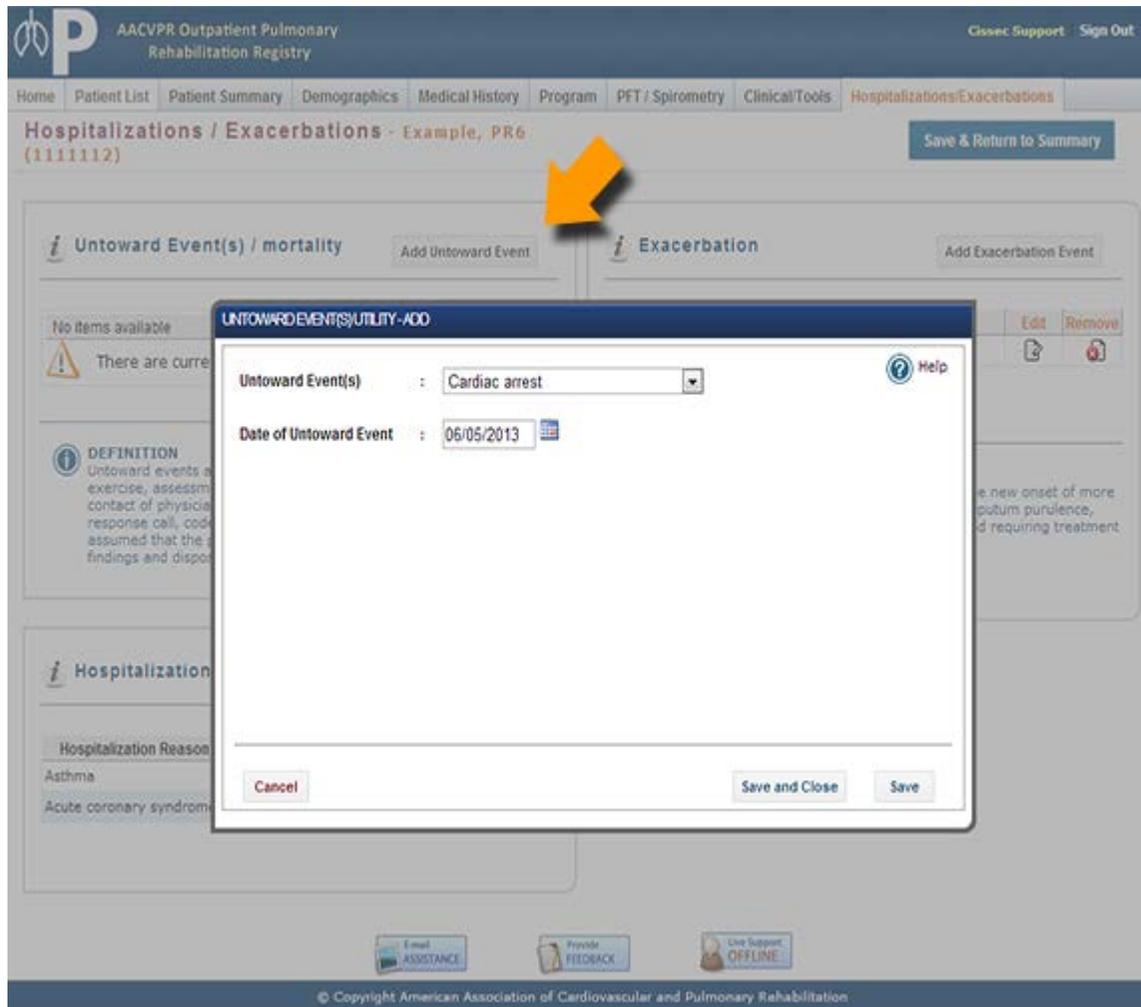
- Untoward Event(s) / mortality:** Includes an 'Add Untoward Event' button, a message 'No items available' with a warning icon, and a definition: 'Untoward events are events that require immediate cessation of exercise, assessment by PR staff and intervention, e.g. immediate contact of physician, transport to emergency department, rapid response call, code blue, and/or other acute intervention. It is assumed that the physician will be contacted regarding the patient's findings and disposition.'
- Exacerbation:** Includes an 'Add Exacerbation Event' button, a table with one entry for 'May-22-2013', and a definition: 'Exacerbations are defined as an increase in or the new onset of more than one respiratory symptom (cough, sputum, sputum purulence, wheezing, or dyspnea) lasting 3 days or more and requiring treatment with an antibiotic or a systemic corticosteroid. For more information please [CLICK HERE](#)'.
- Hospitalization:** Includes an 'Add Hospitalization Event' button, a table with two entries: 'Asthma' and 'Acute coronary syndrome', both dated 'May-22-2013'.

At the bottom, there are buttons for 'Email ASSISTANCE', 'Provide FEEDBACK', and 'Live Support OFFLINE', along with a copyright notice for the American Association of Cardiovascular and Pulmonary Rehabilitation.

The “Hospitalizations / Exacerbations” page contains supporting information regarding a patient’s events that may have occurred during the Pulmonary Rehabilitation Program.

The supporting information is categorised into three sections.

- Untoward Event(s) / mortality
- Exacerbation
- Hospitalization



Add Untoward Events

To add a new Untoward Event simply click on the “Add Untoward Event” button on the “Hospitalizations / Exacerbations” page.

The “Untoward Events Add Utility” will appear allowing the user to complete each Untoward Event in turn. Once an Untoward Event is completed the user may click on the “Save and Close” button to return to the “Hospitalizations / Exacerbations” page.

The user may otherwise select the “Save” button which will add the Untoward Event then clear the form to allow the user to add additional Untoward Events without the need to close the utility.

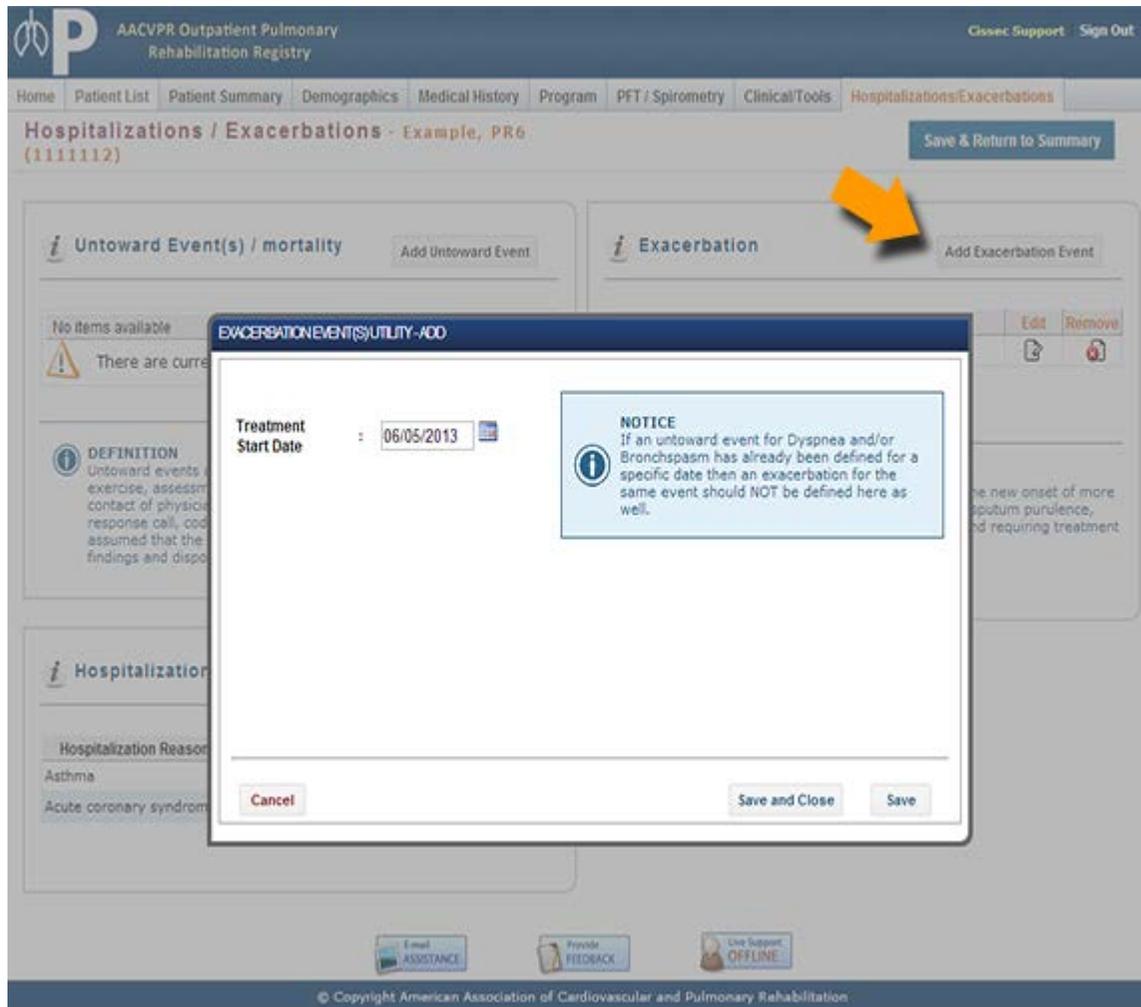
Once the “Untoward Events Add Utility” is closed the “Hospitalizations / Exacerbations” screen will update accordingly.

Edit Untoward Events

To edit Untoward Events simply click on the “Edit” button located to the right of the specific Untoward Event listed. The “Untoward Events Edit Utility” will appear allowing the user to modify the Untoward Event information. To save the revised information simply click on the “Update” button provided.

Remove Untoward Events

To remove Untoward Events click on the “Remove” button located to the right of the specific Untoward Event listed. A warning will appear requiring the user to confirm the removal of the Untoward Event. If confirmed the item will be removed from the list.



Add Exacerbation

To add a new Exacerbation Event simply click on the “Add Exacerbation Event” button on the “Hospitalizations / Exacerbations” page.

The “Exacerbations Events Add Utility” will appear allowing the user to complete each Exacerbation Event’s information in turn. Once an Exacerbation Event is completed the user may click on the “Save and Close” button to return to the “Hospitalizations / Exacerbations” page.

The user may otherwise select the “Save” button which will add the Exacerbations Event then clear the form to allow the user to add additional Exacerbation Events without the need to close the utility.

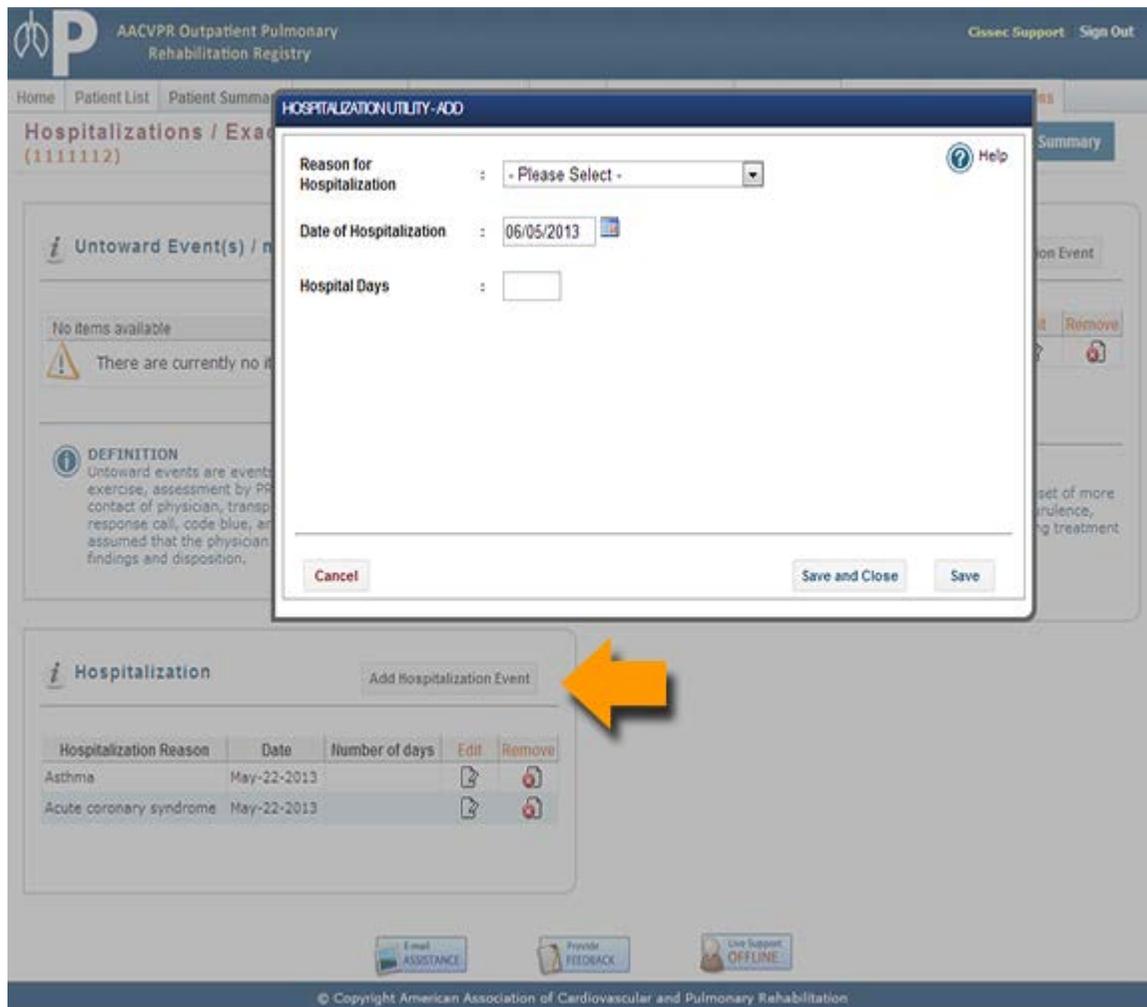
Once the “Exacerbation Event Add Utility” is closed the “Hospitalizations / Exacerbations” screen will update accordingly.

Edit Exacerbation Events

To edit Exacerbation Events simply click on the “Edit” button located to the right of the specific Exacerbation Event listed. The “Exacerbation Events Edit Utility” will appear allowing the user to modify the Exacerbation Event information. To save the revised information simply click on the “Update” button provided.

Remove Exacerbation Events

To remove Exacerbation Events click on the “Remove” button located to the right of the specific Exacerbation Event listed. A warning will appear requiring the user to confirm the removal of the Exacerbation Event. If confirmed the item will be removed from the list.



Add Hospitalization

To add a new Hospitalization Event simply click on the “Add Hospitalization Event” button on the “Hospitalizations / Exacerbations” page.

The “Hospitalization Add Utility” will appear allowing the user to complete each Hospitalization Event in turn. Once a Hospitalization Event is completed the user may click on the “Save and Close” button to return to the “Hospitalizations / Exacerbations” page.

The user may otherwise select the “Save” button which will add the Hospitalization Event then clear the form to allow the user to add additional Hospitalization Events without the need to close the utility.

Once the “Hospitalization Add Utility” has closed the “Hospitalizations / Exacerbations” screen will update accordingly.

Edit Hospitalization

To edit Hospitalization Events simply click on the “Edit” button located to the right of the specific Hospitalization Event listed. The “Hospitalization Edit Utility” will appear allowing the user to modify the Hospitalization Event information. To save the revised information simply click on the “Update” button provided.

Remove Hospitalization

To remove Hospitalizations click on the “Remove” button located to the right of the specific Hospitalization listed. A warning will appear requiring the user to confirm the removal of the Hospitalization Event. If confirmed the item will be removed from the list.

5. Reporting Features

5.1. Understanding Reports

The AACVPR Pulmonary Rehab Registry application offers predefined reports for general review and usage. An in-depth overview of each predefined report is outlined in the below sections. (Sections 5.2 and 5.3)

In general the reports are designed with a minimalistic presentation approach. The reports will only display data to the user where information actually exists in the system. For example, if the patient health survey SF-36 is not used in a particular PR Program then the reports will never display the SF-36 rows. This approach prevents the reports from displaying data which is irrelevant to the user and allows the user to focus on the more important information.

In addition, the reporting shows the percent change and associated improvement/decline icons from the clinical tools dataset. Refer to section 4.5 for an overview of the icon meanings. It is again important to note that the icons which describe the percent change are determined based on an improvement toward or away from the baseline. The physical number decreasing or increasing over time in partnership with the predefined AACVPR baseline target range is used to dynamically calculate an improvement /decline.

5.2. Individual Reports

The individual report is specific to a patient and pulmonary rehabilitation program cycle. This report indicates changes in a specific patient's information during the course of the pulmonary rehabilitation program, in addition to providing a general outcomes overview of the patient performance.

The screenshot displays the AACVPR Outpatient Pulmonary Rehabilitation Registry interface. At the top, there is a navigation bar with the AACVPR logo and the text "AACVPR Outpatient Pulmonary Rehabilitation Registry". To the right of the logo, there are links for "Cissec Support" and "Sign Out". Below the navigation bar, there is a menu with options: "Home", "Patient List", "Patient Summary", "Demographics", "Medical History", "Program", "PFT / Spirometry", "Clinical/Tools", and "Hospitalizations/Exacerbations". The "Patient Summary" option is selected, and the page title is "Patient Summary - Example, PR6 (1111112)".

The main content area is divided into several sections:

- Patient Demographics:** Registry ID: 9e8e3c93-97a3-4d9d-b2c5-5a11b5803c9f; Medical Record Number: 1111112; Pulmonary Rehab Program Name: Test Pulmonary Rehab Program; Last Name: Example, PR6; Date of Birth: Jan 05, 1933 (80 yrs); Sex: Female.
- General Information:** Referral Date: 09-Oct-2012; Enrollment Date: 02-Nov-2012; Discharge Date: 03-Jun-2013; Follow-up Date: 03-Jun-2013.
- File Status - Missing Elements:** The following fields are required in order to meet the minimum data set requirement.
 - Admitting/ Respiratory Diagnosis
 - At least one is required (checked)
 - Functional Capacity
 - Maximum Borg SOB with 6MWT (Intake) (missing)
 - 6Min Walk Distance (Intake) (checked)
 - Psychosocial
 - At least one mental health measure is required (Intake) (checked)
 - Quality of Life
 - At least one QOL tool one is required (Intake) (checked)
 - Pulmonary Function / Spirometry
 - FEV1 (Intake) (missing)
 - FRC (Intake) (missing)
 - FVC (Intake) (checked)
- Individual Report:** A button with a document icon and the text "Individual Report". A large orange arrow points to this button.

At the bottom of the page, there are three buttons: "E-mail ASSISTANCE", "Provide FEEDBACK", and "Live Support OFFLINE". The footer contains the text "© Copyright American Association of Cardiovascular and Pulmonary Rehabilitation".

To access a specific patient's individual report, open the desired patient's record. (Refer to section 3.)

From the "Patient Summary" page click on the button "Individual Report." A new window will appear with the patient's individual report.

Example : Individual report

Test Pulmonary Rehab Program								
Individual Report								
Name/Registry ID	: Example, PRS [1111112]		DOB	: 01/05/1933 [80 yrs]		Sex	: Female	
Diagnoses	: Pulmonary Hypertension/Cor Pulmonale; Asthma [01/01/2009]							
Insurance	:							
CATEGORY	Initial	DC	I-DLCO % Chg	FU	I-FU % Chg	DC-FU % Chg	Goal	Performance
Enrollment Date	11/02/2012	06/03/2013		06/03/2013				
Sessions		20						
Medications								
Long-Acting Beta Agonist	Yes	Yes		Yes				
Short-Acting Beta Agonist	Yes	Yes		Yes				
Long-Acting Anticholinergics	Yes	Yes		Yes				
Short-Acting Anticholinergics	Yes	Yes		Yes				
Inhaled corticosteroids	Yes	Yes		Yes				
Oral corticosteroids	Yes	Yes		Yes				
Smoking	Former smoker							
Quit year	2008							
Packs Year(s)	50							
FVC Actual	2.55	2.66	↑ 4					
% Predicted FVC	60	55	↓ 5					
IC Actual (lbs)	3	9	↑ 200	3		↓ 67		
% Predicted IC	25	24	↓ 4	29	↑ 16	↑ 21		
Measured FVC pre- or post-bronchodilator	Pre	Pre						
Uncorrected DLCO	10			10				
% predicted uncorrected DLCO	10	10		10				
6Min Walk Distance (m)	457.2	494.39	↑ 6	507.5	↑ 11	↑ 3		
6Min Walk Distance Type	Halfway	Halfway		Halfway				
CRQ - Fatigue	4	5	↑ 25	5	↑ 25			
PHQ9	8	5	↑ 38	2	↑ 75	↑ 60		
Rest (l/min)	2	2		2				
ADLs (l/min)	2	3	↓ 50	3	↓ 50			
Exercise (l/min)	2	3	↓ 50	3	↓ 50			
Sleep (l/min)	2	2		3	↓ 50	↓ 50		
O2 evaluation used patient's ambulatory O2 system	intermittent / pulse / demand	intermittent / pulse / demand		intermittent / pulse / demand				
Type of O2 system patient uses	Gas E cyl Stationary concentrator	Liquid Stationary concentrator		Liquid Stationary concentrator				

 Meets or exceeds goal
 Short of goal and moving in the wrong direction

Report Used for:
 Individual Patient Progress Report
 Patient Progress Report For Physician

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5.3. Program Reports

The AACVPR Pulmonary Rehab Registry application contains two separate program reports for review the “Program Outcomes Summary” and the “Program Comparison” report.

To access the program reports, use the primary navigation to select “Reports” from the “Reports and Data” menu.

The screenshot shows the AACVPR Outpatient Pulmonary Rehabilitation Registry interface. At the top, there is a navigation bar with the logo and text 'AACVPR Outpatient Pulmonary Rehabilitation Registry' and links for 'Cissec Support' and 'Sign Out'. Below this is a secondary navigation bar with 'Home', 'My Profile', 'Patient List', 'Reports and Data', and 'Administration'. The main content area is titled 'Site reports' and contains two report generation forms. The first form, 'Program Outcomes Summary', includes a dropdown for 'Program' (set to 'Sidell Memorial Hospital'), 'Start Date' and 'End Date' fields with calendar icons, and a checkbox for 'Show all clinical including not entered items.' The second form, 'Program Comparison', includes a dropdown for 'Program' (set to 'Sidell Memorial Hospital'), a 'Compare to' dropdown (set to 'State Wide'), and 'Start Date' and 'End Date' fields with calendar icons. Both forms have a 'Generate Report' button. At the bottom of the page, there are three service icons: 'E-mail ASSISTANCE', 'Provide FEEDBACK', and 'Live Support OFFLINE'.

Comparison Report

Program Name: Test Pulmonary Rehab Program Comparing to: Elite Registry (12 programs)
 Program Patient Count: 4 Comparing Patient Count: 4

Gender	Program	Mean	%	Comparison	Mean	%
Female	55 - 65	25	75	55 - 65	25	75
Male	45 - 45	45	25	45 - 45	45	25

Race	Program %	Compare %
American Indian or Alaskan Native	0	0
Asian	0	0
Black or African-American	0	0
Ethnic category not listed	0	0
Ethnic category unknown or not given	0	0
Native Hawaiian or Pacific Islander	0	0
Non-white Hispanic or Latino ethnicity	0	0
White	100	100

Mean completed session	Program %	Compare %
Mean completed session(s)	17	17

Admission Respiratory Diagnosis	Program %	Compare %
Asthma	25	25
Chronic Bronchitis	0	0
Chronic Obstructive Pulmonary Disease	0	0
Cystic Fibrosis	0	0
Empyema	0	0
Hypoxemia due to Obesity	0	0
Idiopathic pulmonary Fibrosis	0	0
Intermittent Lung Disease	0	0
Lung Cancer	0	0
Lung Transplant	0	0
Neuro-muscular lung disease (ALS, post polio syndrome)	0	0
Pulmonary Fibrosis	0	0
Pulmonary Hypertension/Cor Pulmonale	25	25

Discharge Events	Program %	Compare %
# of distinct upward events	2.0	2.0
% of patient who have had at least 1 upward event	50.0	50.0

Hospitalization Events	Program %	Compare %
# of distinct hospitalization events	3.0	3.0
% of patient who have had at least 1 hospitalization event	50.0	50.0

Current Tests	Program	Comparison				
	Initial	QC	Final	Initial	QC	Final
Pulmonary Function / Spirometry						
FEV1 Actual	2.0			2.0		
% Predicted FEV1						
FVC Actual	2.0	2.8	2.0	2.0	2.0	2.0
% Predicted FVC	60	55		60	55	
FEV1/FVC ratio						
Uncorrected DLCO	10	10	10	10	10	10
% predicted uncorrected DLCO	10	10	10	10	10	10
IC Actual (Pre)	5.5	8.5	5.5	5.5	8.5	5.5
% Predicted IC	37	37	38	37	37	38
PAC Actual	1.2			1.2		
% Predicted PAC						
Functional Capacity						
6M Walk Distance (ft)	1066.7	1961	2002	1066.7	1961	2002
6M Walk Distance (M)						
Maximum Borg SOB with 6MWT	10			10		
Maximum Borg SOB with 6MWT						
6MWT minutes per week						
6MWT						
SODG						
Quality of Life						
CRQ - Fatigue	4	5	5	4	5	5
CRQ - Emotional Function						
CRQ - Dyspnea						
CRQ - Mobility						
CRQ - Global score	33	50	47	33	50	47
SQRQ - Symptoms						
SQRQ - Activity						
SQRQ - Impact						
SQRQ - Distal						
SF36 - Physical Component						
SF36 - Mental Component						
DLI - Global						
Berlinm COOP						
CAIT						
Psychosocial						
BIGS	11	4	3	11	4	3
CFSD						
Geriatric Depression Scale-15						
Geriatric Depression Scale-23						
SAFQ-Depression						

Report 2 – Program Comparison

The Program Comparison report shows a comparison of the aggregate data for all patients in the specified program to the selected group of programs. The selected set of patients for both the program and the group of programs will have a defined discharge date within the user defined timeframe.

This report indicates general statistics and overall performance of patients within the specified timeframe for each of the two distinct sets of data.

The group of programs always includes the comparing program. Thus as a minimum the report will generate a comparison to itself.

To generate this report select the desired program (if applicable), comparing group and date range. Click on the “Generate” button.

Note:

To select all data regardless of timeframe simply leave the date selections blank.

6. Extracting Your Data

6.1. Data Manager

The AACVPR Pulmonary Rehab Registry application provides a unique and innovative means for users to extract information from the registry. The “Data Manager” section will allow users to make predefined requests to retrieve data or to create custom requests for their needs. Since many complex data routines are server-intensive, the download manager was created to help manage the requested data without negatively impacting the server and/or running application. As such, data requests are buffered until such time as the application determines it is safe to perform the extraction.

Download	Created Date	Title	Description	Created by	Remove
✓	Jan-15-2013	Test1	Requested dataset name:Patient File By Organiza...	Support Cissec	
✓	Jun-01-2013	test	Requested dataset name:Patient File By Organiza...	Support Cissec	

The primary screen of the “Data Manager” module is merely a viewing portal to previously extracted information. In addition, a listing of currently pending data requests that the application is presently buffering is visible.

The extraction history panel provides users a quick reference to the date of the request, a description of the information contained, and who initially created the dataset.

To download a newly completed or previously processed dataset simply click on the icon next to the desired extraction.

6.2. New Data Extractions

The screenshot shows the 'DATAREQUEST WIZARD' window. It is divided into three steps:

- STEP 1 - Create/Select the dataset to report:** A dropdown menu shows 'Patient File By Organization - Data Extraction'. To the right is an 'Add/Remove dataset' button with 'New' and 'Remove' sub-buttons. A blue box labeled 'Select predefined dataset' points to the dropdown, and a red box labeled 'Create a custom dataset' points to the 'New' button.
- STEP 2 - Define the Extraction Information:** Fields for 'Request Title', 'Description', and 'Priority' (set to 'Normal').
- STEP 3 - Choose the Extraction Filter(s):** 'Enrollment Date' range and a list of organizations with checkboxes: Fort Sanders Cardiac Wellness and Rehab, Allen Cardiac Rehabilitation, Euclid Cardiac Rehab, FAIRVIEW RIDGES CARDIAC REHABILITATION, CR Program 5, CR Program 4, CR Program 3, CR Program 1, and CR Program 2.

Buttons for 'Cancel' and 'Save' are at the bottom.

To create a new data extraction for download, click on the “New Data Request” button from the “Data Manager” page.

A modal window will appear allowing the user to select from an existing dataset or to create a new dataset.

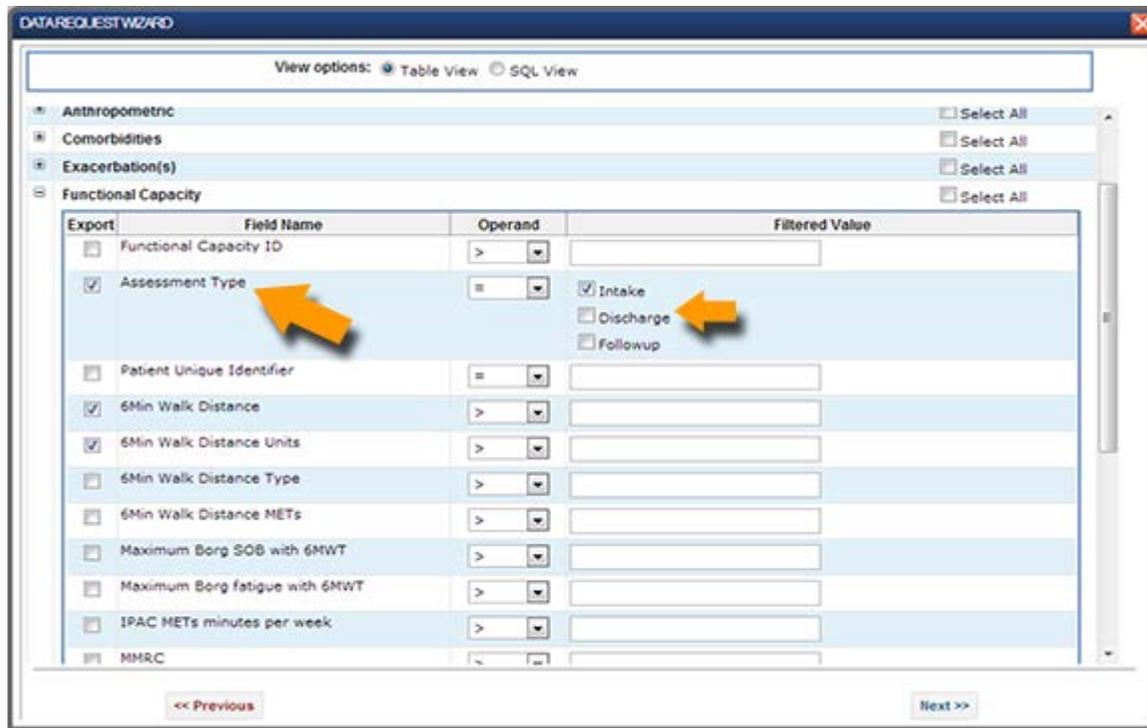
Predefined datasets are not specific to a timeframe or a specific organization. Essentially the predefined datasets are a template of information to be extracted. A user will be required to indicate the timeframe and the desired PR Program in order to request information from the application.

Through the use of the dataset templates a user may create distinct data extractions over time and/or for distinct PR Programs. This concept will provide a consistent and known structure for ease in analysis.

For example: A user may define a specific dataset template regarding “Untoward Event(s)”. They may then create data requests on a quarterly basis. The output will provide them with on-going analysis of “Untoward Event(s)” monitoring for the desired PR Program.

Note: Users only have access to extract data for PR Programs they currently have privileges to. Access to information regarding PR Programs outside of their defined privileges is strictly prohibited by the AACVPR Pulmonary Rehab Registry application.

6.3. New Dataset Templates



To create a new dataset template simply click on the “New” button from the “Data Request Wizard” page. (See above instructions.)

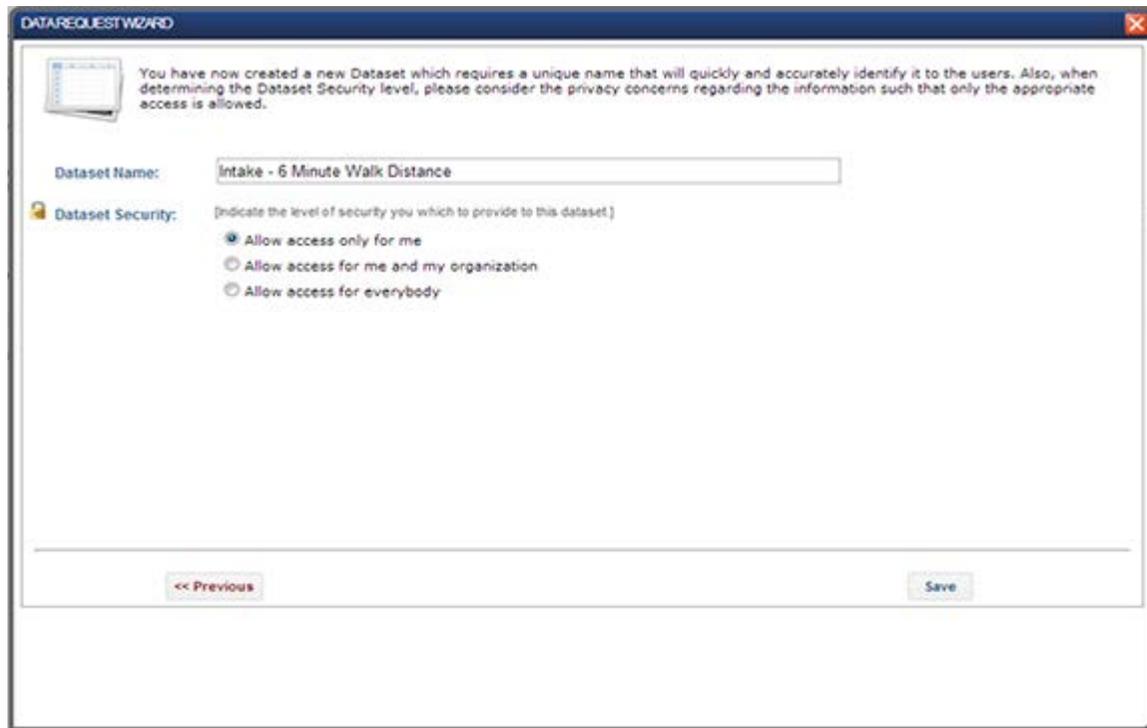
The Data Request Wizard will provide the user with a tree-like view of information that exists within the AACVPR Pulmonary Rehab Registry. The user may select the [+] icon located to the left of each category to view the subset of data variables within that category.

The user then selects the associated checkbox next to the desired data element they wish to include in their dataset template. In addition, the user may filter each selected data item by selecting or entering the desired filter criteria into the “Operand” and “Filtered Value” columns.

Example: The image to the left indicates that a user wants to extract data regarding patients’ Functional Capacity. The user has revealed the subset of Functional Capacity information by selecting the [+] icon next to the Functional Capacity heading. The user has also selected the following variables to be included in the extraction :

- 6Min Walk Distance
- 6Min Walk Distance Units
- Assessment Type

In addition, the example indicates that the user has



The screenshot shows a window titled "DATAREQUEST WIZARD" with a close button in the top right corner. The main content area contains the following elements:

- A message: "You have now created a new Dataset which requires a unique name that will quickly and accurately identify it to the users. Also, when determining the Dataset Security level, please consider the privacy concerns regarding the information such that only the appropriate access is allowed."
- A "Dataset Name:" label followed by a text input field containing "Intake - 6 Minute Walk Distance".
- A "Dataset Security:" label followed by the instruction "[Indicate the level of security you which to provide to this dataset]".
- Three radio button options:
 - Allow access only for me
 - Allow access for me and my organization
 - Allow access for everybody
- At the bottom, there are two buttons: "<< Previous" and "Save".

requested a filter to be applied to the extraction where only values at Assessment Type - Intake are to be included.

The user may traverse the entire set of available information and create a fully customized extraction to meet their current needs.

Once the dataset template variables have been defined, the user may select "Next" in the wizard, at which point they will be required to provide a name for their newly created dataset template. Upon "Save" of the template, the user will be presented with the "Dataset Request Wizard," where their newly created dataset template name will appear in the predefined dataset dropdown.

Refer to the above documentation on how to extract specific data from a dataset template.

7. Security

7.1. Application Security

The AACVPR Pulmonary Rehab Registry application is safeguarded by a number of security protocols. Primarily the application is secured under the standard 128 bit encryption Secure Socket Layer protocol (SSL). Thus all data transmitted to the registry will be in an encrypted state.

Additionally, the application is a closed access system, which requires a primary individual to register and administrate users to the system. The AACVPR Pulmonary Rehab Registry does not allow users to self-register, thus limiting access to known and controlled user sets.

The application requires registered users to sign in using a two factor authentication process. The authentication process will limit the user's privileges based on the user's defined role. Users are generally limited to accessing a single PR Program. The application strictly prohibits users from accessing information which is external to their defined PR Programs.

Lastly the application is fully HIPAA compliant providing administrative, physical, and technical safeguards to the system in addition to providing a complete audit trail of information modifications. For more information regarding the application security and safeguards please contact AACVPR. (Refer to section 1.4.)

7.2. Privacy

AACVPR values your privacy and the information you provide in the AACVPR Pulmonary Rehab Registry. All of your information will be treated with the utmost sensitivity and care. The AACVPR Pulmonary Rehab Registry application is intended for professionals involved in Cardiovascular and Pulmonary Rehabilitation and collects information that you, the user, provide through online forms/applications, such as de-identified clinical information, etc. The information you provide is kept confidential and is not available for public use. Some information may be used in an aggregate format; however, no direct one-to-one comparisons are available. Please refer to the AACVPR Outpatient Pulmonary Rehabilitation Registry Protocol and Participation Agreement for details regarding confidentiality, safeguards, and security.