ASCEND®

HEALTH INFORMATION TECHNOLOGY

ASCEND CV® Reporting Quick Start Guide

Version 2.6

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About this Guide

This Guide introduces the ASCEND CV® reporting interface, including:

- The various user interfaces and controls (displays, forms, buttons).
- The steps in the reporting workflow (opening a study, marking it as ready to be read, recording findings, signing the final report).
- The management of data imported from Hospital Information Systems (HIS) and clinical devices (ultrasound scanners, physiologic devices).

In addition to reviewing this Guide, you should review your reporting module's *Quick Start Guide*

Echo Reporting Quick Start Guide
Vascular Reporting Quick Start Guide
Nuclear Reporting Quick Start Guide
Cath Reporting Quick Start Guide
EP Reporting Quick Start Guide

There are also video training libraries available on ASCEND HIT's ASCEND CV training web site covering the following reporting modules:

Cardiac Catheterization
CT Angiography
Echocardiography
Electrophysiology
Nuclear Cardiology
Vascular

These combined resources describe and demonstrate in detail how to use the clinical reporting interface to prepare a clinical report.

Finally, you should consult with your Lab Administrator regarding documentation for the following user interfaces:

- The worklist interface that you will use to select a study for reporting.
- The image review interface that you will use to review the images associated with a study.

Using ASCEND CV

ASCEND CV software is a valuable tool but is not a substitute for good clinical judgment. The physician signing a study assumes complete responsibility for ensuring the accuracy and completeness of a clinical report generated using the ASCEND CV software, including reviewing the report before signing it.

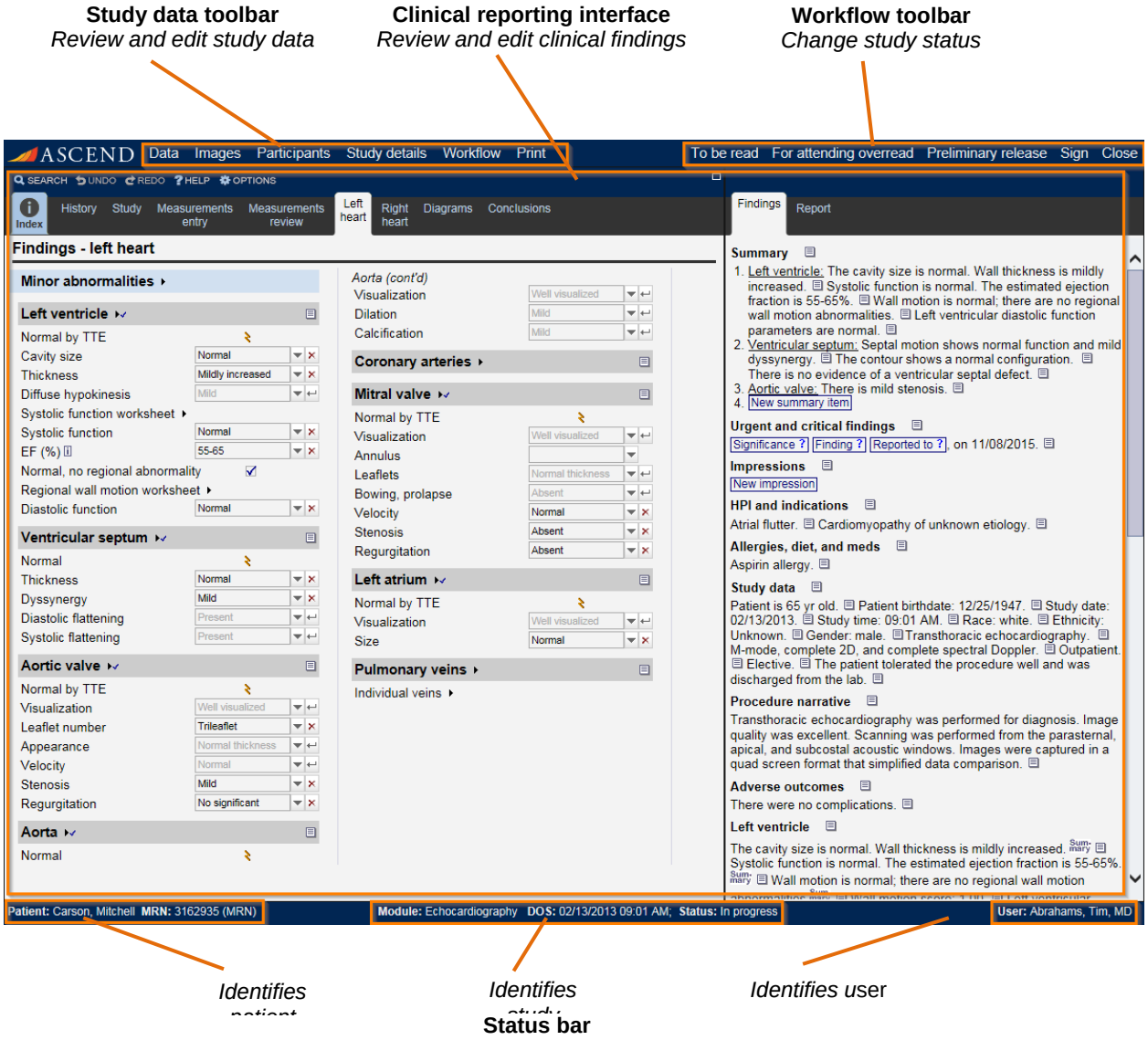
Opening a study for reporting

The **worklist interface** lists the studies available for reporting. Depending on your system configuration, the worklist interface may be provided by your Hospital Information System (HIS), by your Electronic Medical Record system (EMR), or by ASCEND CV.

The exact steps for opening a study will vary depending on the specific worklist interface. Consult with your Lab Administrator for documentation regarding your system's worklist interface. The ASCEND CV worklist interface is described in *Appendix A* of this Guide.

ASCEND CV Reporting Interface

Opening a study from the worklist displays the **ASCEND CV reporting interface**.



Status Bar

The **status bar** at the bottom of the ASCEND CV reporting interface lists key information about the study:

- *Patient*: Patient name and medical record number (MRN)
- *Study*: Reporting module (Echo, Vascular, Cath, etc.), date of service (DOS), and study status
- *User*: User name

Clinical Reporting Interface

The **clinical reporting interface** occupies the center of the ASCEND CV reporting interface. The tabs on the left side are used to enter data and the tabs on the right side are used to review the findings in the clinical report.

The data entry tabs, their contents, and the resulting reporting process will vary depending on the reporting module. The reporting module *Quick Start Guides* and *Video Training Library* describe how to use the clinical reporting interface to prepare clinical reports.

Study Data Toolbar

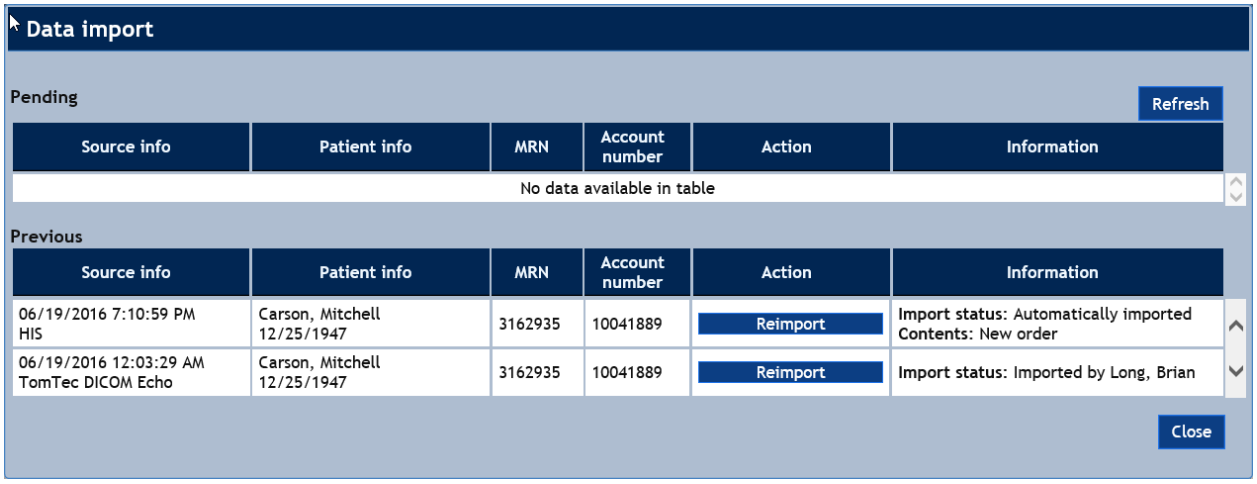
The **study data toolbar** is used to review and edit data related to the study.

Data button

Clicking the **Data** button displays the status of data imported from the Hospital Information System (HIS) and clinical devices, including:

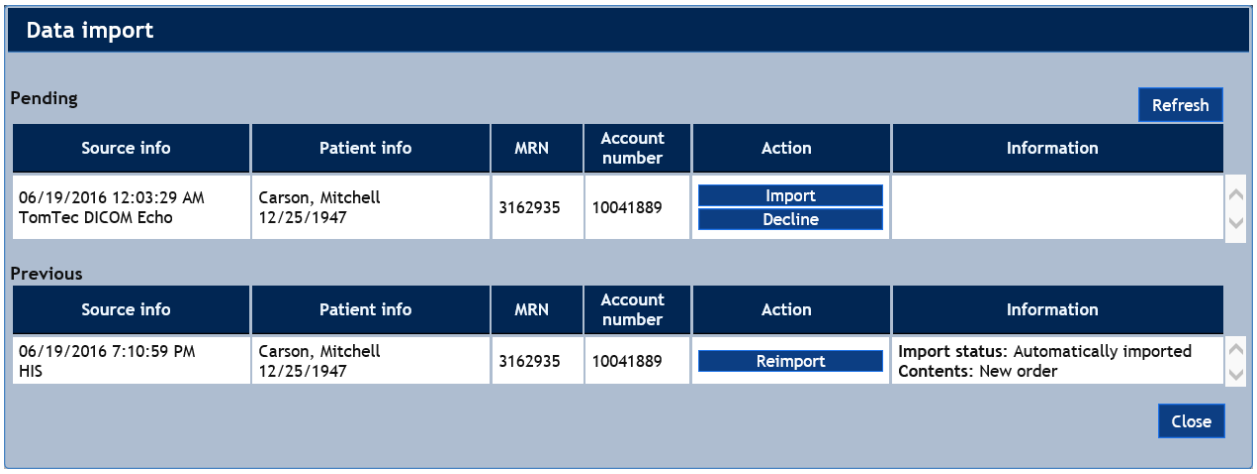
- **Pending**: Data awaiting import into the study
- **Previous***:* Data that has been imported into the study.

In the example below, an order from the HIS and a set of measurements from an ultrasound machine (TomTec DICOM Echo) have been automatically imported.



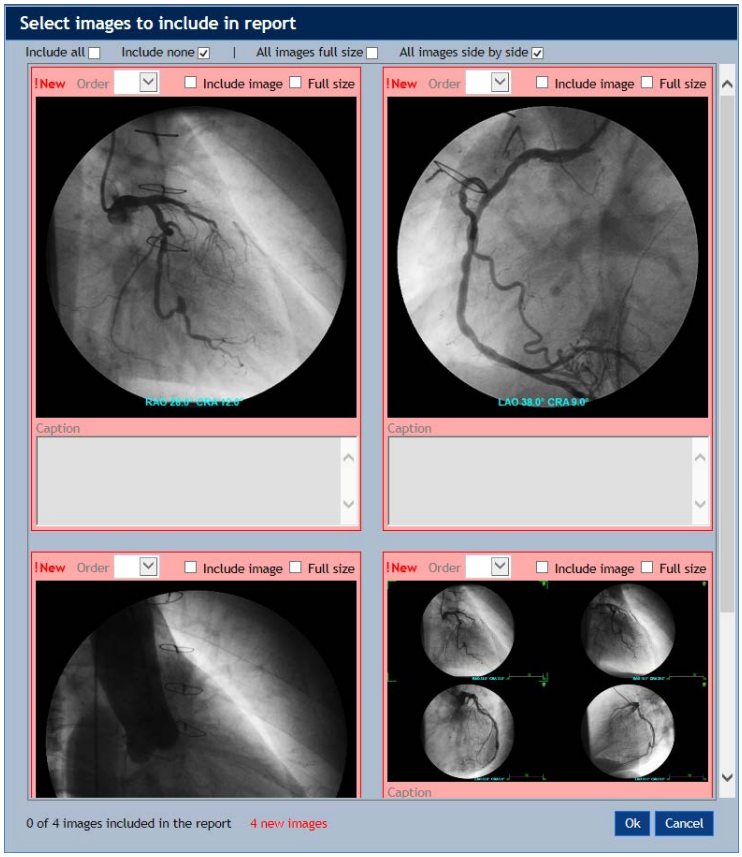
If the **Data** button is marked with a red exclamation mark ! Data, then the study has pending data that has not yet been imported. The example below shows a pending import from an ultrasound machine (TomTec DICOM Echo). You should review all pending imports and use the **Import** button to

import the data or the **Decline** button to decline import (if, for instance, the data was sent by mistake).

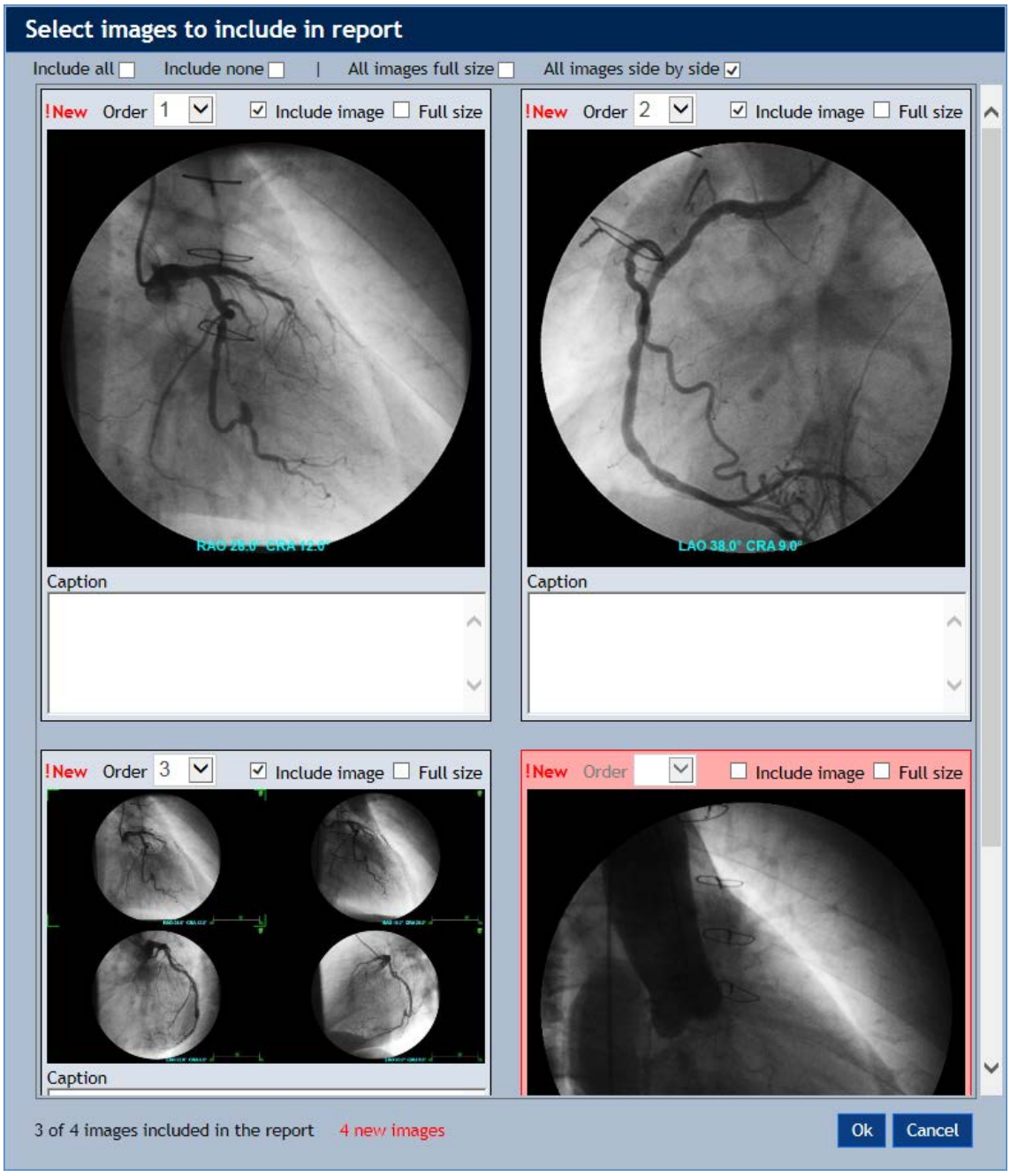


Images button

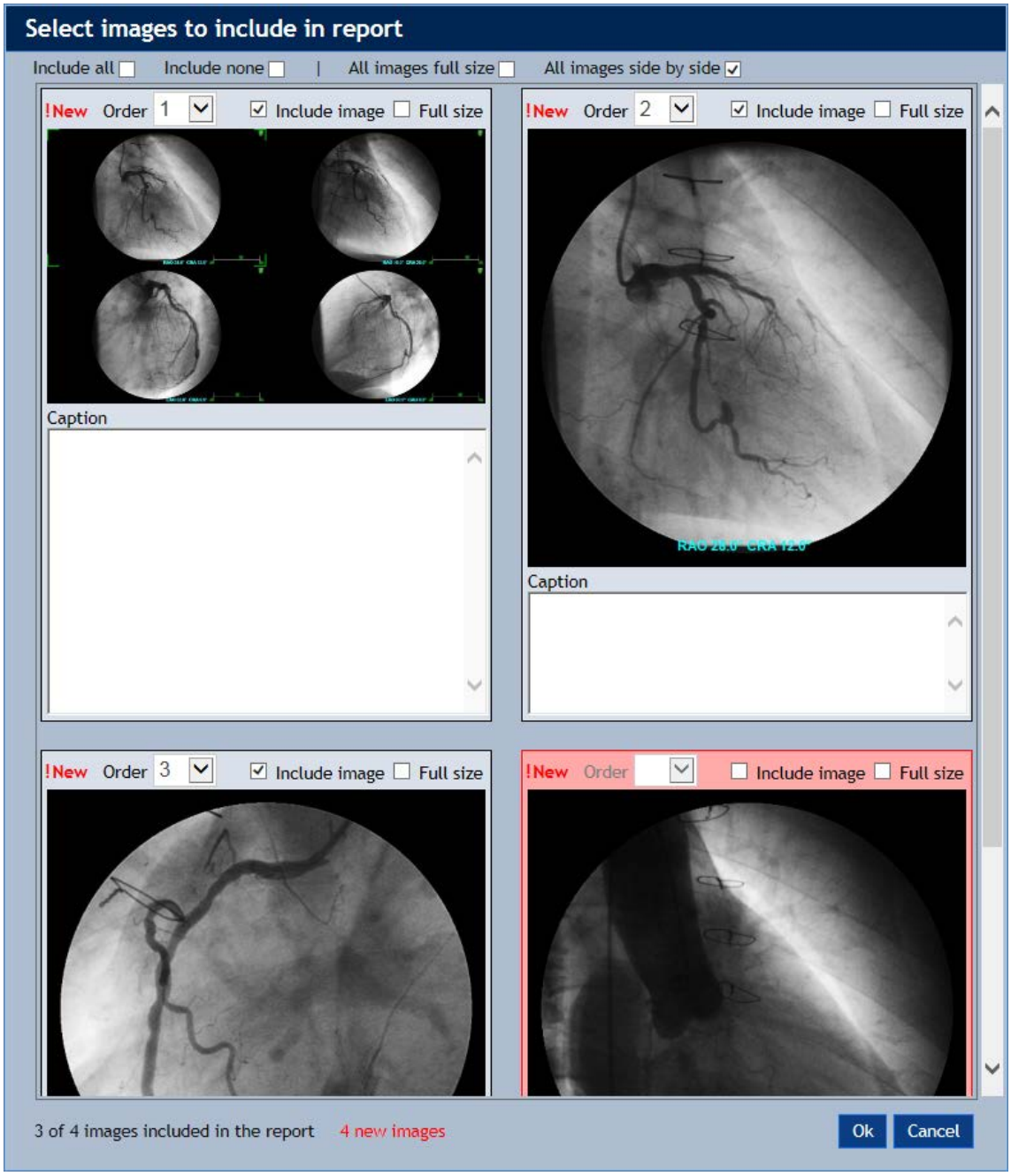
If there are new DICOM secondary capture images available for selective inclusion in the report the Images button will display a red exclamation mark ! Images. Clicking the **Images** button displays the set of DICOM secondary-capture images associated with a study. The example below shows a set of secondary-capture images from a Cath study. Recently-added images are displayed within a red frame and include a **!New** marker to make them easy to locate.



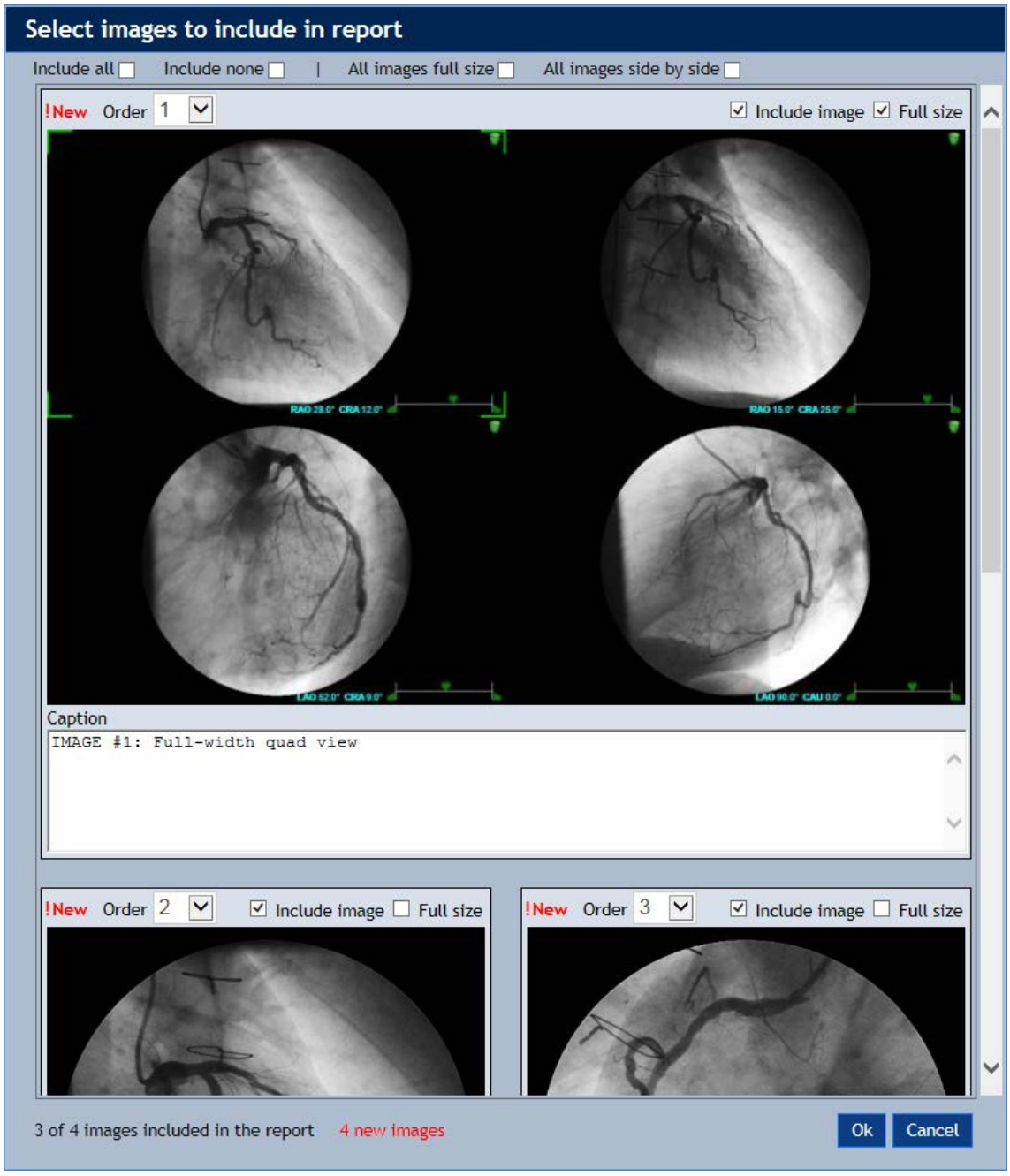
You select the images you want to include on the report using the **Include all**, **Include none**, and **Include image** checkboxes.



By default, images will be displayed on the report in the order you select them. You can use the **Order** field to adjust the order. As you change the values in the Order field, the images will be rearranged to reflect your specified ordering.



You can specify the image sizes using the **All images full size**, **All images side by side**, and **Full size** checkboxes and can add captions to the images using the **Caption** text boxes.



The display of the images in the report matches their display in the **Images** panel.

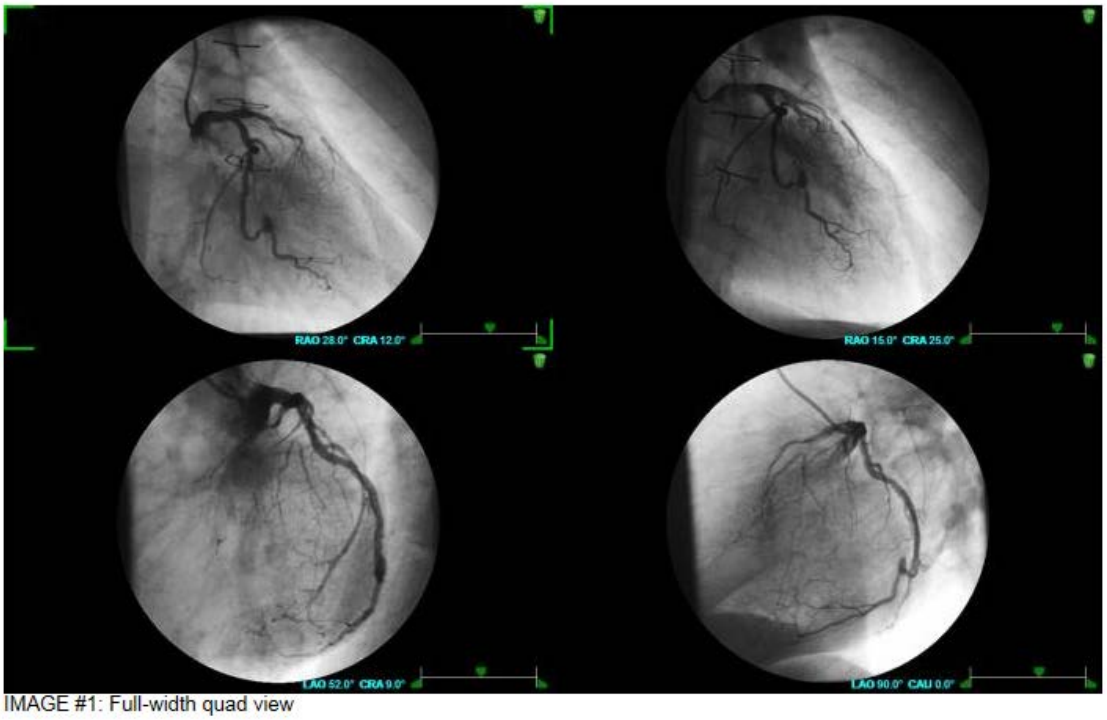


IMAGE #1: Full-width quad view

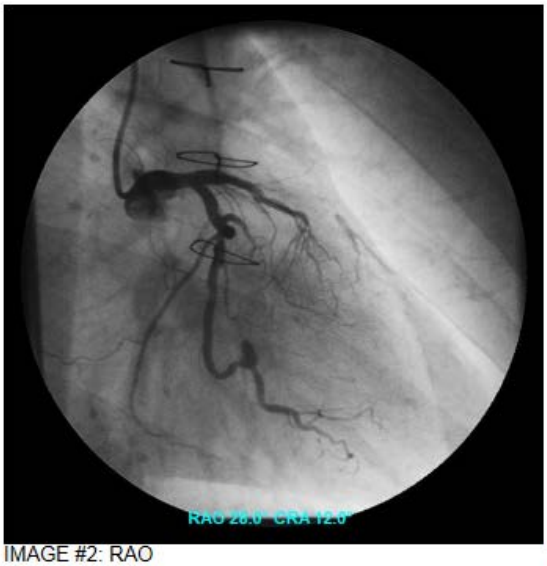


IMAGE #2: RAO

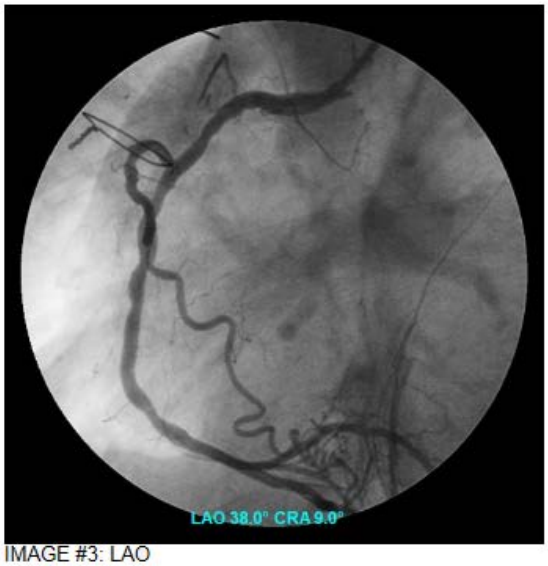
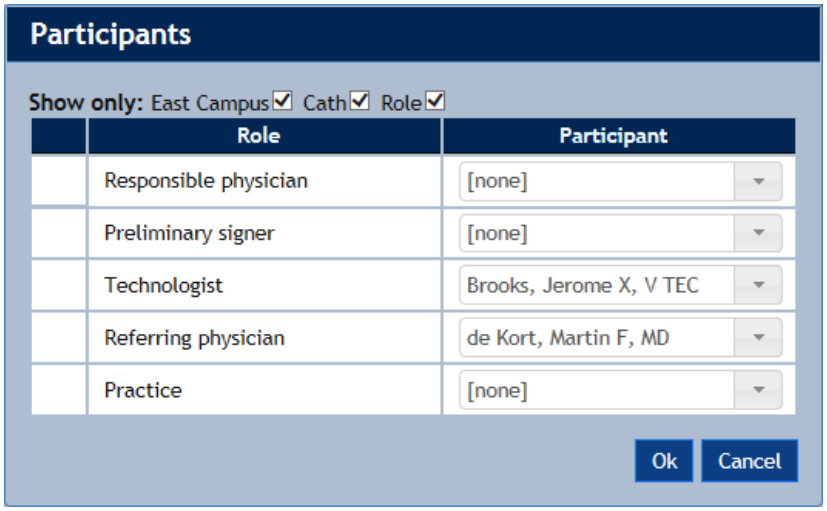


IMAGE #3: LAO

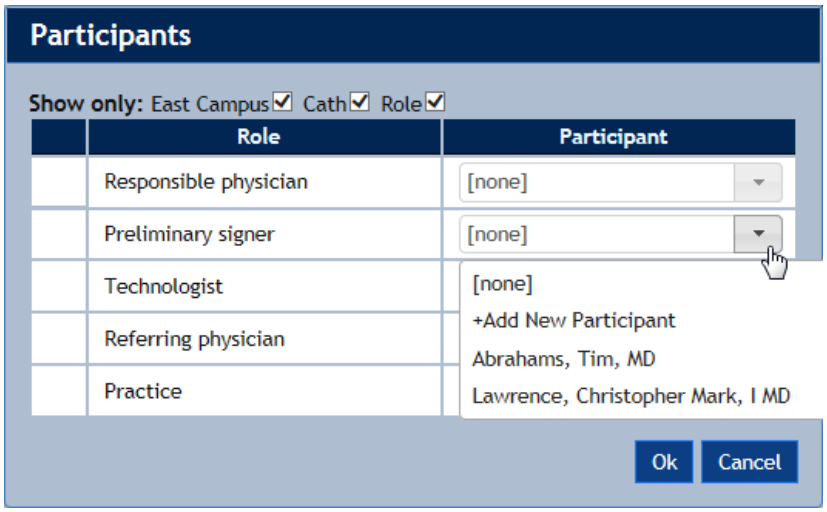
Participants button

Clicking the **Participants** button displays the set of participant roles associated with the study, including physicians, technicians, and other staff, as well as the practice of the *Responsible physician* (the physician who will sign the report).



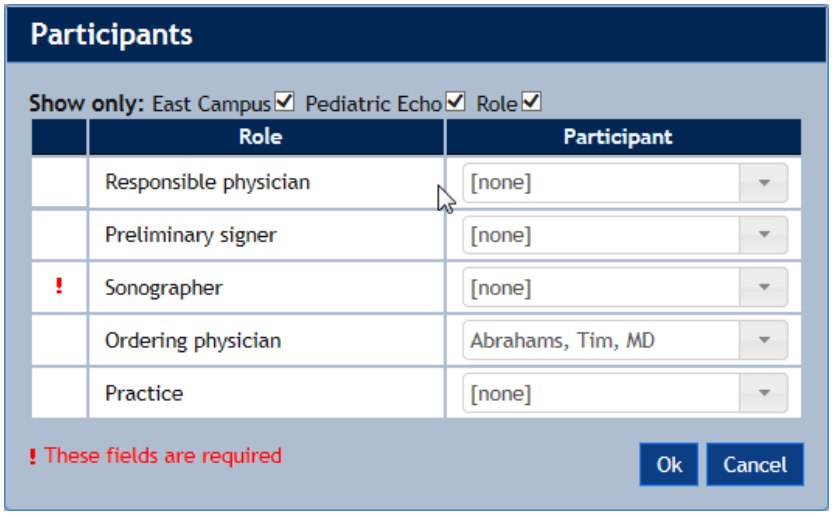
You can use each role's **Participant list** to

- Remove a participant by selecting **[none]** from the list.
- Add a new participant by selecting **+Add New Participant** from the list and entering the new participant's name, ID, address, email, phone number, etc. Note that the added participant will only be used in this study; the participant will not be displayed in the participant lists for other studies.
- Select one of participants in the list.



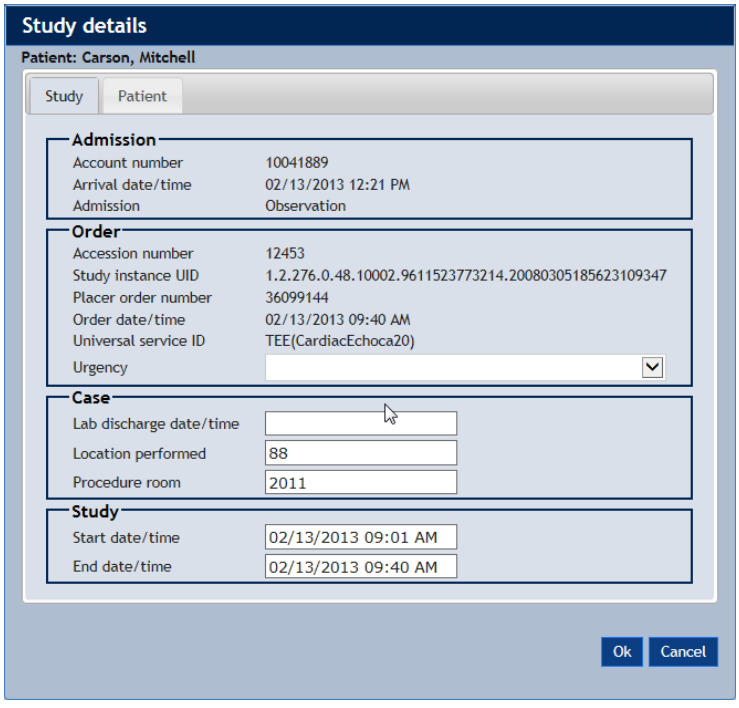
You can filter the participant list by typing part of a name into the text box (e.g., "Law" in the example above). Selecting (checking) the **Facility**, **Reporting module**, and **Role** checkboxes will filter the participant list to include only those participants who are associated with the specified facility, reporting module, and role.

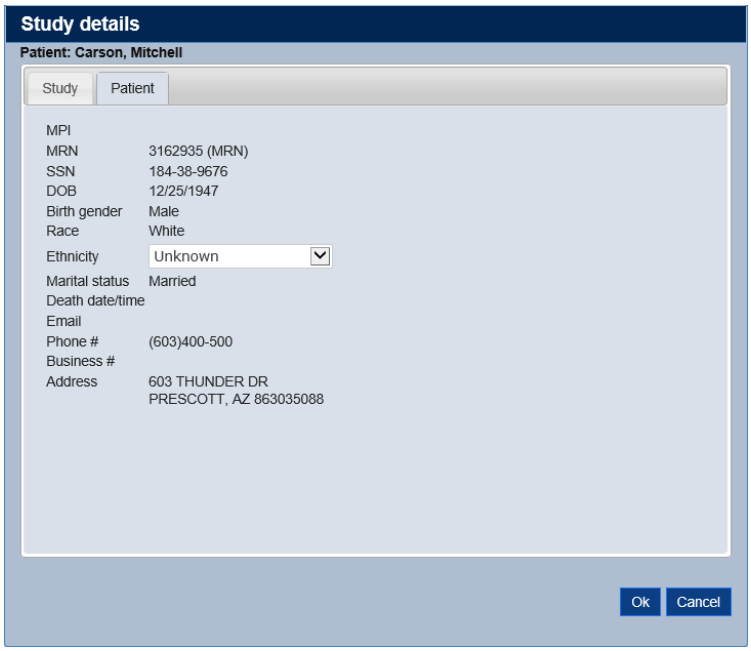
If the **Participant** button is marked with a red **!**, then there are required participants that have not been specified. The required participant roles are marked with a red **!** (Sonographer, in the example below). All required participants should be specified before a report is signed.



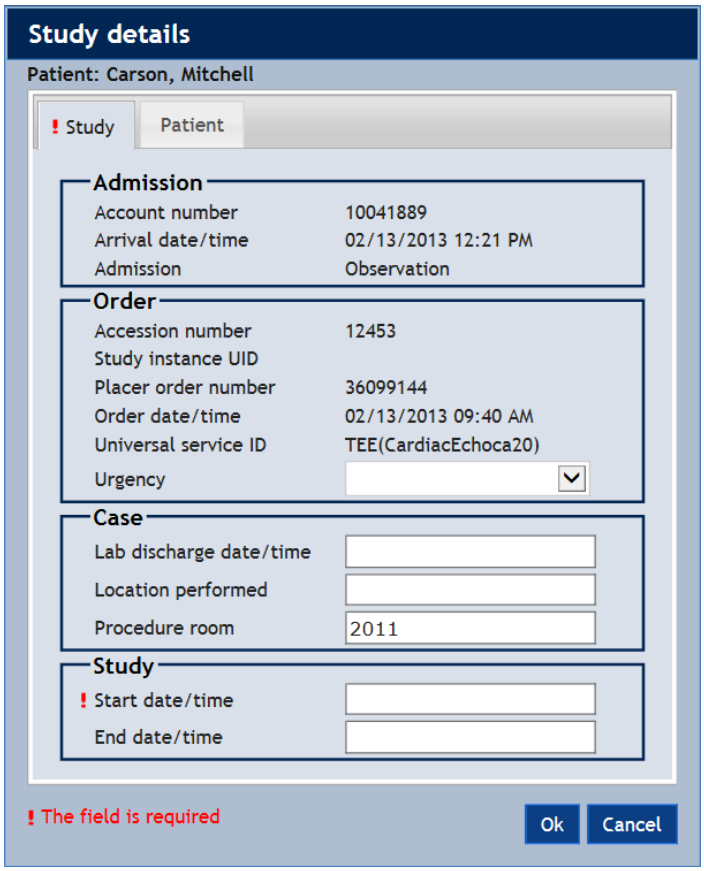
Study details button

Clicking the **Study details** button displays detailed information regarding the study and the patient. The fields with white data entry boxes are editable. The remaining information is presented for review only.



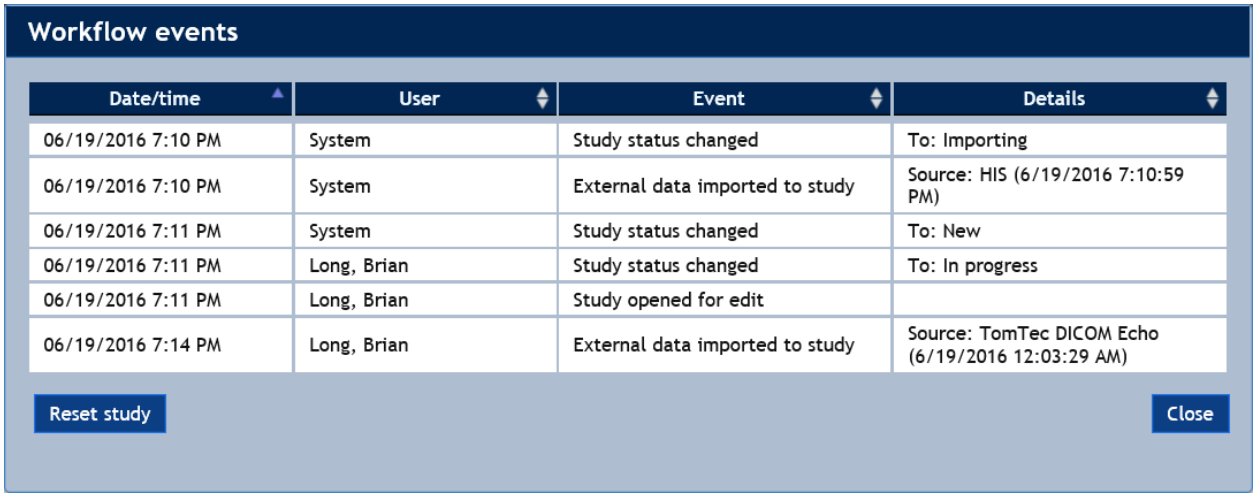


If the **Study details** button is marked with a red **!**, then there are required study details that have not been specified. The required fields are marked with a red **!** (study start date/time, in the example below). All required study detail fields should be specified before a report is signed.

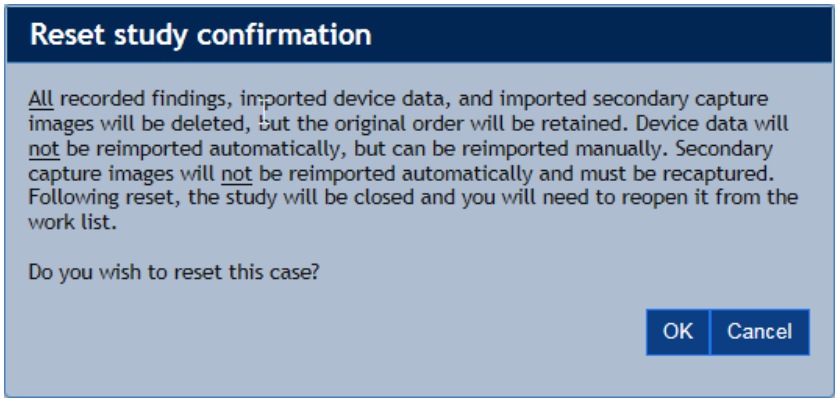


Workflow button

Clicking the **Workflow** button displays a list of events related to the study – including study creation, data imports, editing sessions, and study status changes.

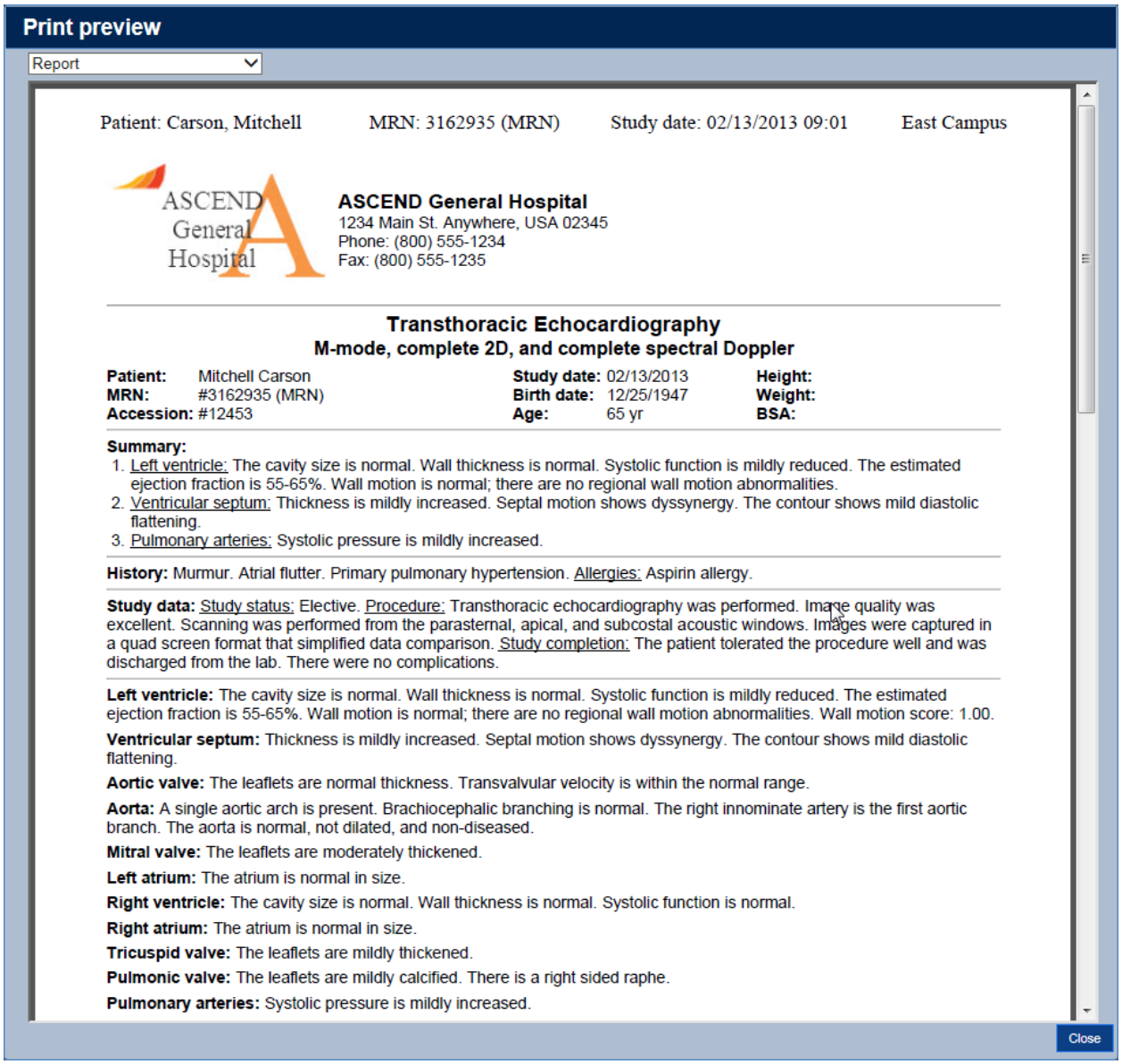


In rare instances, you may need to use the **Reset study** button to return a study back to its initial state immediately after it was created in response to an order from the HIS. Note that resetting a study deletes all data imported from clinical devices, including images, and all recorded findings. When a study is reset all secondary capture images must be recaptured or retransmitted from the image viewer. You might reset a study, for instance, if an incomplete/incorrect data import was done or if a large number of incorrect findings were inadvertently recorded in a previous reporting session. Note that the clinical reporting interface's **Undo** button can be used to remove incorrect findings immediately after they are added.



Print button

Clicking the **Print** button displays the reports associated with the study using the PDF viewer installed on your system (Adobe Reader® in the example below). Use the **Report selector** to choose the report to preview and click your PDF viewer's **Print** button to print the report.



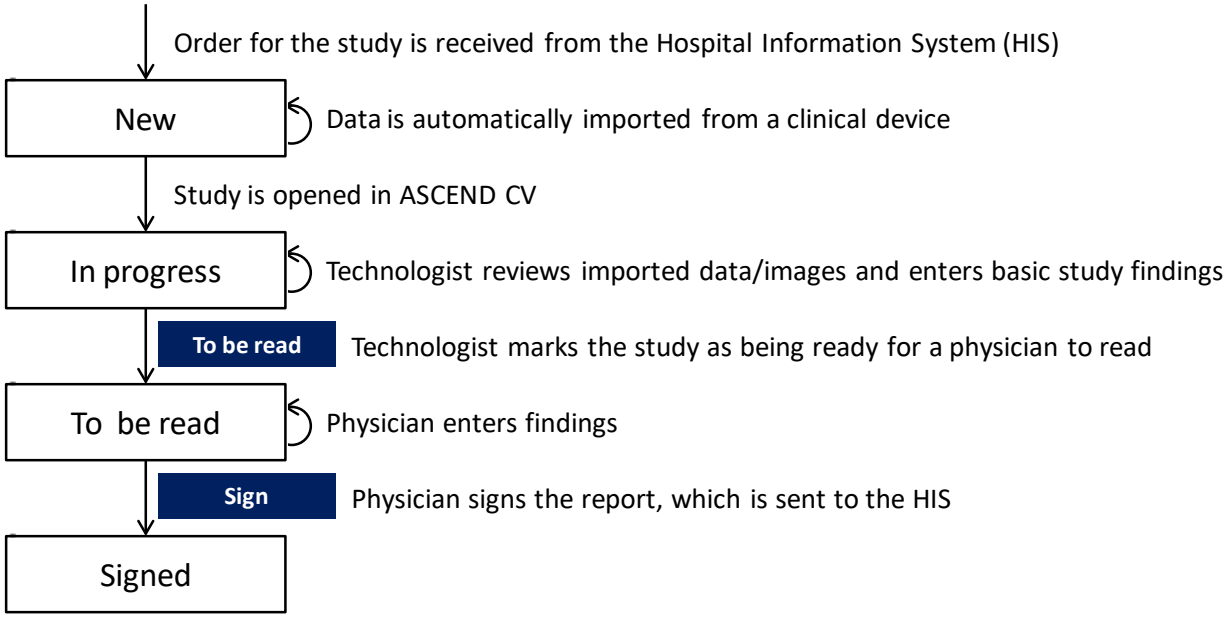
Workflow Toolbar

The **Workflow Toolbar** is used to move a study through the reporting workflow.

ASCEND CV can be configured to support a variety of workflows. In the following sections, we will review several of the more common workflows. Consult with your Lab Administrator regarding the reporting workflows used at your facility.

Basic Reporting Workflow

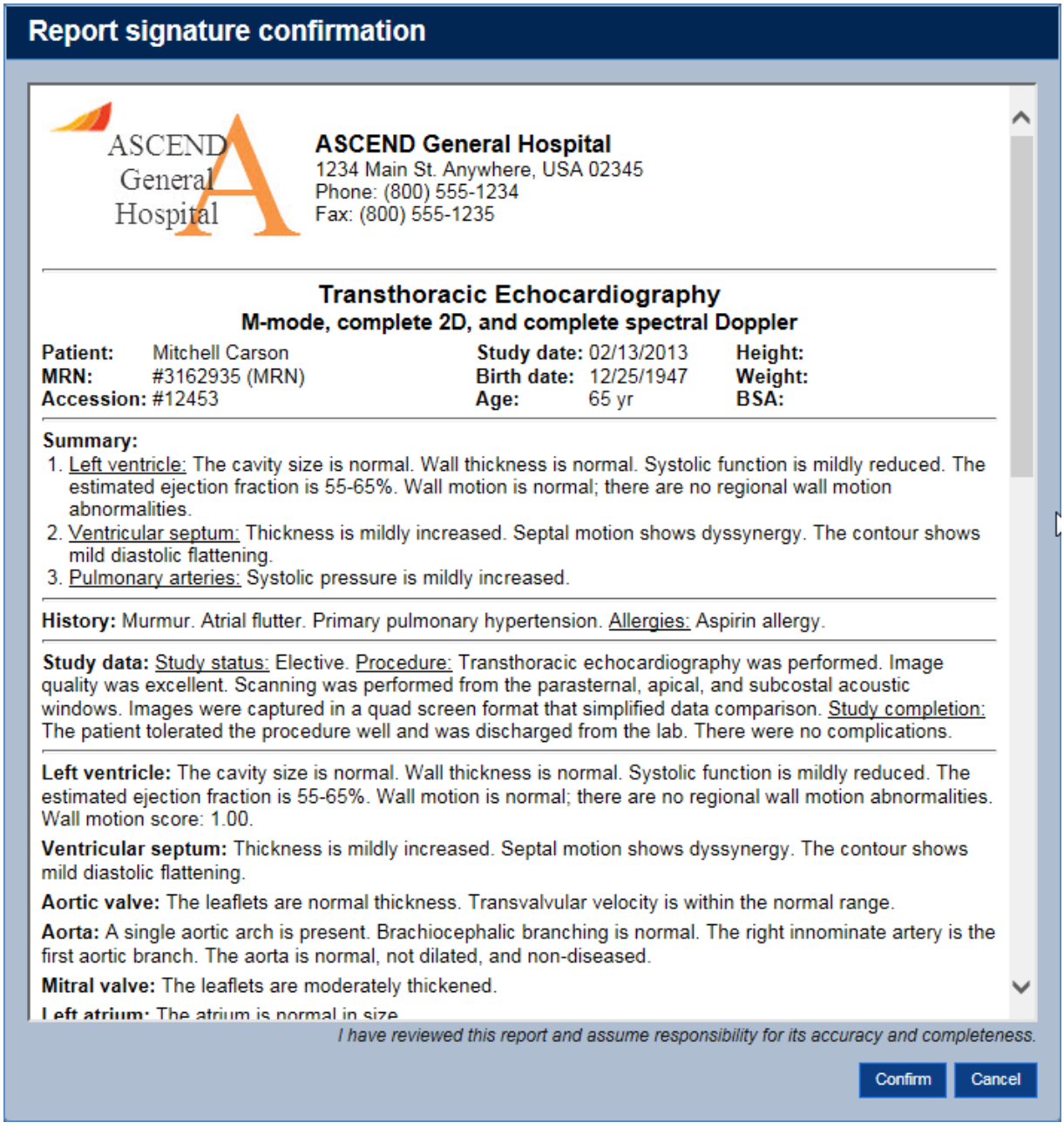
The basic reporting workflow used in ASCEND CV is shown below. The boxes represent the statuses that a study passes through as the report is completed by the technologist and physician. The straight arrows represent actions that move the study from one status to the next. The loops indicate actions that change the study's data or findings, while keeping the study status unchanged.



Clicking the **To be read** button in the Workflow Toolbar moves the study from the status *'In progress'* to the status *'To be read'*, indicating to reading physicians that the study is ready to be read.

Clicking the **Close** button closes the ASCEND CV reporting interface. Note that recorded data is automatically saved as it is recorded; no explicit *Save* action is required.

Clicking the **Sign** button displays the completed report and asks for confirmation of signing. Clicking the **Confirm** button completes the signing process, including moving the study from the status *'To be read'* to the status *'Signed'*, sending the signed report to the HIS, and closing the ASCEND CV reporting interface.



The confirmation dialog will display warning notices above the report if the study has

- Pending (unprocessed) device data that has not been imported or declined. These are listed in the **Pending** table on the ! Data form
- Required participants that have not been specified. These are marked with a red ! on the ! Participants form.

- Required study details that have not been specified. These are marked with a red **!** on the **! Study details** form.
- Required clinical findings that have not been recorded. These are marked with a red **!** in the findings/report viewer.
- Pending (unprocessed) secondary-capture images that have not been selected or declined. These are listed on the **! Image** form.

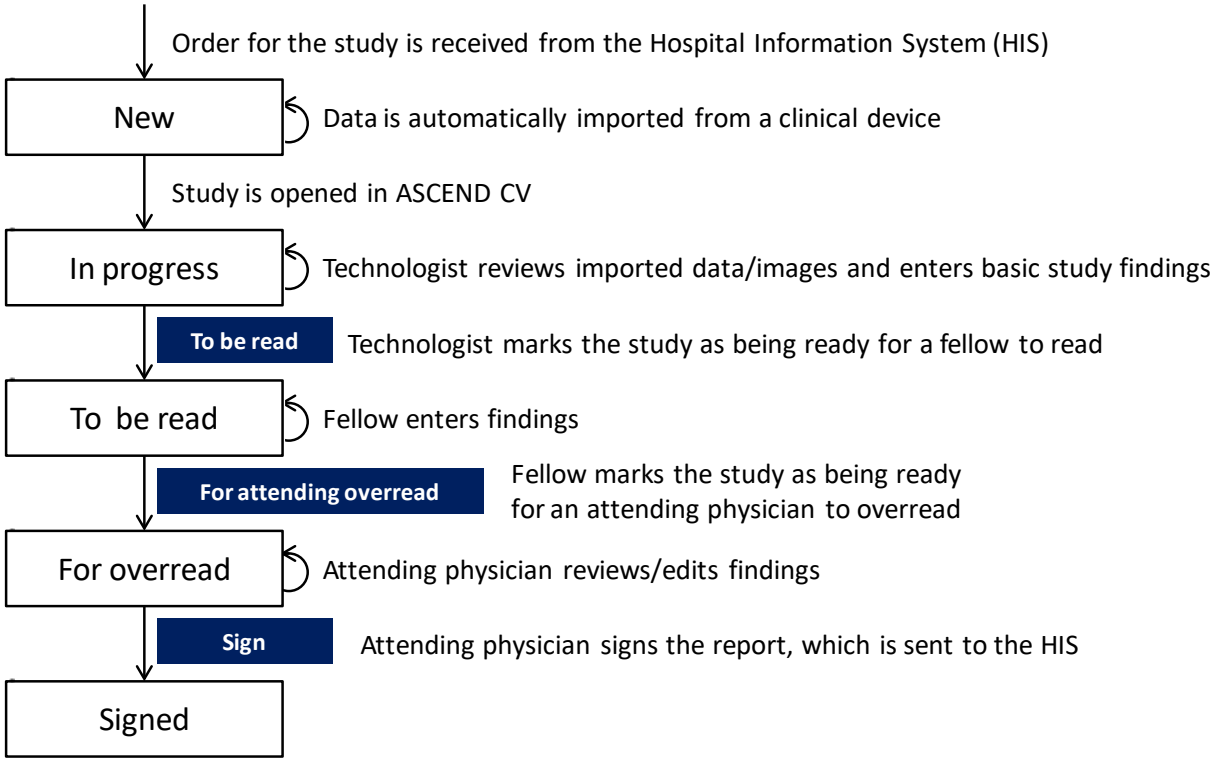
In addition, a precautionary notice will be displayed if the physician signing the study is different from the *Responsible physician* assigned to the study or is not a member of the practice assigned to the study.

Your system can be configured by your Lab administrator to

- Only display the confirmation dialog when such issues exist (in the absence of such issues, the report will be signed without confirmation).
- Require you to resolve some or all such issues before confirming signing of a study.
- Never display the confirmation dialog.

Overread Workflow

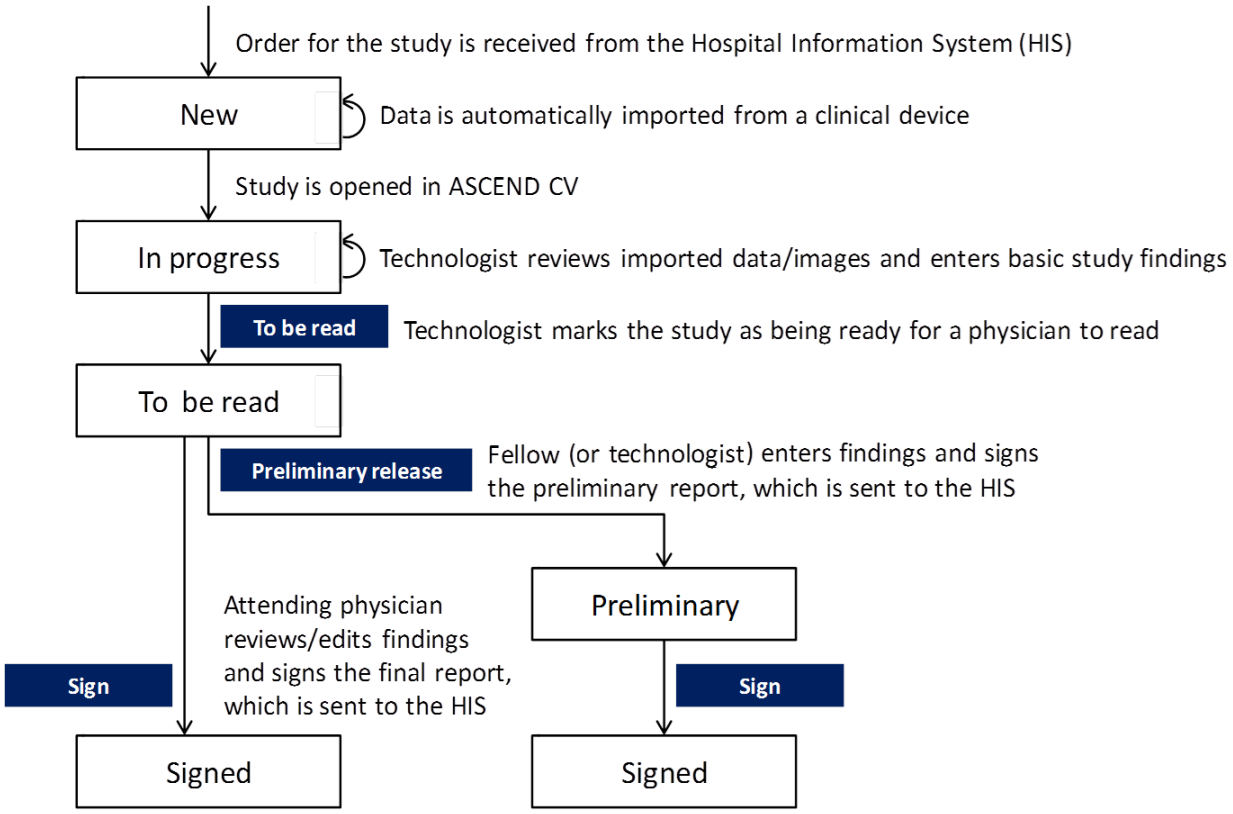
ASCEND CV can be configured to support a workflow that includes Cardiology fellows. In this workflow, a fellow creates an initial report and clicks the **For attending overread** button to move the study from the status *'To be read'* to the status *'For overread'*. An attending physician reviews/edits the report and signs it.



Preliminary Report Workflow

ASCEND CV can be configured to support a workflow that supports preliminary reports. In this workflow, a fellow (or technologist) can create a preliminary report by clicking the **Preliminary release** button to sign the preliminary report and send it to the HIS, thereby moving the study from the status *'To be read'* to the status *'Preliminary'* (the right branch in the figure below). An attending physician then reviews/edits the report and signs it.

If a preliminary report was not created, the study remains in the status *'To be read'* and the attending physician edits the findings and signs the report (the left branch in the figure below).



It is possible for an ASCEND CV system administrator to customize the preliminary banner and also add optional additional text at the very top of a preliminary report, if the default banner is not sufficient. Also, custom mini-banner text can be configured for just above the preliminary report signature line.

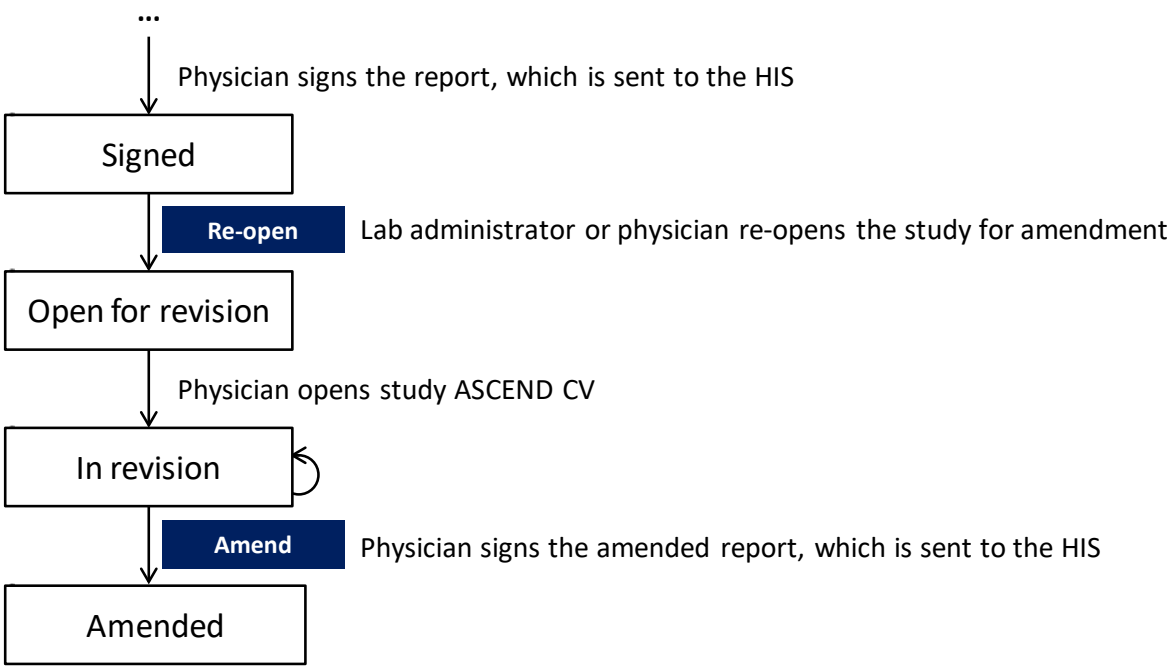
Amendment Workflow

ASCEND CV allows for the amendment of a signed report, where the amendment process can be configured to include any or all of the following:

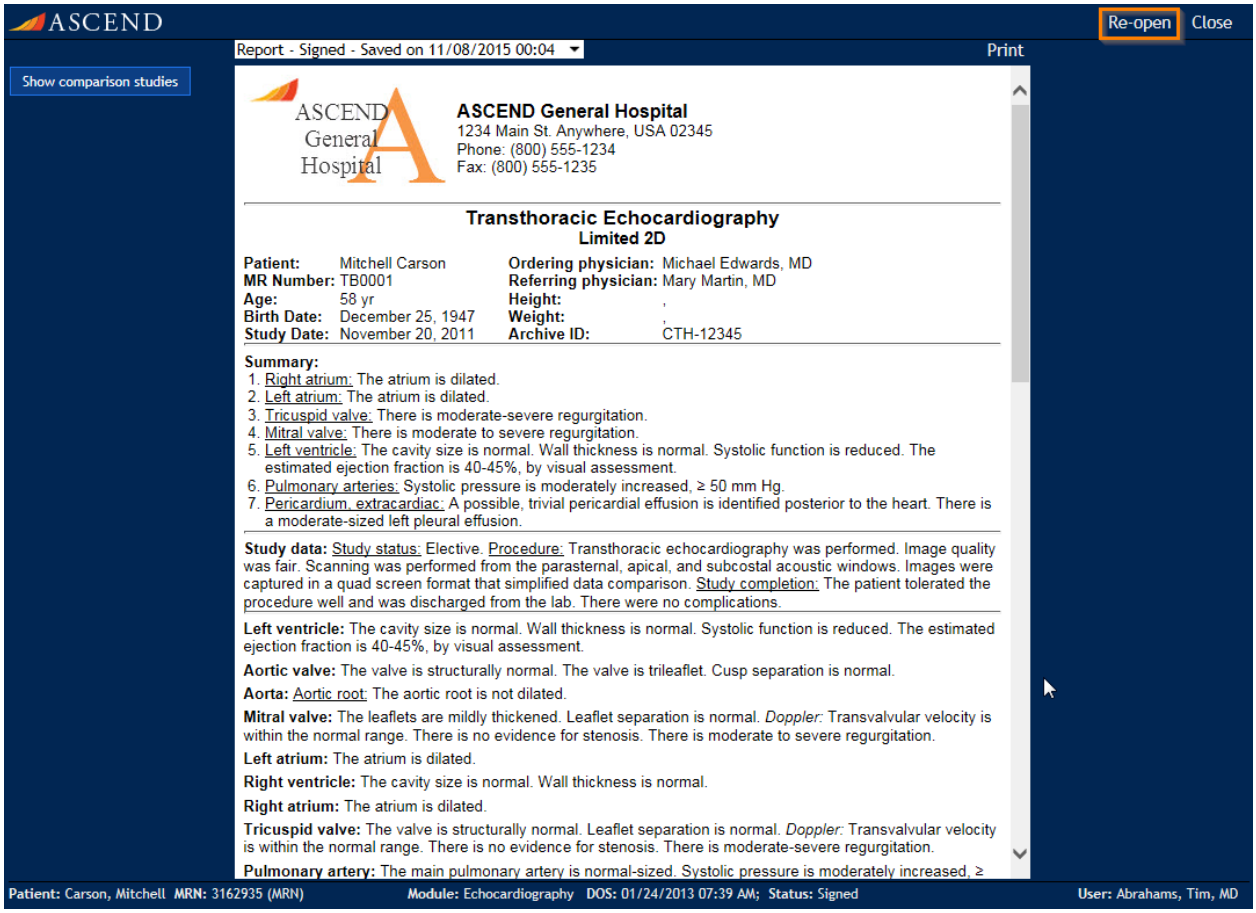
- Whether or not the amending user must enter a reason for amending the report, purely for noting in the audit log and not shown on the amended report. By default is required.
- Adding a block of text as an addendum to the report. ASCEND CV can be configured to require an addendum on every amended report. In addition, the position of the addendum within the report itself can be configured. By default is required.
- Modifying a report by adding missing findings and/or deleting incorrect findings. ASCEND CV can be configured to either permit or prevent the modification of report findings during the amendment process. By default is permitted.

The physician that signed a report is always allowed to open that same report for amendment. The ability to initiate the amendment of any type of report at one or more facilities is also granted to lab administrators.

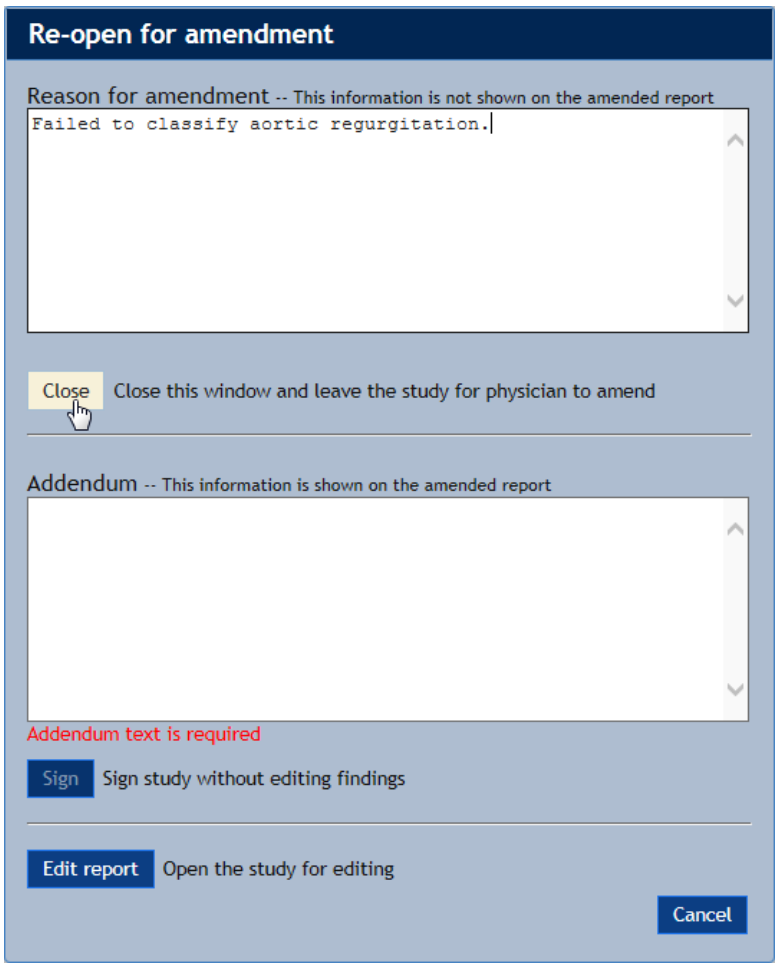
Note that ASCEND CV retains copies of all signed reports (preliminary, signed, and amended).



When a signed study is opened, ASCEND CV displays the signed report.



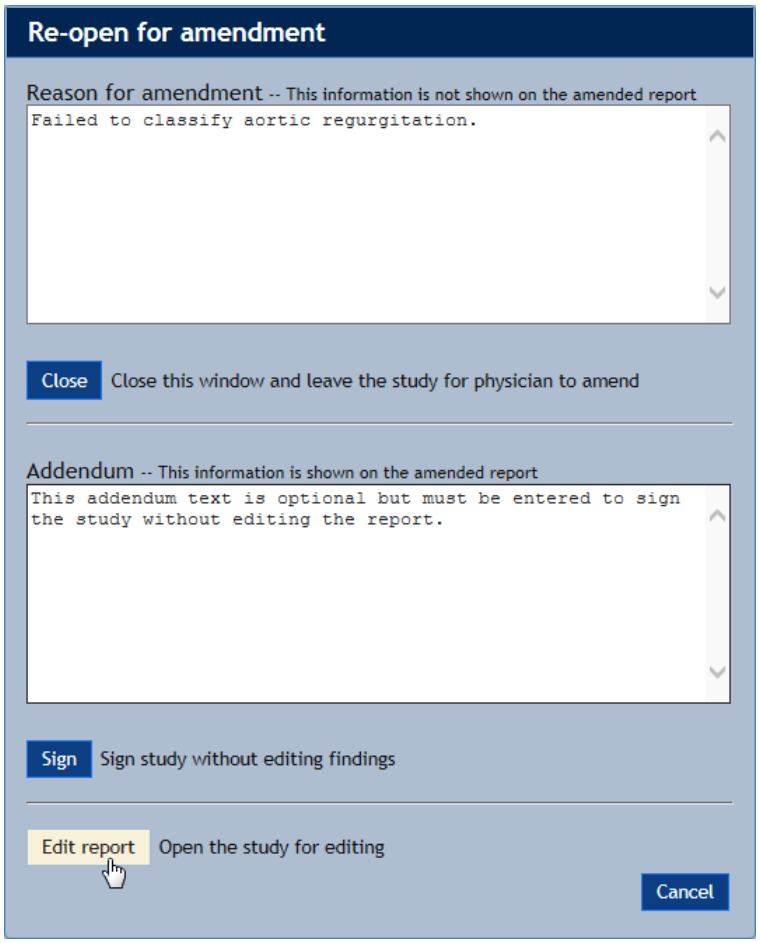
Clicking the Re-open button initiates the amendment process, requesting the reason that the study is being re-opened for amendment. Note that a reason must be provided and listed in the audit log, but is not displayed on the report.



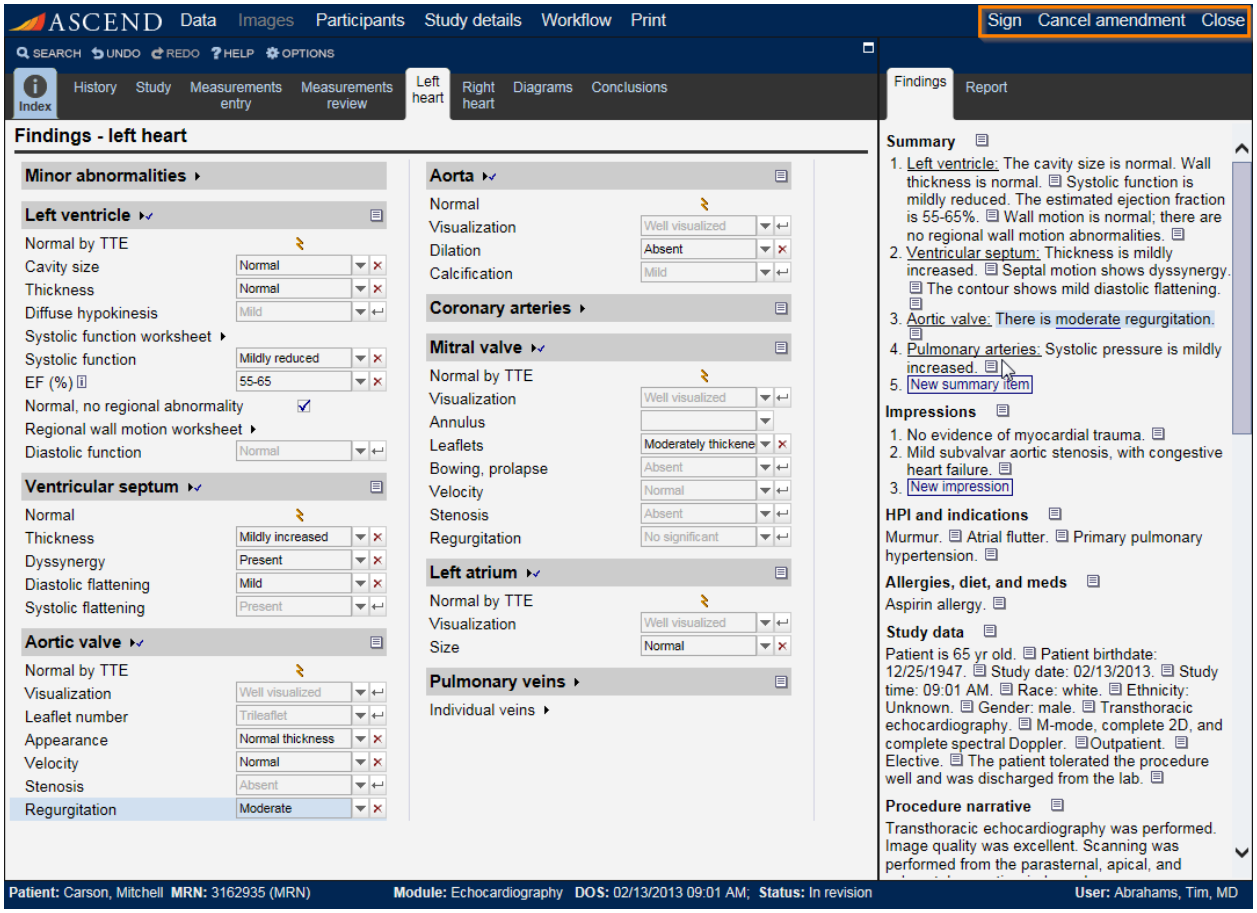
If ASCEND CV has been configured to permit editing of report findings during the amendment process, then an **Edit report** button will be displayed at the bottom of the "Re-Open for amendment" dialog (as shown above).

The Amendment dialog can also be closed, leaving the report in a state where another physician can amend it; but more often the same user that has re-opened the report for amendment will do one of the following:

- Add addendum text and re-sign the report as amended
- or further edit the report body with or without addendum text (if so configured)

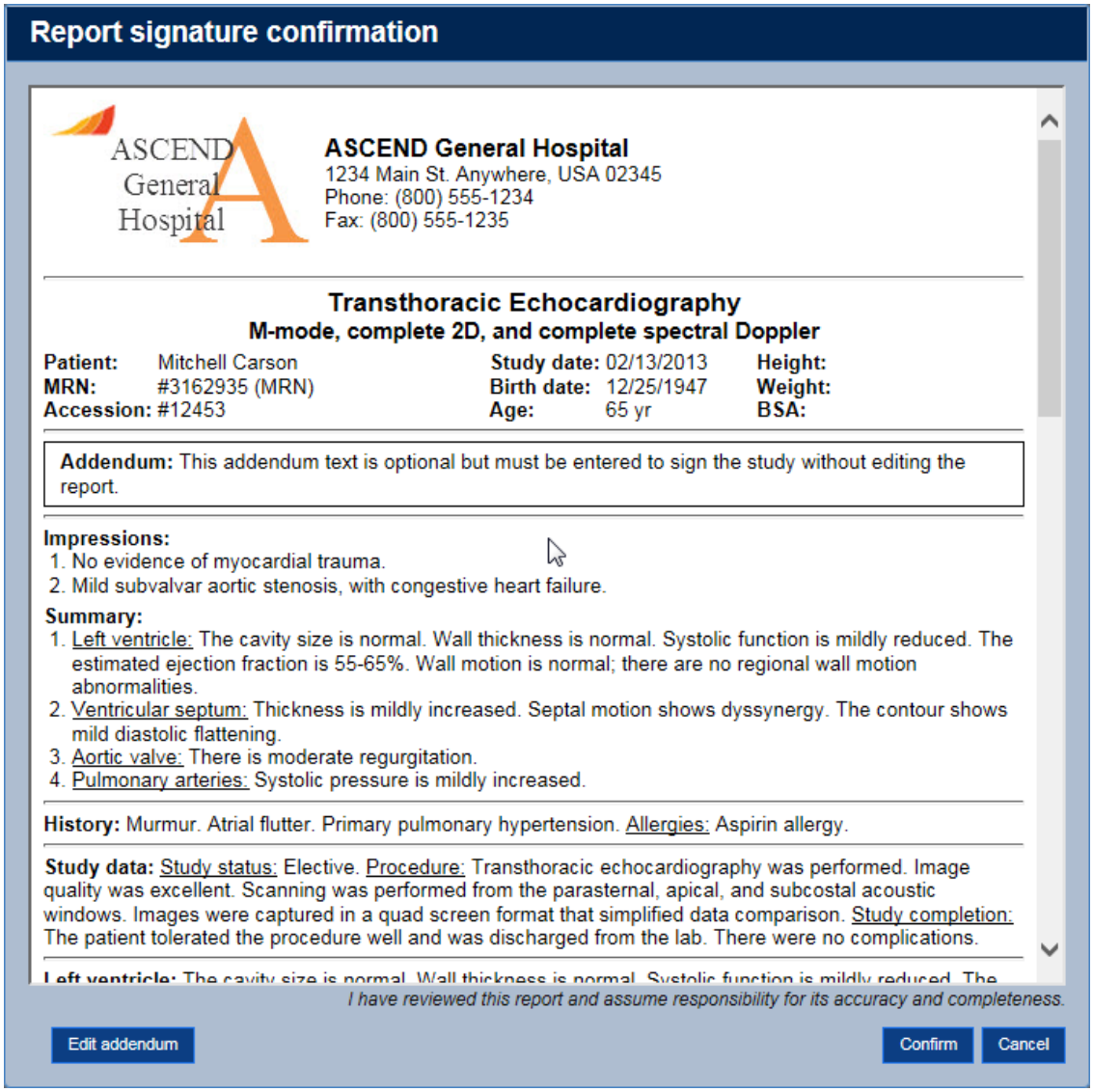


Clicking the **Edit report** button changes the study status to *'Open for revision'* and opens the report for further editing. Buttons in the top-right allow the physician to sign the amended report, cancel the amendment process, or close the report in-progress allowing the editing and amendment to be completed later:



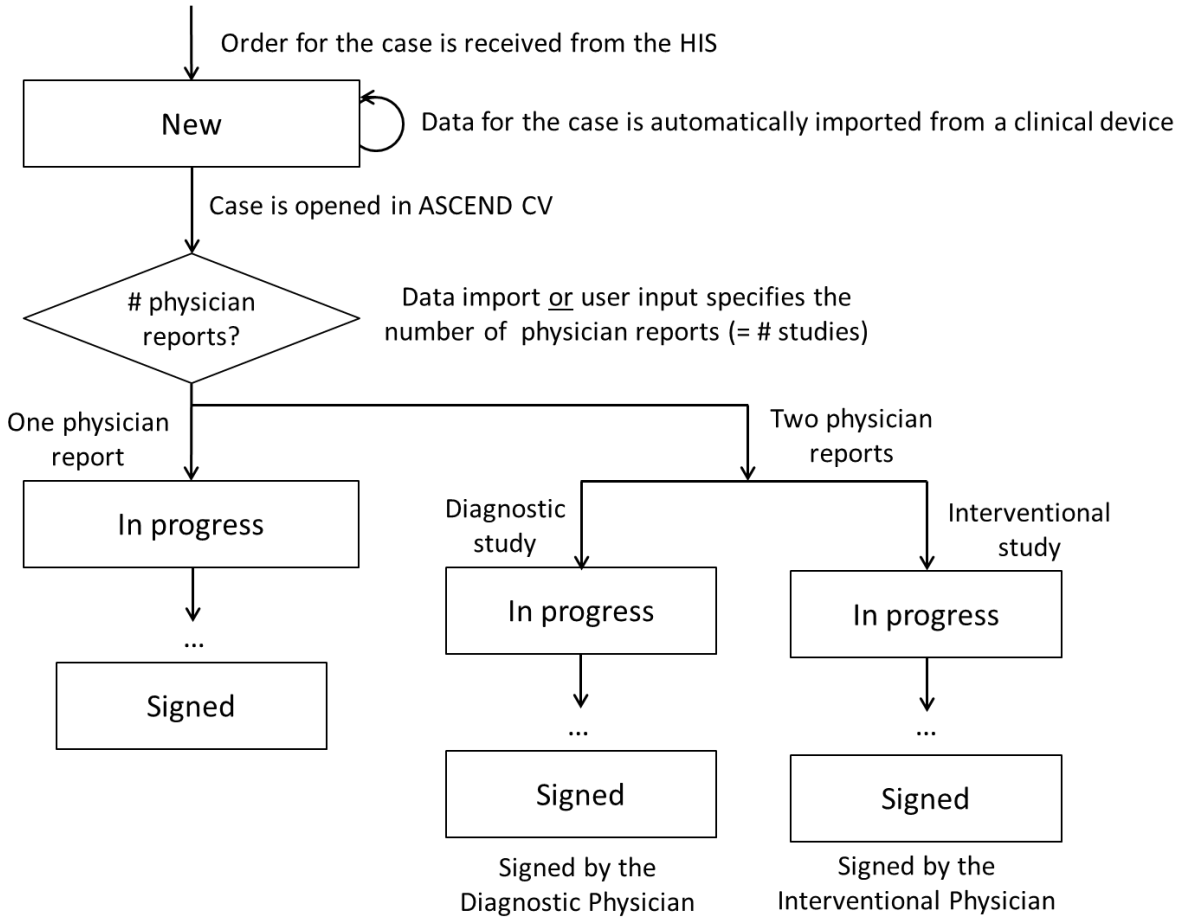
Note that when a study is re-opened to allow editing of report findings, the patient and order information will automatically be updated to reflect any changes sent by the Hospital Information System (if the patient's address has changed since the original report was signed, for instance). Confirm that the patient and order information is accurate for the study being amended and manually edit this information, if necessary.

Clicking the **Sign** button on either the **Amend report** form or the ASCEND CV reporting interface displays the amended report (note the inclusion of an addendum below) and may ask for confirmation of signing. Clicking the **Confirm** button completes the amendment process, moving the study to the status *'Amended'* and sending the amended report to the HIS.



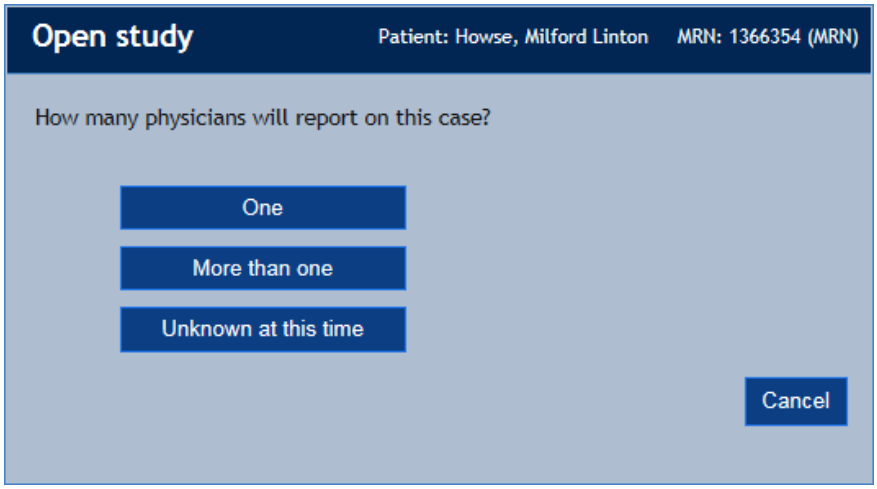
“Split case” Workflow

ASCEND CV can be configured to allow multiple physicians to report separately on a case. For example, a Cath case might consist of a diagnostic study performed by one physician followed by an interventional study performed by a different physician, where both studies share the same order (same accession number) and are recorded as a single case by the Cath lab’s physiologic monitoring system; but where each physician creates a report for their study.



Specifying the number of physician reports for a case

Usually, the number of physician reports for a case is recorded by a clinical device and passed to ASCEND CV prior to the case being opened for reporting in ASCEND CV. If the number of physician reports has not yet been specified when a case is opened in ASCEND CV, the user will be asked to specify this number.

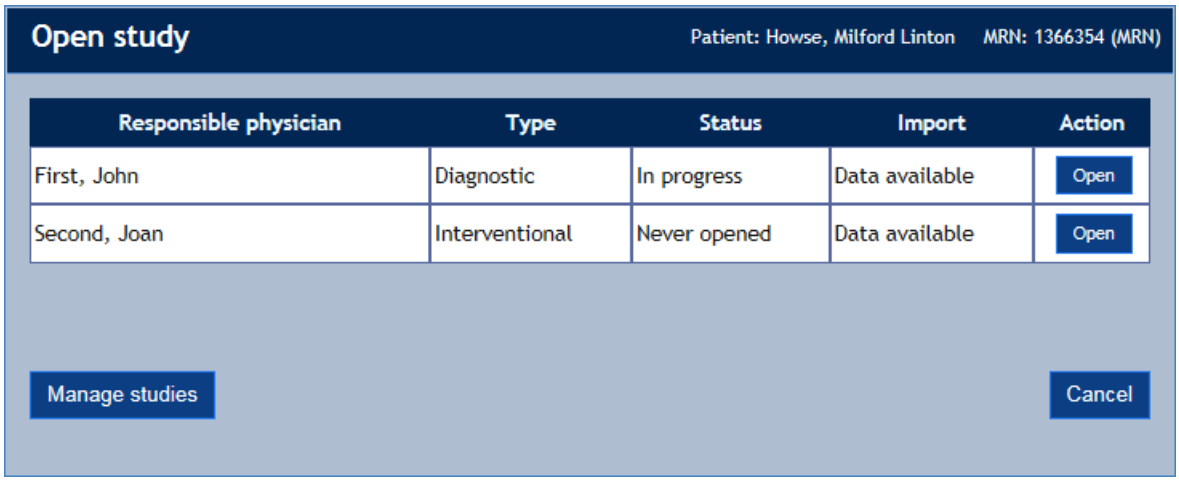


- Selecting "One" specifies that the case will have one physician report – or equivalently, one *Responsible physician*.
- Selecting "More than one" will "split" the case into two separate studies – each with its own report and *Responsible physician*.
- Selecting "Unknown" defers answering of this question until the next time a user opens the case in ASCEND CV. In the interim, reporting on the case will proceed as if there will be only one physician report.

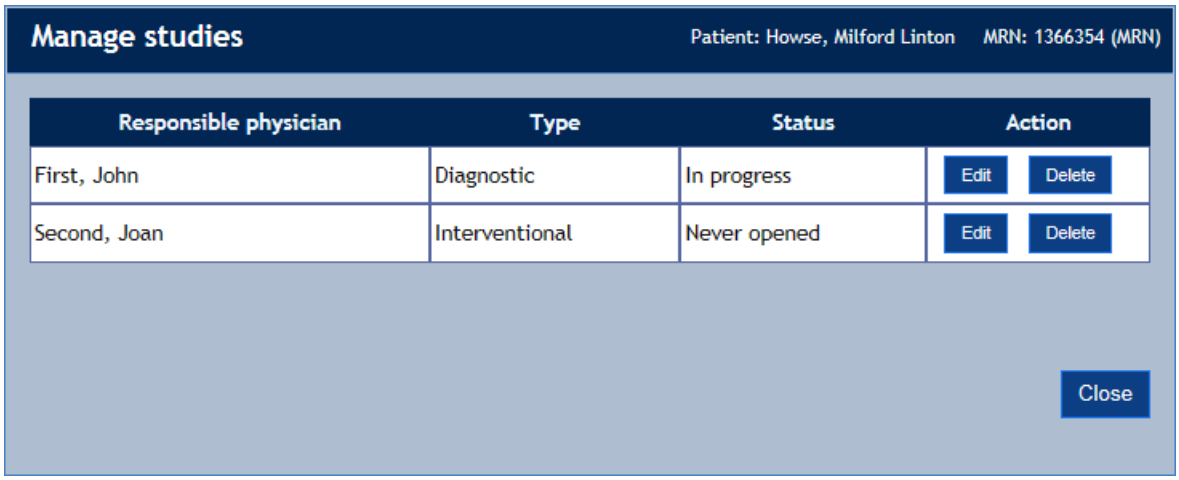
Note that the number of physician reports must be specified before any reports for the case can be signed.

Opening a study in a multi-study case

If a case has multiple studies, ASCEND CV will display the following form:



- Selecting an **Open** button opens the associated study for reporting.
- Selecting the **Manage studies** button displays a form for editing a study's *Responsible physician* or *Study type* or for deleting a study.



Note that this same form can be displayed during reporting by selecting the **Manage studies** button displayed on the **Study data toolbar**.

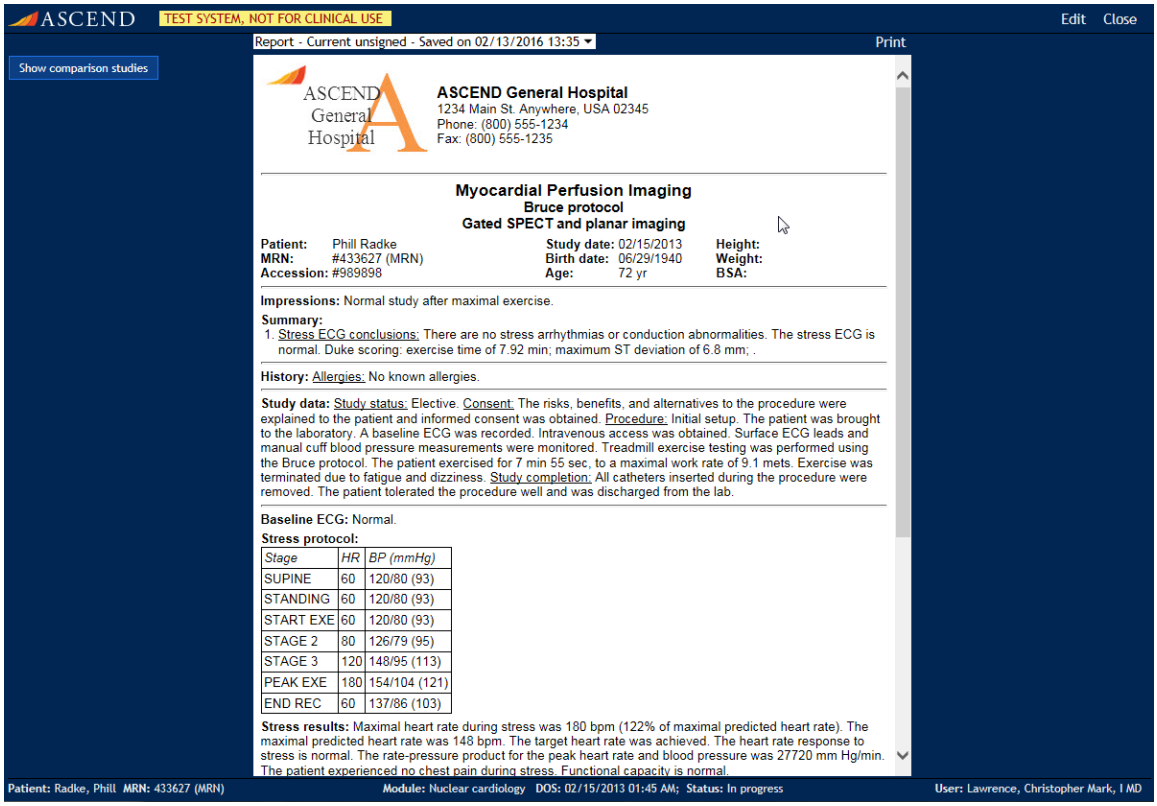
Completing a report

Each study proceeds separately through its own reporting workflow – including

- Data import; the data imported from clinical devices will be divided between the two studies as appropriate
- Data entry and review
- Signing

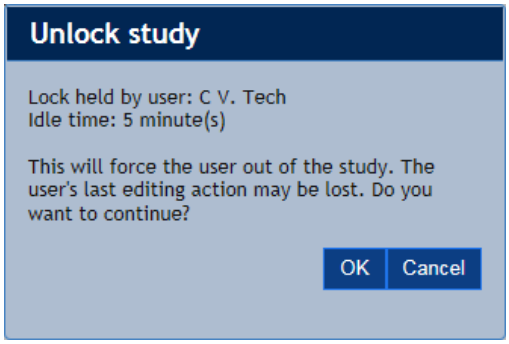
Force closing another user's reporting session

If you view a study that is already open for editing by another user you will be presented with a report preview screen. From this screen you can select the most recently saved version of the study, or any previously confirmed or signed version for review.



If your ASCEND CV lab administrator has configured the application to allow reporting users to force close other studies, you will also be presented with an **Edit** button near the top right. If you click on **Edit** a notification will be displayed that the study is currently locked (open for edit) by another user:

If you click **Unlock** you will be presented with a confirmation dialog:

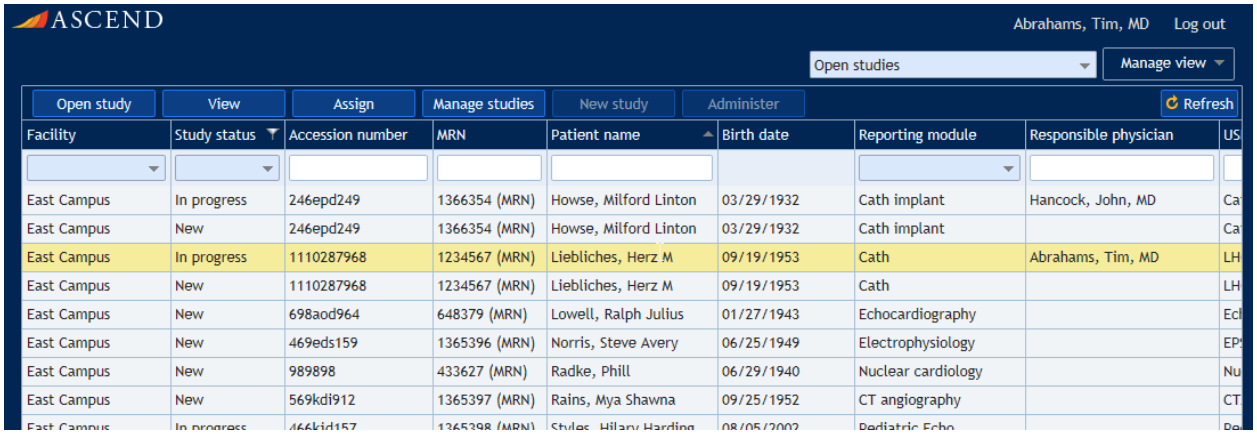


If you then click **OK** you will have unlocked the study for editing by another user, including yourself. If you now click on the **Edit** button you will succeed in opening the study for edit.

Appendix A – ASCEND CV Worklist

Depending on your system configuration, your worklist interface may be provided by your Hospital Information System (HIS), by your Electronic Medical Record system (EMR), or by ASCEND CV. This Appendix describes the ASCEND CV worklist interface.

The **ASCEND CV worklist** displays the list of studies available for reporting or review.



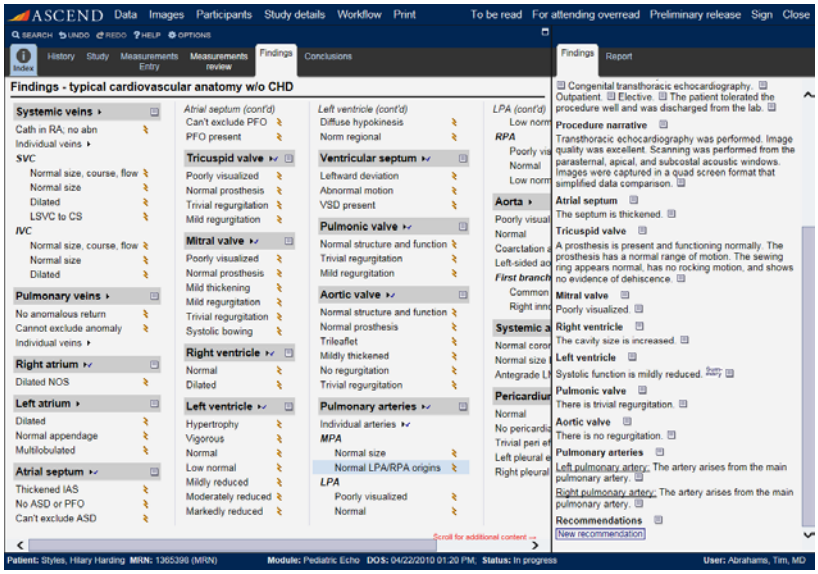
Facility	Study status	Accession number	MRN	Patient name	Birth date	Reporting module	Responsible physician	US
East Campus	In progress	246epd249	1366354 (MRN)	Howse, Milford Linton	03/29/1932	Cath implant	Hancock, John, MD	Ca
East Campus	New	246epd249	1366354 (MRN)	Howse, Milford Linton	03/29/1932	Cath implant		Ca
East Campus	In progress	1110287968	1234567 (MRN)	Liebliches, Herz M	09/19/1953	Cath	Abrahams, Tim, MD	LH
East Campus	New	1110287968	1234567 (MRN)	Liebliches, Herz M	09/19/1953	Cath		LH
East Campus	New	698aod964	648379 (MRN)	Lowell, Ralph Julius	01/27/1943	Echocardiography		Ecl
East Campus	New	469eds159	1365396 (MRN)	Norris, Steve Avery	06/25/1949	Electrophysiology		EP
East Campus	New	989898	433627 (MRN)	Radke, Phill	06/29/1940	Nuclear cardiology		Nu
East Campus	New	569kdi912	1365397 (MRN)	Rains, Mya Shawna	09/25/1952	CT angiography		CT
East Campus	In progress	466kid157	1365398 (MRN)	Styles, Hilary Harding	08/05/2002	Pediatric Echo		Pe

Refreshing the worklist

Clicking the Refresh button refreshes the worklist to display newly-arrived orders or newly-assigned studies, for example.

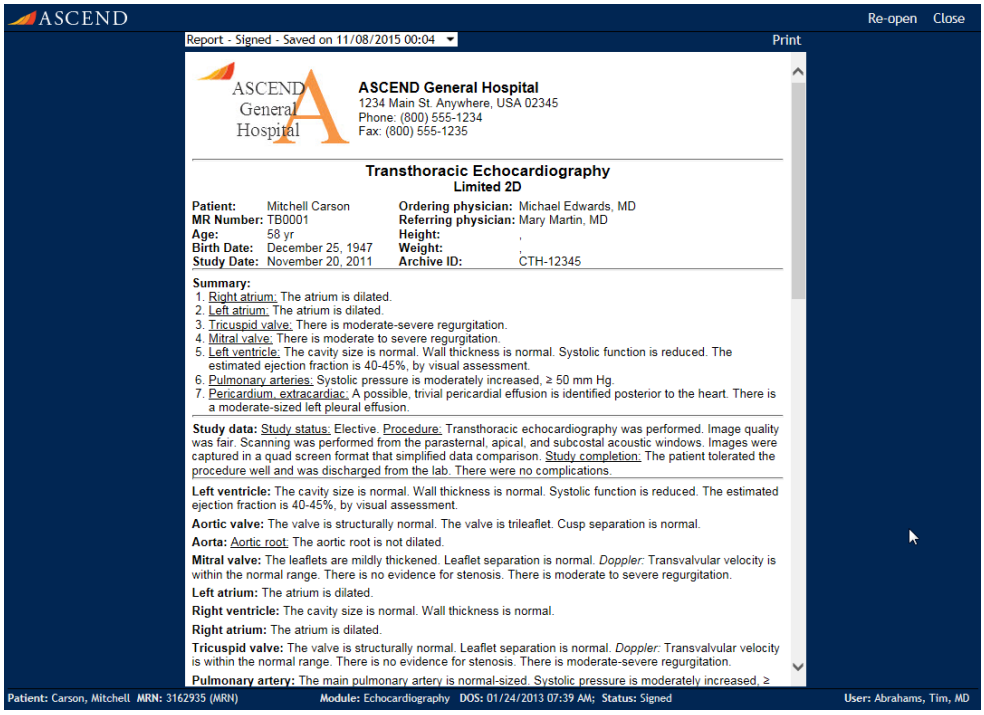
Opening a study for reporting

Selecting a study from the worklist and clicking the **Open study** button opens the study in the ASCEND CV reporting interface. Once you have completed reporting, clicking the appropriate **Sign** or **Close** button on the workflow toolbar returns you back to the worklist.

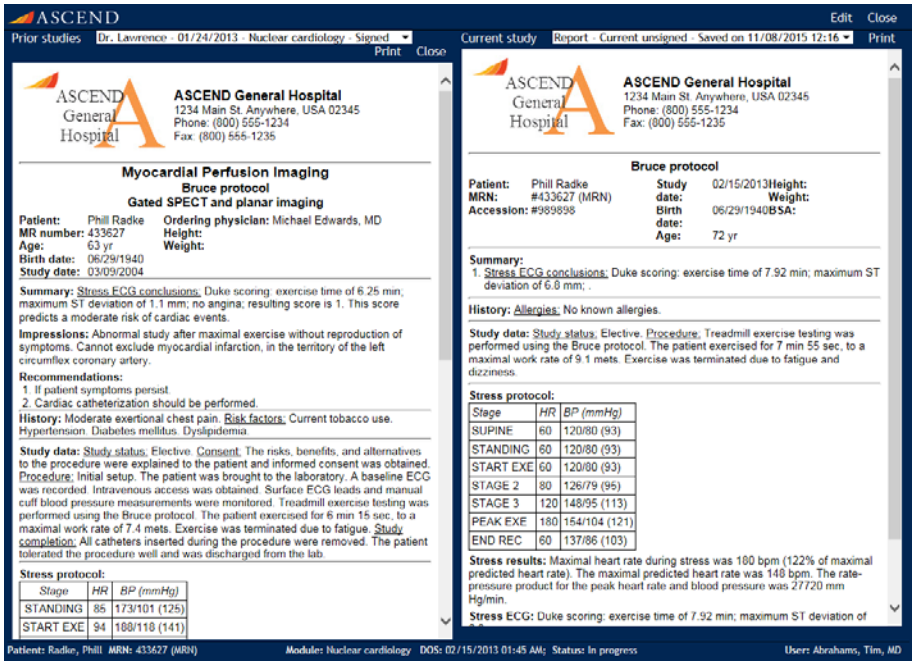


Previewing a report

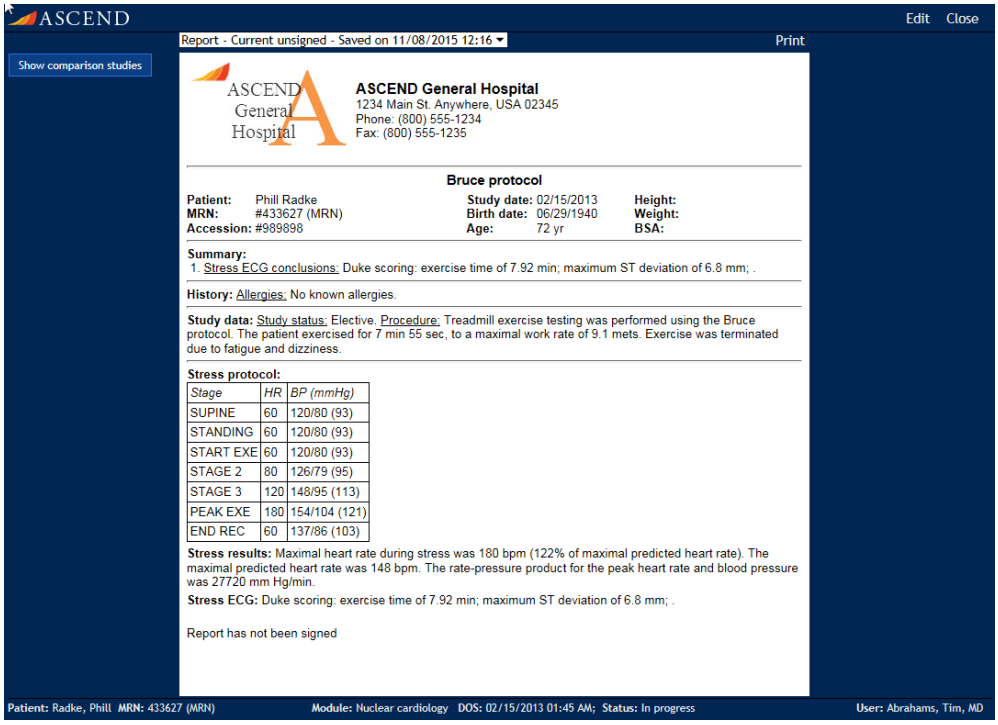
Selecting a study from the worklist and clicking the **View** button displays the report associated with the selected study.



If ASCEND CV has reports for prior Cardiology studies for the patient associated with the selected study, then a Show comparison studies button will be displayed top-left that when pressed displays these prior reports (left) alongside the report for the selected study (right).



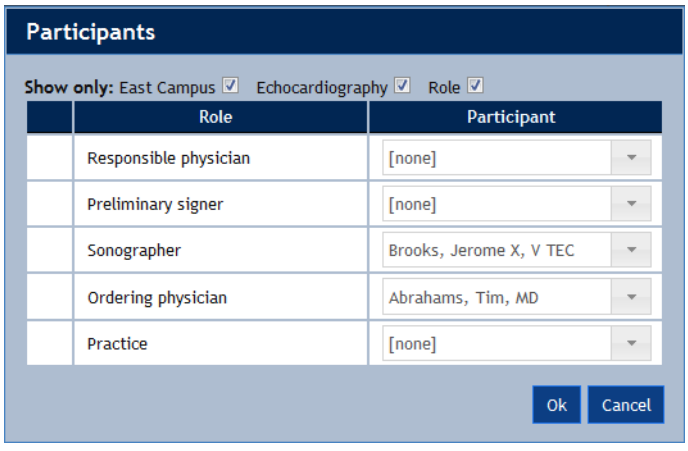
Clicking Close in the Prior Studies section will return to displaying just the current study.



If you wish to edit the selected study, clicking the **Edit** button will open the study in the ASCEND CV reporting interface. Note that if the study is currently opened for reporting by another user, and if your ASCEND CV lab administrator has configured the application to allow reporting users to force close other studies, after clicking **Edit** you will be prompted to selectively terminate the editing session of the competing user along with an indication of how long that other user's session has been idle.

Assigning a study

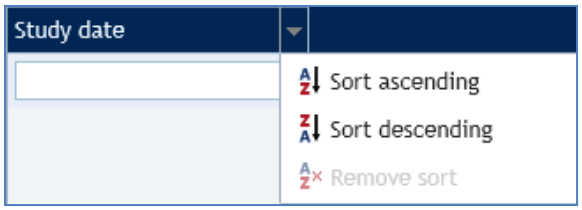
Selecting a study from the worklist and clicking the **Assign** button displays the participants for the study and allows you to assign participants to roles. See the *Participants button* section of this Guide for details.



Managing worklist views

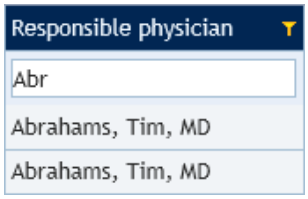
You can configure the worklist to meet your needs:

- The worklist can be **sorted by column entry**. Mousing over a column heading displays a down arrow. Clicking the down arrow displays a list of sort options.

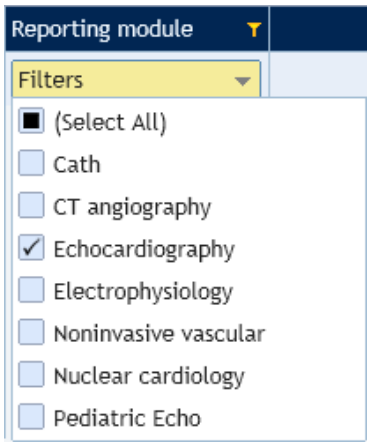


The sorted column will display an arrow icon to indicate that it is being sorted.

- The worklist can be **filtered by column entry**. Entering text/numbers in a text/numeric column's filter box (below the column heading) displays only those studies that contain the specified text/numbers in the specified field (the studies that contain "Abr" in *Responsible physician* column in the example below).



Columns with predefined options can be filtered by selecting one or more choices from the associated filter list. Note that, after selecting choices, you may need to click somewhere else on the worklist to close the filter list.



In either case, the filtered column will display a funnel icon to indicate that it is being filtered.

- The worklist **columns can be reordered**. To reposition a column in the worklist, drag its column heading (*Study status* in the example below) to a new location and drop it.

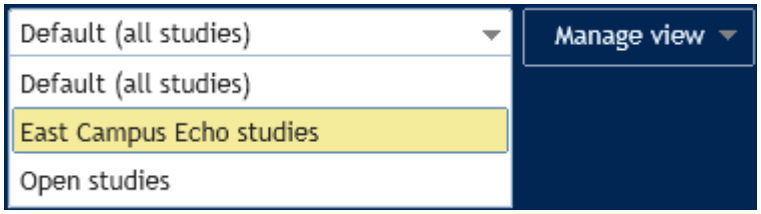
- The worklist **column widths can be adjusted**. To narrow/widen a column, grab its column divider (the dotted line in the example below) and drag it left/right.

Once you have a worklist configuration that you like, you can save it as a named **worklist view** for future use. The example below shows a worklist containing open (unsigned) Echocardiography studies performed at the East Campus sorted by study date/time.

Facility	Reporting module	Study status	Study date	Patient name
Filters	Filters	Filters		
East Campus	Echocardiography	For overread	10/8/2013 12:00 AM	Simpson, Marge
East Campus	Echocardiography	In progress	2/13/2013 9:01 AM	Carson, Mitchell

This view can be saved as an "East Campus Echo studies" worklist view by clicking the **Manage view** button, selecting **Save as**, and specifying the name of the new view.

The "East Campus Echo studies" view is then available in the **worklist view** selector.



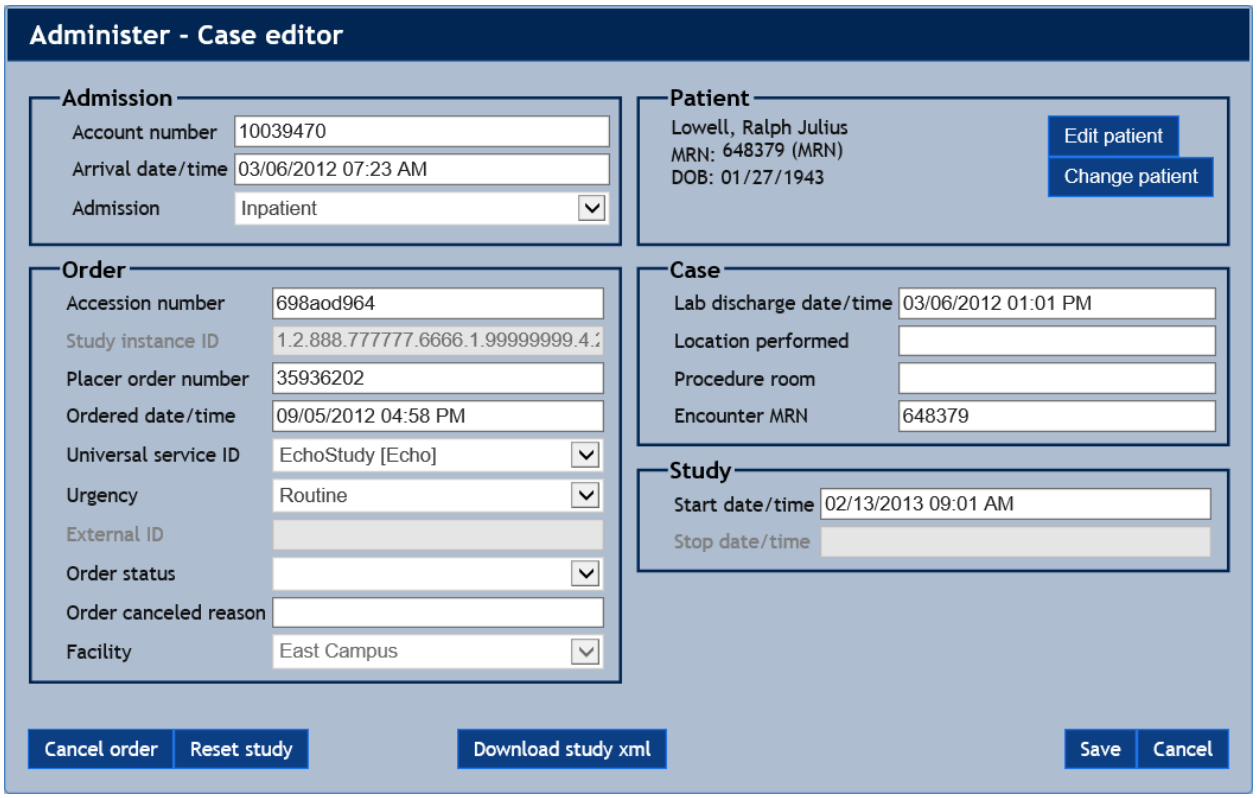
Administering a study

(Requires Lab Administrator privileges)

Selecting a study from the worklist and clicking the **Administer** button displays a form containing information about the study (*Order*, *Case*, and *Study* blocks) and the associated patient (*Patient* and *Admission* blocks). Note that the **Administer** button will only be displayed on the worklist if you have *Lab Administrator* privileges.

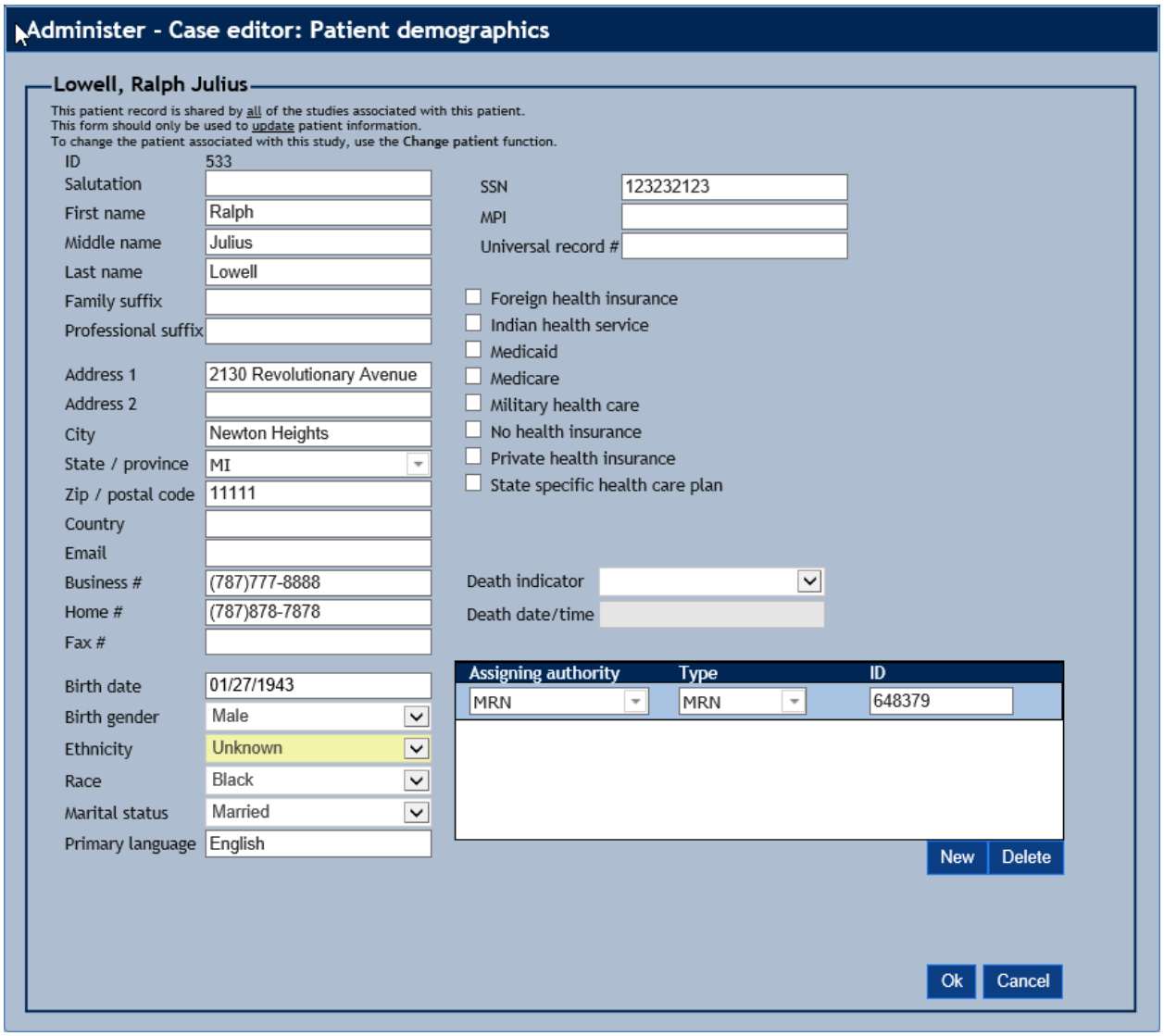
Editing study data

The study fields with **black** text are editable. The fields with gray text are presented for review only. Click the **Save** button to save the edited study data.



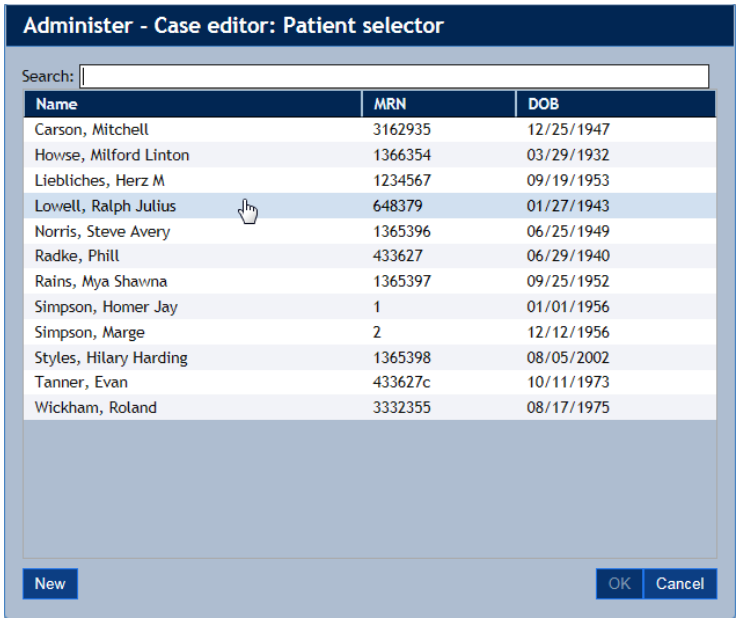
Editing patient data

Clicking the **Edit patient** button displays a form for editing data about the patient associated with the study.

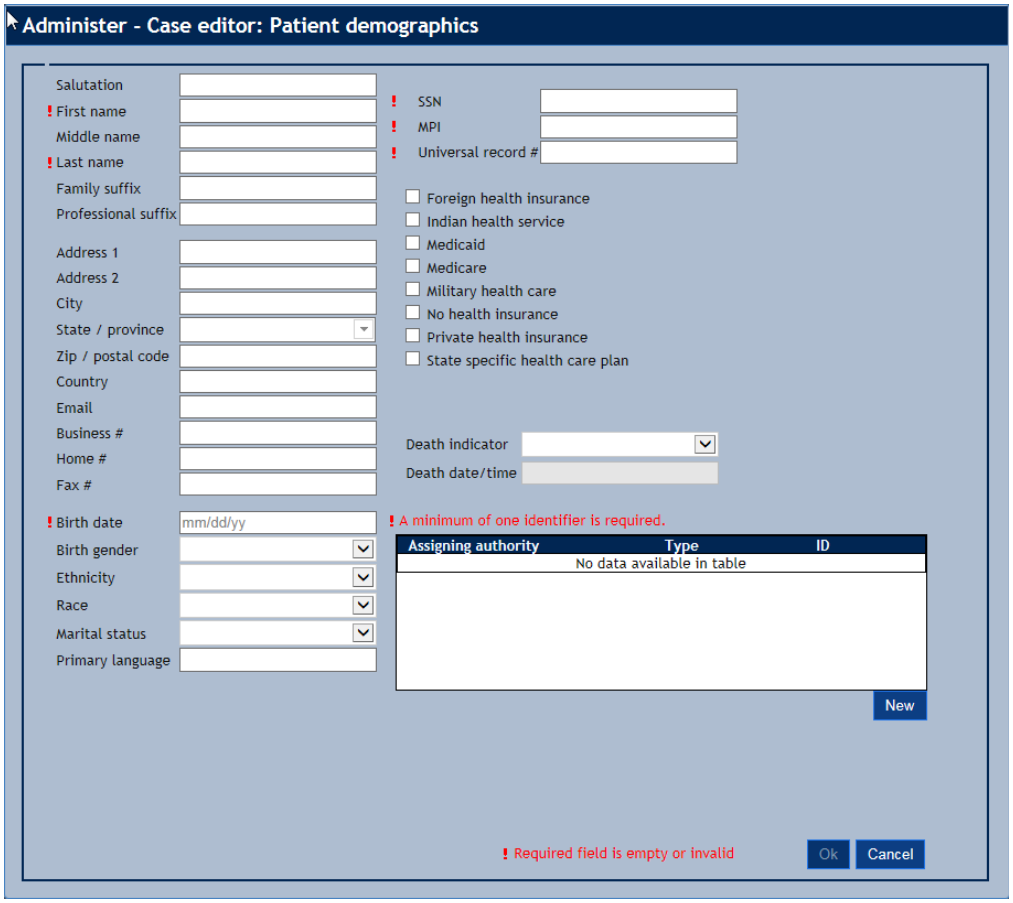


Note that this patient data record is shared by all the ASCEND CV studies for the patient. This form should only be used to update information on the selected patient, not to change the patient associated with the study.

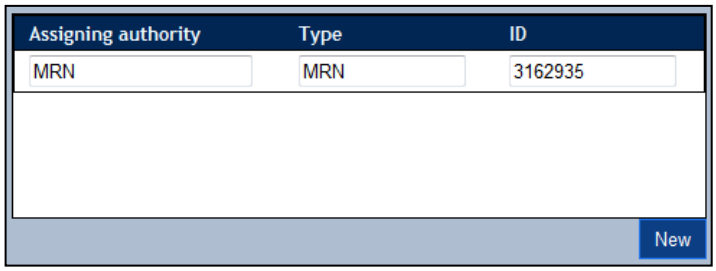
Clicking the **Change patient** button displays a form for selecting a different patient for the study. Adjust the name or portion of the name you are searching for in the Search: text box to constrain the list of patients to select from.



Clicking the **New** button displays a form for entering a new patient for the study.



The fields marked with a red **!** are required and must be specified. Note that you must specify at least one patient identifier – social security number (SSN), master patient index number (MPI), universal record number, or medical record number (MRN) – using either a named field or the patient identifier panel.

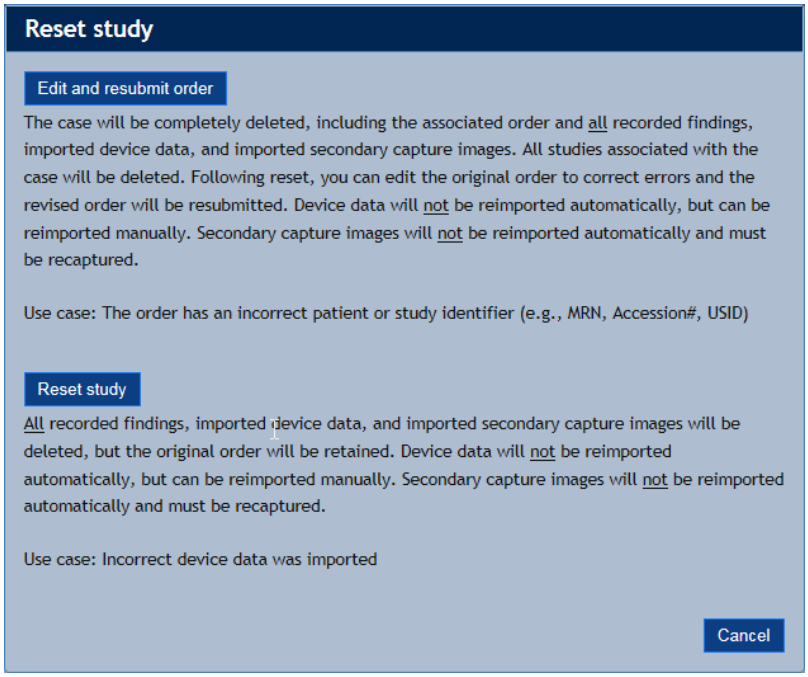


Canceling a study

Clicking the **Cancel order** button cancels the study. You might use this option if an ordered study will not be performed for some reason. Note that only unsigned studies can be canceled. If no data has been recorded for the study (beyond the data imported with the order), then the study is removed from the ASCEND CV database. Otherwise, the study is marked as *'canceled'* but the associated data is retained in the ASCEND CV database.

Resetting a study

Clicking the **Reset study** button returns a study back to its initial state immediately after processing of the associated order. Note that resetting a study deletes all data imported from clinical devices and all recorded findings. Only unsigned studies can be reset.



Clicking the **Reset study** button resets the study by (re)processing the original order. You might use this option to reset a study if incorrect device data was imported or a large number of incorrect findings recorded.

Clicking the **Edit and resubmit order** button displays the **Administer** form (shown above) allowing editing of order data before the order is (re)processed. Note that, in this case, all the study fields on the **Administer** form will be editable. You might use this option to reset a study if the original order contained an incorrect study identifier (Accession #, facility, or Universal Service ID).

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