



ASCEND CV[®] Reporting Quick Start Guide

Version 7.0

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About This Guide

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

- User interfaces and controls (displays, forms, buttons)
- Steps in the reporting workflow (opening a study, marking it as ready to be read, recording findings, signing the final report).
- 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 the following documentation:

- Your reporting modules' online Usage Guides, titled:
 - Cardiac Catheterization*
 - Cardiac CT*
 - CMR*
 - Echocardiography*
 - Electrophysiology*
 - Nuclear Cardiology*
 - Vascular*

which each contain multiple PDF presentations detailing how to use the reporting interface to prepare clinical reports.

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

- Worklist interface for selecting a study for reporting
- Image review interface for reviewing images associated with a study

If you are a Lab or System Administrator that needs to configure, monitor, and maintain the ASCEND CV reporting application and user rights, then please refer to the separate *ASCEND CV Administration Quick Start Guide*.

Using ASCEND CV

ASCEND CV 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**.

Study data toolbar

Review and edit study data

Clinical reporting interface

Review and edit clinical findings

Workflow toolbar

Change study status

The screenshot displays the ASCEND CV Reporting Interface. At the top, there is a menu bar with options like 'Data', 'Images', 'Participants', 'Study details', 'Workflow', and 'Print'. Below the menu bar is a toolbar with icons for 'Undo', 'Redo', 'Help', 'Options', and 'Catalyst'. The main content area is divided into several sections: 'Findings' on the left, 'Clinical reporting interface' in the center, and 'Workflow toolbar' on the right. The 'Findings' section includes sub-sections for 'Left ventricle', 'Aortic valve', 'Ventricular septum', and 'Aorta and arteries'. The 'Clinical reporting interface' section contains patient information, study details, and suggested interpretations. The 'Workflow toolbar' section includes a 'Report' button and a 'Correct function of this knowledge base has not been verified' warning. At the bottom, there is a status bar with patient information, study details, and user information.

Status bar

Identifies patient

Identifies study

Identifies user

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*: Name of user logged into the system

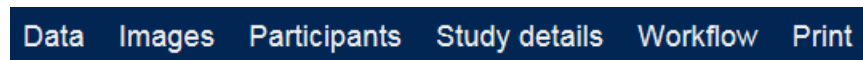
Clinical Reporting Interface

The **clinical reporting interface** occupies the center of the ASCEND CV reporting screen. 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 result reporting process will vary depending on the reporting module. The reporting module *Quick Start Guides* 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.

Data import						
Pending					Search for missing data	Refresh
Source info	Patient info	MRN	Account number	Action	Information	
No data available in table						
Previous						
Source info	Patient info	MRN	Account number	Action	Information	
01/07/2019 2:18:10 AM TomTec DICOM Echo	Carson, Mitchell 12/25/1947	3162935	10041889	Reimport	Import status: Automatically imported	
01/07/2019 2:17:54 AM HIS	Carson, Mitchell 12/25/1947	3162935	10041889	Reimport	Import status: Automatically imported Contents: New order	
Close						

If the **Data** button is marked with a red exclamation point **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).

Data import						
Pending					Search for missing data	Refresh
Source info	Patient info	MRN	Account number	Action	Information	
01/22/2019 2:17:27 AM TomTec DICOM Echo	Carson, Mitchell 12/25/1947	3162935	10041889	Import Decline		
Previous						
Source info	Patient info	MRN	Account number	Action	Information	
01/22/2019 12:04:26 PM HIS	Carson, Mitchell 12/25/1947	3162935	10041889	Reimport	Import status: Imported by Abrahams, Tim, MD Contents: New order	
Close						

If expected data is not displayed in the pending or previous list, you may search for it using **Search for missing data**.

Unmatched data

Patient: Carson, Mitchell DOB: 12/25/1947 MRN: 3162935 (MRN) Accession: 12453 Refresh

<input type="checkbox"/>	Time stamp	Source	Patient name	Birthdate	MRN	Account number	Accession number	Information
<input checked="" type="checkbox"/>	01/22/2019 12:40:12 PM	TomTec DICOM Echo	Carson, Mitchell	12/25/1947	3162934		12453	The import patient MRN 3162934 does not match i

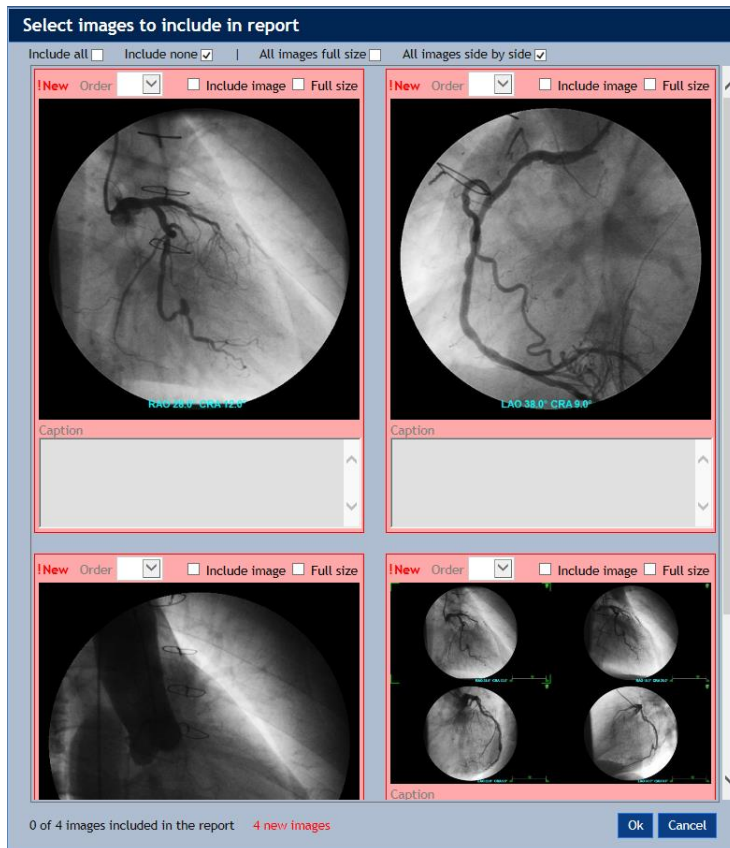
1 - 1 of 1 items

Import Cancel

Using this dialog, you can search for the data by Source, Patient name, DOB, MRN, Account number, or Accession number. Select the import(s) that you want to associate with the case and select **Import**.

Images Button

If there are new images, such as DICOM secondary capture, available for selective inclusion in the report, the Images button will display a red exclamation point **! Images**. Clicking the **Images** button displays the set of 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.

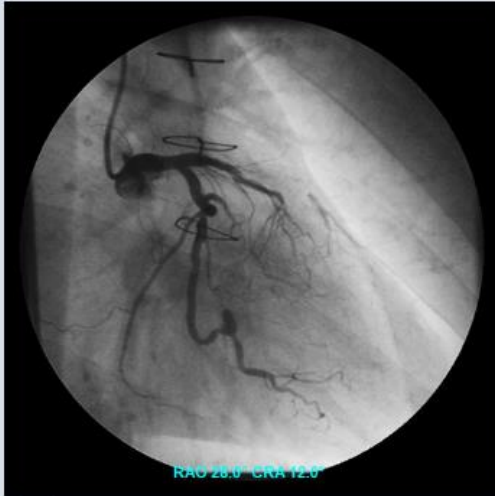


You select the images you want to include on the report using the **Include all**, **Include none**, or **Include image** checkboxes.

Select images to include in report

Include all | Include none | All images full size | All images side by side


!New Order **1** Include image Full size



RAO 28.0° CRA 12.0°

Caption

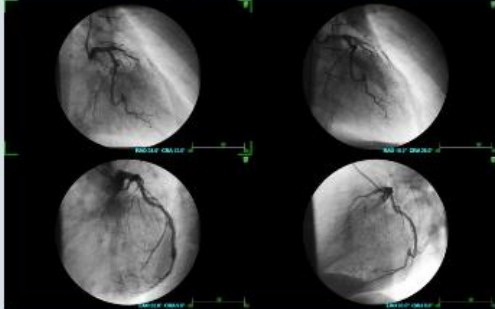
!New Order **2** Include image Full size



LAO 38.0° CRA 9.0°

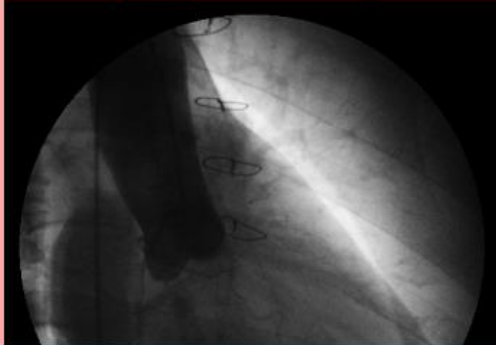
Caption

!New Order **3** Include image Full size



Caption

!New Order Include image Full size



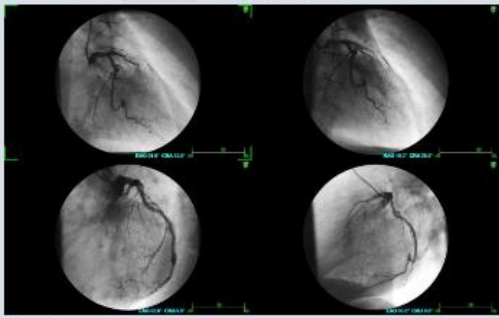
3 of 4 images included in the report 4 new images

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

Select images to include in report

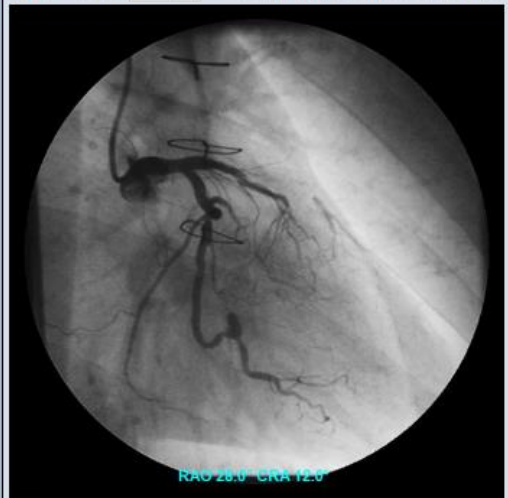
Include all Include none | All images full size All images side by side

!New Order **1** Include image Full size




Caption

!New Order **2** Include image Full size




Caption

!New Order **3** Include image Full size



!New Order Include image Full size



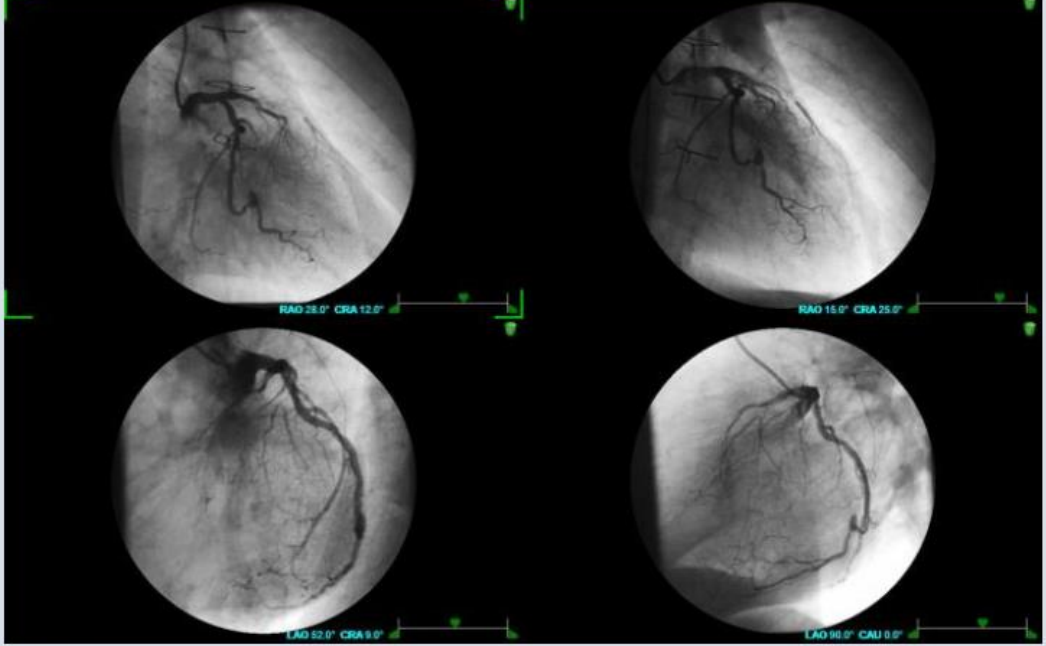
3 of 4 images included in the report 4 new images

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

Select images to include in report


Include all Include none | All images full size All images side by side

!New Order 1 Include image Full size




Caption
IMAGE #1: Full-width quad view

!New Order 2 Include image Full size



!New Order 3 Include image Full size



3 of 4 images included in the report 4 new images

Ok Cancel

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

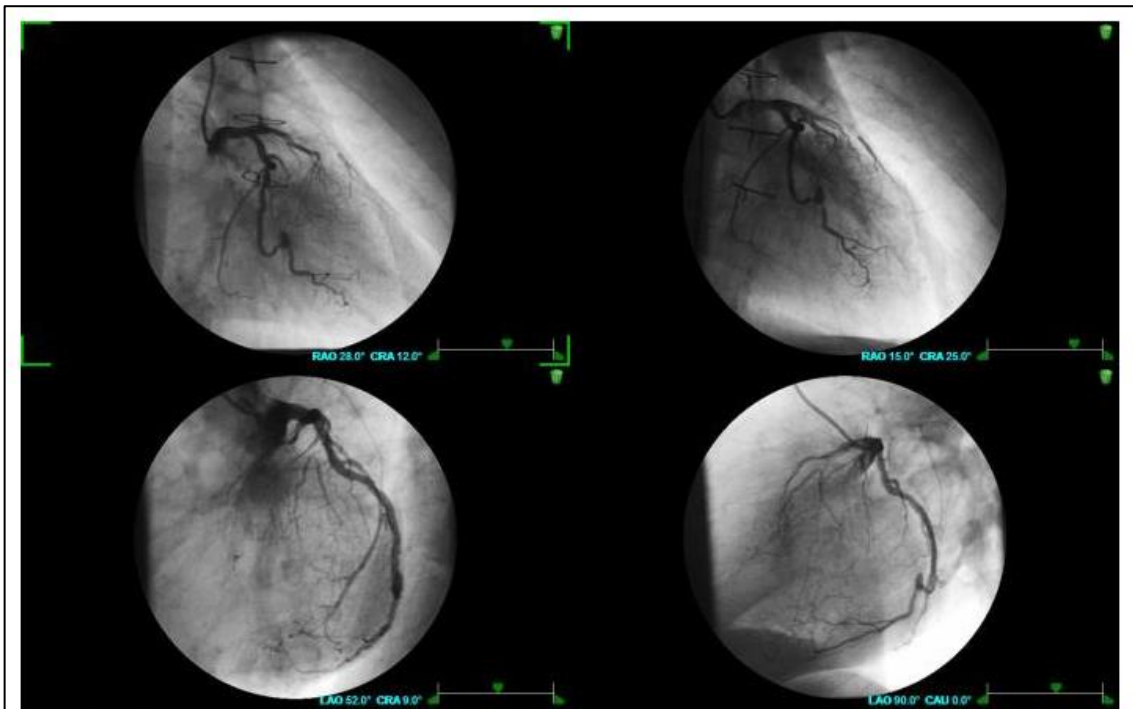


IMAGE #1: Full-width quad view

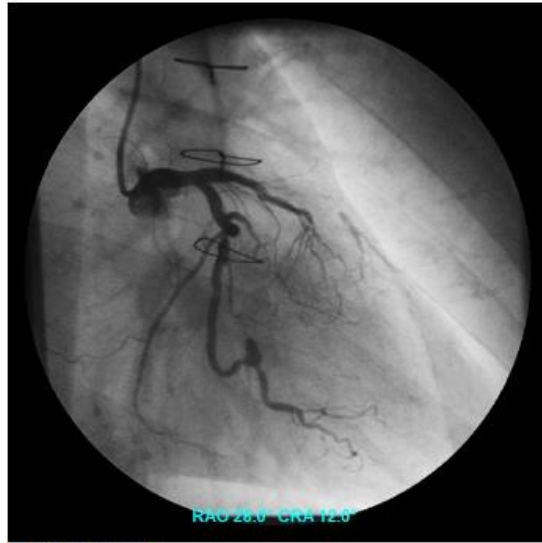


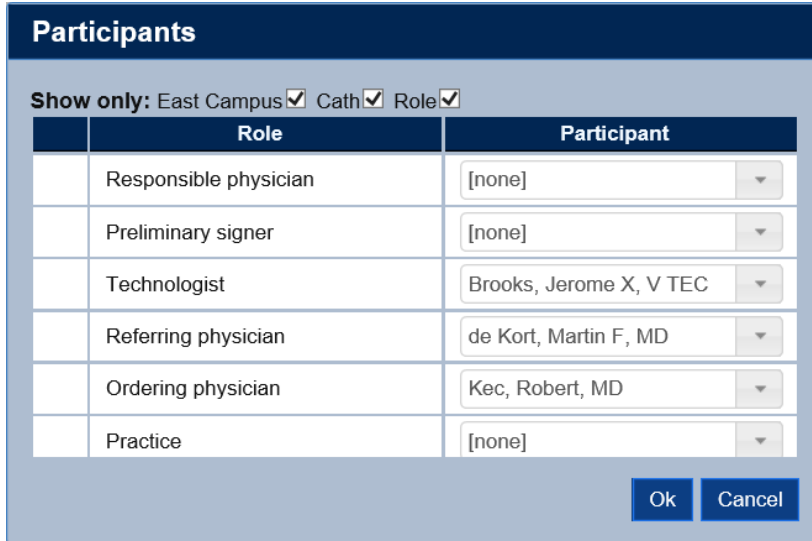
IMAGE #2: RAO



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 and the *Responsible physician* (the physician who will sign the report).

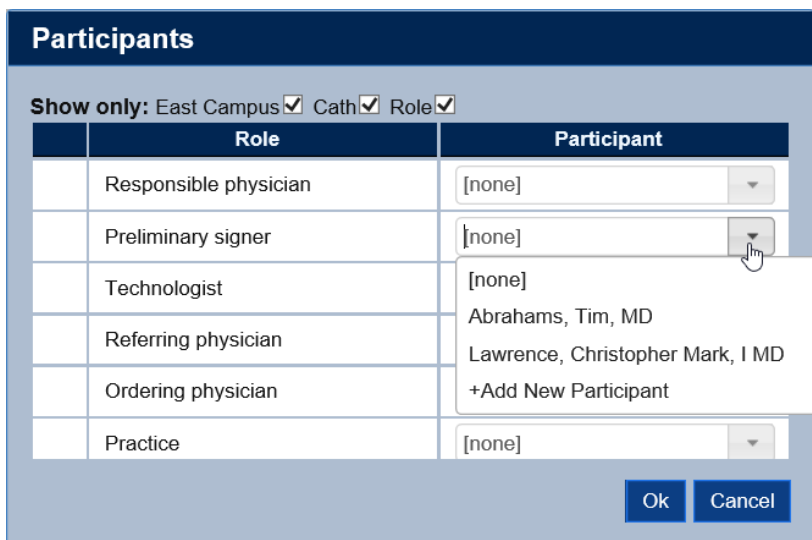


The screenshot shows a dialog box titled "Participants" with a header bar. Below the header, there are three checked checkboxes: "East Campus", "Cath", and "Role". Below this is a table with two columns: "Role" and "Participant". The table has six rows. The "Participant" column contains dropdown menus with the following values: "[none]", "[none]", "Brooks, Jerome X, V TEC", "de Kort, Martin F, MD", "Kec, Robert, MD", and "[none]". At the bottom right of the dialog are "Ok" and "Cancel" buttons.

Role	Participant
Responsible physician	[none]
Preliminary signer	[none]
Technologist	Brooks, Jerome X, V TEC
Referring physician	de Kort, Martin F, MD
Ordering physician	Kec, Robert, MD
Practice	[none]

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.
- Select one of participants in the list.



This screenshot is similar to the previous one, but the dropdown menu for the "Preliminary signer" role is open. The menu lists the following options: "[none]", "Abrahams, Tim, MD", "Lawrence, Christopher Mark, I MD", and "+Add New Participant". A mouse cursor is pointing at the dropdown arrow.

Role	Participant
Responsible physician	[none]
Preliminary signer	[none] Abrahams, Tim, MD Lawrence, Christopher Mark, I MD +Add New Participant
Technologist	[none]
Referring physician	[none]
Ordering physician	[none]
Practice	[none]

You can filter the participant list by typing part of a name into the text box (e.g., “Law” in the example above). 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 exclamation point **!**, then there are required participants that have not been specified. The required participant roles are marked with a red exclamation point **!** (Sonographer, in the example below). All required participants should be specified before a report is signed.

Participants

Show only: East Campus Pediatric Echo Role

	Role	Participant
	Responsible physician	[none]
	Preliminary signer	[none]
!	Sonographer	[none]
	Ordering physician	Abrahams, Tim, MD
	Practice	[none]

! These fields are required

Ok Cancel

ASCEND CV is designed to reduce the likelihood that duplicate providers are created. For example, if during reporting, a clinician adds a provider that is a likely duplicate, they will be prompted to confirm whether this is an existing provider or whether a new provider should be created.

In the example below, the clinician attempts to add a new responsible physician – Rob McDavid, MD – for the study whose last name and first character of the first name match an existing provider, Robert McDavid, MD:

Participants

Show only: East Campus Cath Role

	Role	Participant
	Responsible physician	[none]
	Preliminary signer	[none]
!	Technologist	Abrahams, Tim, MD Lawrence, Christopher Mark, I MD
	Referring physician	+Add New Participant
	Ordering physician	Kec, Robert, MD
	Practice	[none]

! These fields are required

Ok Cancel

Add participant

First name:

Middle:

Last name:

Family suffix:

Professional suffix: x

Staff ID:

NPI:

Address 1:

Address 2:

City:

State / province:

Zip / postal code:

Country:

Email:

Business #:

Mobile #:

Home #:

Fax #:

In this case the user can use the dropdown menu to either add a new Rob McDavid or select the existing Robert McDavid as responsible physician:

Add participant

Provider may already exist. Please choose below:

- McDavid, Robert
- McDavid, Rob (New)

Last name:

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.

Study details
Patient: Carson, Mitchell

Study Patient

Admission
Account number 10041889
Arrival date/time 02/13/2013 12:21 PM
Admission Observation

Order
Accession number 12453
Study instance UID 1.2.276.0.48.10002.9611523773214.20080305185623109347
Placer order number 36099144
Order date/time 02/13/2013 09:40 AM
Universal service ID TEE(CardiacEchoca20)
Urgency

Case
Lab discharge date/time
Location performed 88
Procedure room 2011

Study
Start date/time 02/13/2013 09:01 AM
End date/time 02/13/2013 09:40 AM

Ok Cancel

Study details
Patient: Carson, Mitchell

Study Patient

MPI
MRN 3162935 (MRN)
SSN 184-38-9676
DOB 12/25/1947
Birth gender Male
Race White
Ethnicity Unknown
Marital status Married
Death date/time
Email
Phone # (603)400-500
Business #
Address 603 THUNDER DR
PRESCOTT, AZ 863035088

Ok Cancel

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

Study details

Patient: Carson, Mitchell

! Study Patient

Admission	
Account number	10041889
Arrival date/time	02/13/2013 12:21 PM
Admission	Observation

Order	
Accession number	12453
Study instance UID	
Placer order number	36099144
Order date/time	02/13/2013 09:40 AM
Universal service ID	TEE(CardiacEchoca20)
Urgency	<input type="text" value=""/> ▾

Case	
Lab discharge date/time	<input type="text"/>
Location performed	<input type="text"/>
Procedure room	2011

Study	
! Start date/time	<input type="text"/>
End date/time	<input type="text"/>

! The field is required

Ok Cancel

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.

Workflow events			
Date/time	User	Event	Details
05/30/2017 6:49 PM	Brooks, Jerome X, V TEC	Study status changed	To: In progress
05/30/2017 6:49 PM	Brooks, Jerome X, V TEC	Study opened for edit	
05/30/2017 6:50 PM	Brooks, Jerome X, V TEC	External data imported to study	Source: HIS (5/30/2017 6:45:56 PM)
05/30/2017 6:50 PM	Brooks, Jerome X, V TEC	External data imported to study	Source: TomTec DICOM Echo (5/30/2017 7:15:29 AM)
05/30/2017 6:50 PM	Brooks, Jerome X, V TEC	Study status changed	To: To be read
05/30/2017 6:51 PM	Abrahams, Tim, MD	Study status changed	To: To be read

Reset study Close

In rare instances, you may need to use the **Reset study** button to return a study to the state immediately after it was created. 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. Any device data will need to be manually re-imported via the **Data** UI after the reset.

You might reset a study, for instance, if an incomplete/incorrect data import was done or if a 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.

Studies may be automatically reset before being opened if either new data is received from a device that had previously sent data, or if a message was received that changed the reporting module of the study.

Reset study confirmation

All recorded findings, imported device data, and imported secondary capture images will be deleted, but the original order will be retained. Device data will not be reimported automatically, but can be reimported manually. Secondary capture images will not be reimported automatically and must be recaptured. Following reset, the study will be closed and you will need to reopen it from the work list.

Do you wish to reset this case?

OK Cancel

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.

The screenshot shows a 'Print preview' window with a dark blue header. Below the header is a 'Report' dropdown menu. The main content area displays patient information: Patient: Carson, Mitchell; MRN: 3162935 (MRN); Study date: 07/23/2015 21:38; East Campus. The ASCEND General Hospital logo and contact information are also present. The report title is 'Transthoracic Echocardiography M-mode, complete 2D, and complete spectral Doppler'. A table of patient details follows, including study date, birth date, age, height, weight, BSA, BMI, HR, and BP. A summary section lists findings for the left ventricle and ventricular septum. A 'History and indications' section notes an aspirin allergy. A 'Study data' section describes the procedure and patient tolerance. Detailed findings for the left ventricle, ventricular septum, aortic valve, aortic root, mitral valve, left atrium, and right ventricle are provided.

Print preview

Report

Patient: Carson, Mitchell MRN: 3162935 (MRN) Study date: 07/23/2015 21:38 East Campus

ASCEND General Hospital
1234 Main St. Anywhere, USA 02345
Phone: (800) 555-1234
Fax: (800) 555-1235

Transthoracic Echocardiography
M-mode, complete 2D, and complete spectral Doppler

Patient:	Mitchell Carson	Study date:	07/23/2015	Height:	
MRN:	#3162935 (MRN)	Birth date:	12/25/1947	Weight:	
Accession:	#12453	Age:	67 yr	BSA:	
Patient location:	EC 2B 2011	Birth gender:	M	BMI:	
Study status:	Routine	Gender identity:		HR:	
Facility:	East Campus	Patient status:	Outpatient	BP:	

Summary:

- Left ventricle:** The cavity size is normal. Wall thickness is normal. Systolic function is normal. The estimated ejection fraction is 55-65%. Wall motion is normal; there are no regional wall motion abnormalities.
- Ventricular septum:** Septal motion is dyssynergic.

History and indications: **Allergies:** Aspirin allergy.

Study data: Patient unit: EC 2B. Patient room number: 2011. **Study status:** Routine. **Procedure:** Transthoracic echocardiography was performed. Image quality was adequate. Scanning was performed from the parasternal, apical, and subcostal acoustic windows. **Study completion:** The patient tolerated the procedure well.

Left ventricle: The cavity size is normal. Wall thickness is normal. Systolic function is normal. The estimated ejection fraction is 55-65%. Wall motion is normal; there are no regional wall motion abnormalities. Wall motion score: 1.00.

Ventricular septum: Septal motion is dyssynergic.

Aortic valve: The valve is structurally normal. The valve is trileaflet. Cusp separation is normal. Transvalvular velocity is within the normal range. There is no stenosis. There is no regurgitation.

Aorta: **Aortic root:** The aortic root is not dilated.

Mitral valve: The valve is structurally normal. The leaflets are normal thickness. Leaflet separation is normal. Transvalvular velocity is within the normal range. There is no evidence for stenosis. There is no regurgitation.

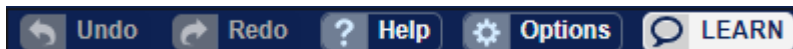
Left atrium: The atrium is normal in size.

Right ventricle: The cavity size is normal. Systolic function is normal.

Close

Reporting Toolbar

The **Reporting Toolbar** is used to facilitate reporting in ASCEND CV.

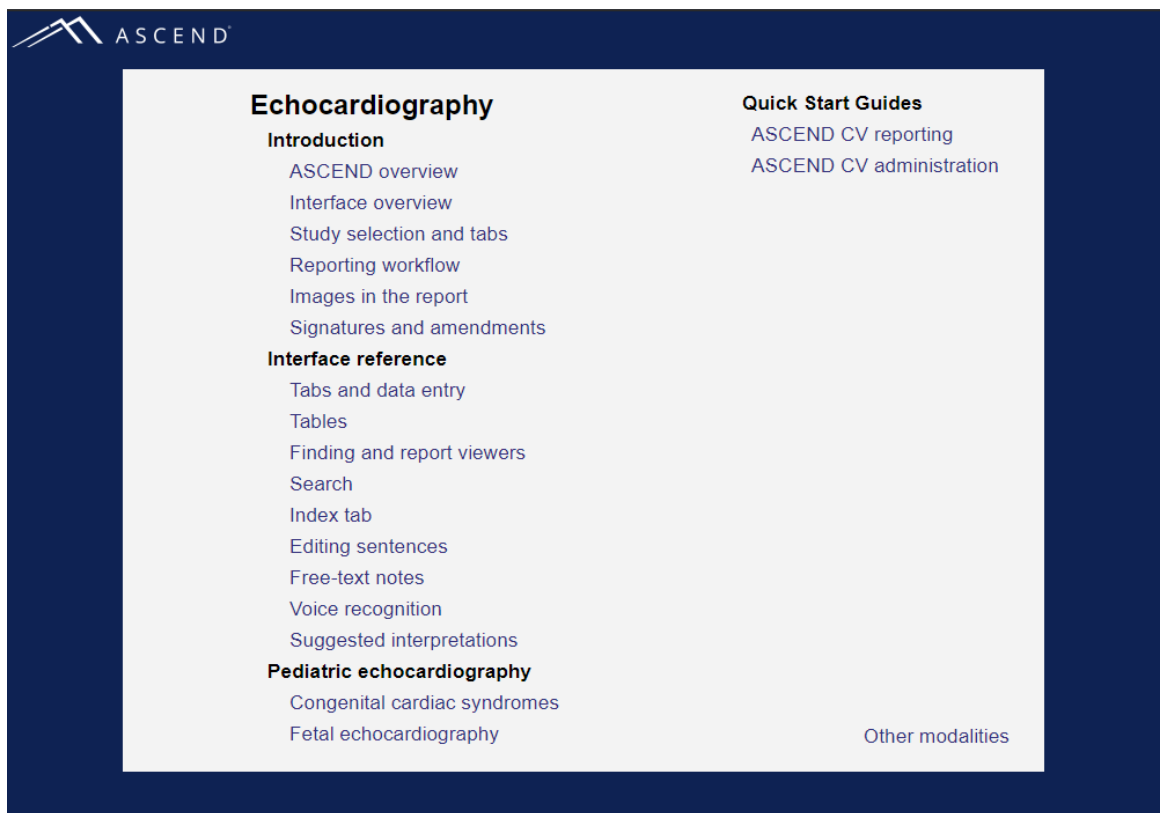


Undo and Redo

If you make a mistake while entering measurements or report data, you can click **Undo** to reverse the change. If you undo a change accidentally, you can reapply it by clicking **Redo**. Undo and redo can be utilized to undo or redo the last 9 actions. If more than 9 actions need to be undone, the user will need to reset the study. Once the study has been closed and re-opened, undo will no longer be available for any past actions.

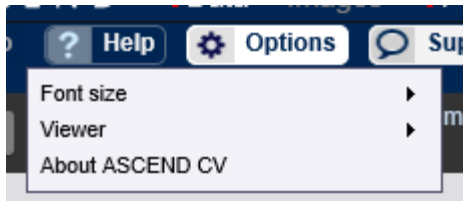
Help

Clicking the **Help** button will launch a new window with documentation relating to the current study's reporting module. You can also view documentation for other modalities by clicking the Other Modalities link.



Options

The **Options** menu allows you to change the screen **Font size** of the reporting UI and configure the highlighting of findings in the **Viewer**. **About ASCEND CV** contains important version information about ASCEND CV and the reporting module of the current study.

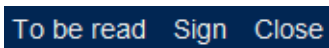


Learn

If it is enabled, the Catalyst **Learn** button will also display. The **Learn** button provides on demand "over the shoulder" support for clinicians who have questions or need assistance documenting a specific detail when completing their report. Catalyst's support feature is staffed by ASCEND's experienced clinical application and informatics specialists during normal business hours.

Workflow Toolbar

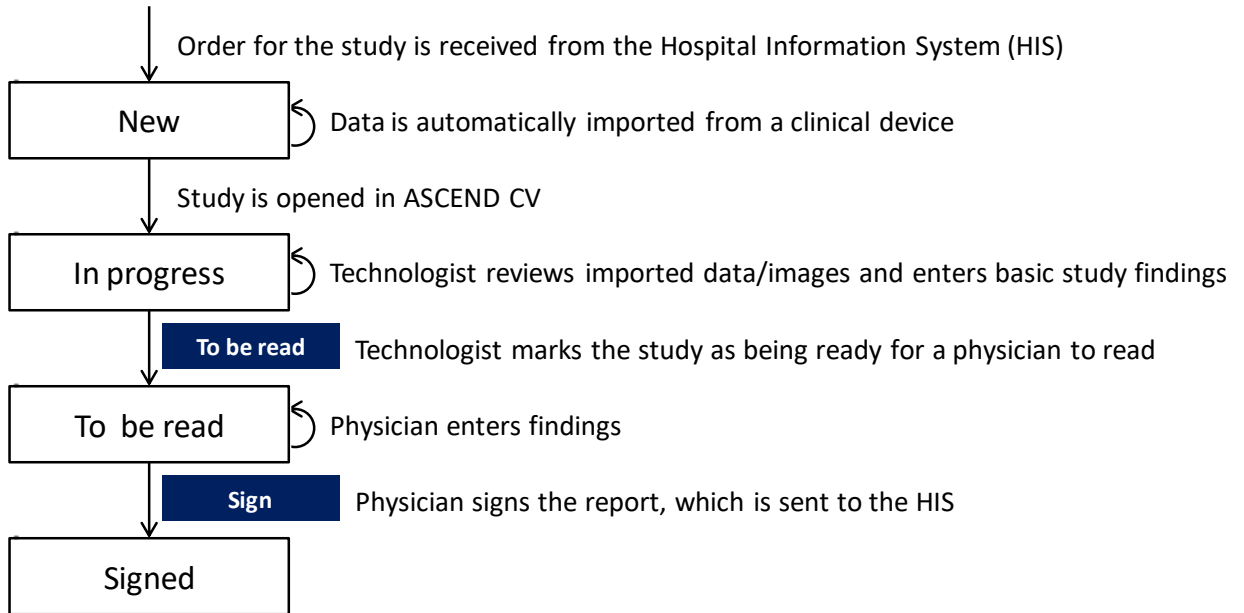
The **Workflow Toolbar** is used to move a study through the reporting workflow.



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 a technologist and physician. The straight arrows represent actions that move the study from one status to the next. 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.

Report signature confirmation



ASCEND General Hospital
1234 Main St. Anywhere, USA 02345
Phone: (800) 555-1234
Fax: (800) 555-1235

Transthoracic Echocardiography

M-mode, complete 2D, and complete spectral Doppler

Patient: Mitchell Carson	Study date: 07/23/2015	Height:
MRN: #3162935 (MRN)	Birth date: 12/25/1947	Weight:
Accession: #12453	Age: 67 yr	BSA:
Patient location: EC 2B 2011	Birth gender: M	BMI:
Study status: Routine	Gender identity:	HR:
Facility: East Campus	Patient status: Outpatient	BP:

Summary:

- Left ventricle:** The cavity size is normal. Wall thickness is normal. Systolic function is normal. The estimated ejection fraction is 55-65%. Wall motion is normal; there are no regional wall motion abnormalities.
- Ventricular septum:** Septal motion is dyssynergic.

History and indications: Allergies: Aspirin allergy.

Study data: Patient unit: EC 2B. Patient room number: 2011. Study status: Routine. Procedure: Transthoracic echocardiography was performed. Image quality was adequate. Scanning was performed from the parasternal, apical, and subcostal acoustic windows. Study completion: The patient tolerated the procedure well.

Left ventricle: The cavity size is normal. Wall thickness is normal. Systolic function is normal. The estimated ejection fraction is 55-65%. Wall motion is normal; there are no regional wall motion abnormalities. Wall motion score: 1.00.

Ventricular septum: Septal motion is dyssynergic.

I have reviewed this report and assume responsibility for its accuracy and completeness.

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 exclamation point (!) on the **Participants** form.
- Required study details that have not been specified. These are marked with a red exclamation point (!) on the **Study details** form.
- Required clinical findings that have not been recorded. These are marked with a red exclamation point (!) 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 signing a study.
- Never display the confirmation dialog.

Report signature confirmation

Notifications:
You are signing a study that has been assigned to Hibbert, Julius K, IV MD as the responsible physician

Study details: The following are required:
Study start date/time

Images: The following are required:
There are images that have not been reviewed



ASCEND General Hospital
1234 Main St. Anywhere, USA 02345
Phone: (800) 555-1234
Fax: (800) 555-1235

Transthoracic Echocardiography
M-mode, complete 2D, and complete spectral Doppler

Patient: Mitchell Carson	Study date: 02/13/2013	Height: 177 cm	
MRN: #3162935 (MRN)	Birth date: 12/25/1947		(69.7 in)
Accession: #12453	Age: 65 yr	Weight: 68 kg	
Patient location: EC 2B 2011	Birth gender: M		(149.6 lb)
Study status: Routine	Gender identity:	BSA: 1.83 m ²	
Facility: East Campus		BMI: 21.7 kg/m ²	
		Patient status: Outpatient	

Summary:

1. Left ventricle: The cavity size is normal. Wall thickness is normal. Systolic function is reduced. The estimated ejection fraction is 40-45%, by visual assessment.
2. Mitral valve: Mild thickening. There is moderate to severe regurgitation.
3. Left atrium: The atrium is dilated.
4. Tricuspid valve: There is moderate-severe regurgitation.
5. Right atrium: The atrium is dilated.
6. Pericardium, extracardiac: A possible, trivial pericardial effusion is identified posterior to the heart.

History: Allergies: Aspirin allergy.

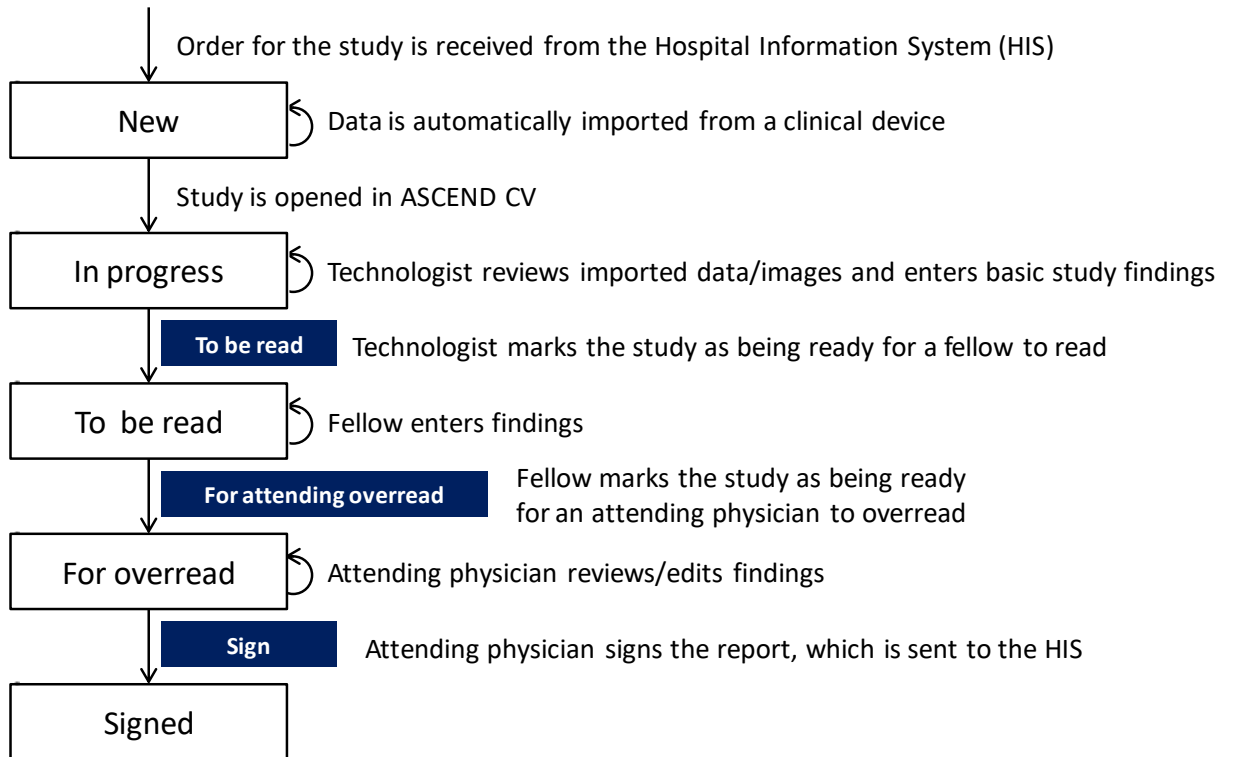
Study data: Patient unit: EC 2B. Patient room number: 2011. Study status: Routine. Procedure: Transthoracic echocardiography was performed. Image quality was excellent. Scanning was performed from the parasternal, apical, and subcostal acoustic windows. Images were captured in a quad screen format that simplified data comparison. Study completion: The patient tolerated the procedure well and was discharged from the lab. There were no complications.

I have reviewed this report and assume responsibility for its accuracy and completeness.

Confirm
Cancel

Overread Workflow

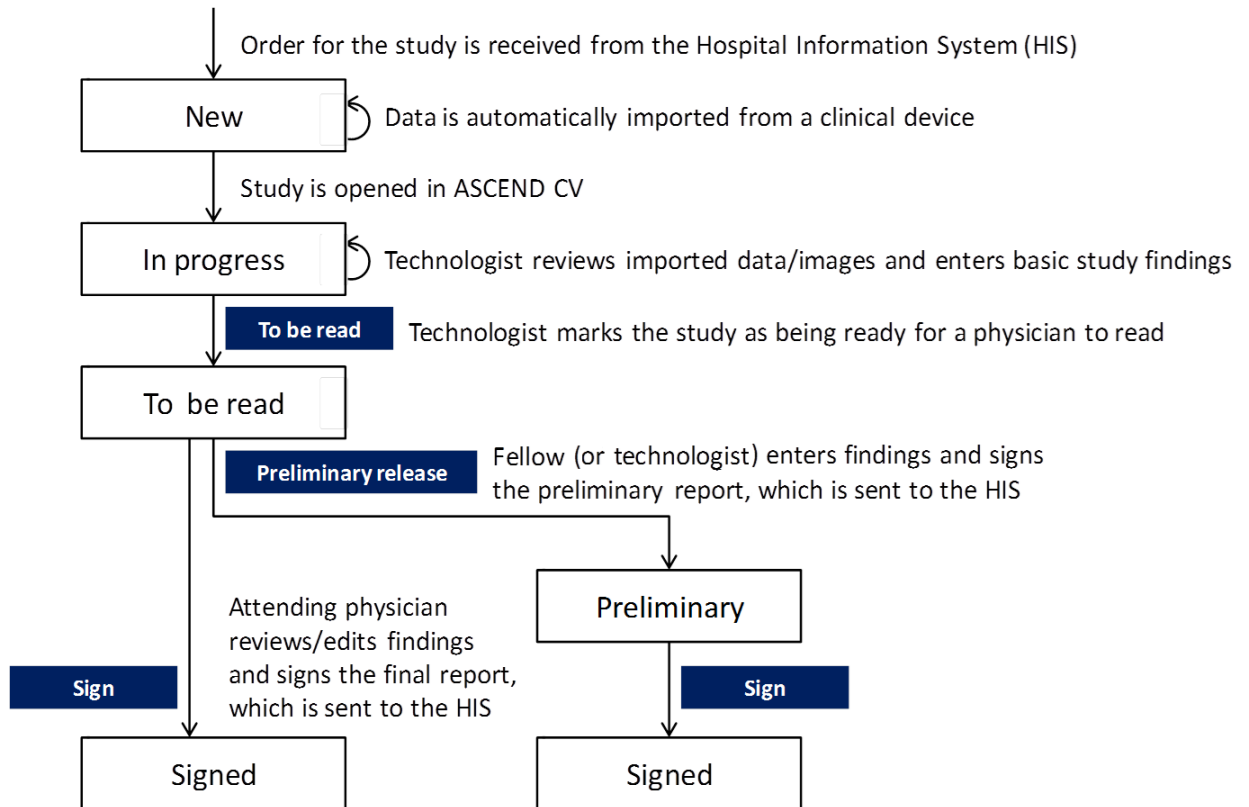
ASCEND CV can be configured to support a workflow that includes Cardiology fellows. In this workflow, a fellow creates an initial report and clicks the **For attending overread** button to move the study from the status *'To be read'* to the status *'For overread'*. An attending physician reviews and/or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



Preliminary Report Workflow

ASCEND CV can be configured to support a workflow that uses 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. This moves the study from the status 'To be read' to the status 'Preliminary' (the right branch in the figure below). An attending physician then reviews and/or edits the report and signs it.

If a preliminary report was not created, the study remains in the 'To be read' status 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 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.

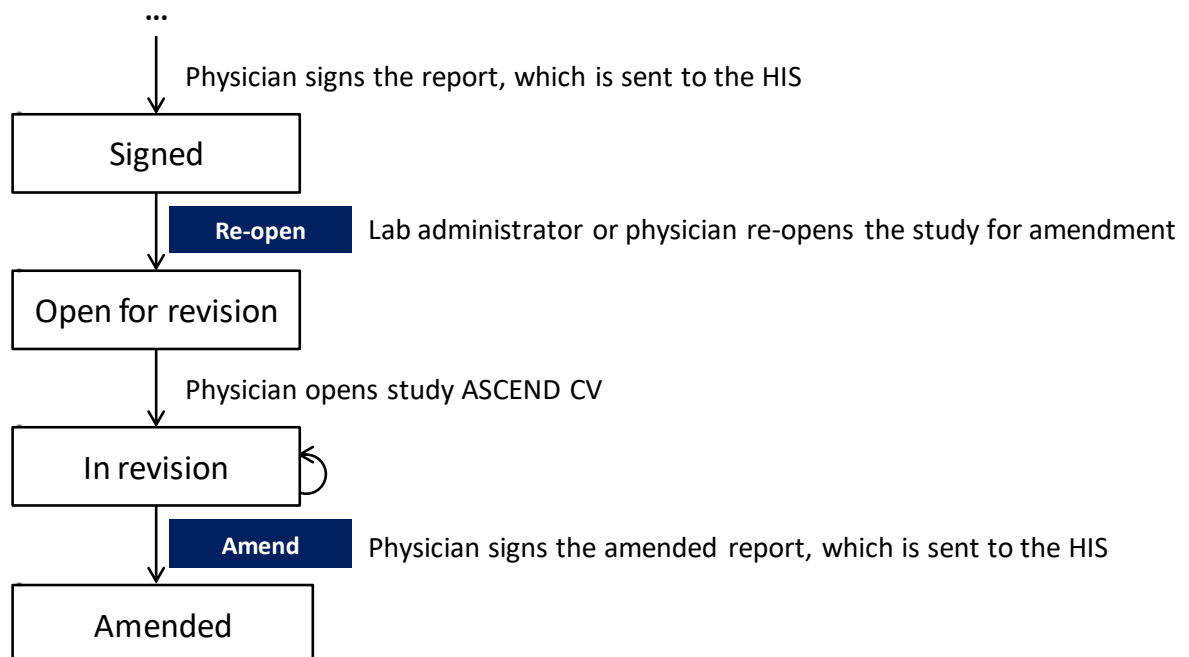
Amendment Workflow

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, this 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, this 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, this 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.

The screenshot shows the ASCEND CV interface with a report titled "Report - Signed - Saved on 05/30/2017 07:15". The report header includes the ASCEND General Hospital logo and contact information: 1234 Main St. Anywhere, USA 02345, Phone: (800) 555-1234, Fax: (800) 555-1235. The study title is "Transthoracic Echocardiography Limited 2D". Patient information includes Mitchell Carson, MRN: TB0001, Age: 58 yr, Birth Date: December 25, 1947, and Study Date: November 20, 2011. Ordering physician is Michael Edwards, MD, and Referring physician is Mary Martin, MD. The report contains a summary of findings, study data, and detailed findings for the left ventricle, aortic valve, aorta, mitral valve, left atrium, and right ventricle. A "Re-open" button is highlighted in the top right corner. At the bottom, patient and user information is displayed: Patient: Carson, Mitchell MRN: 3162935 (MRN), Module: Echocardiography, DOS: 01/24/2013 07:39 AM, Status: Signed, User: Abrahams, Tim, MD.

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

The "Re-open for amendment" dialog box contains two text input areas. The first is labeled "Reason for amendment -- This information is not shown on the amended report" and contains the text "Failed to classify aortic regurgitation." Below this is a "Close" button with the text "Close this window and leave the study for physician to amend". The second text input area is labeled "Addendum -- This information is shown on the amended report" and is currently empty. Below this area is a red error message "Addendum text is required". At the bottom of the dialog are three buttons: "Sign" (with text "Sign study without editing findings"), "Edit report" (with text "Open the study for editing"), and "Cancel".

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)

Re-open for amendment

Reason for amendment -- This information is not shown on the amended report
Failed to classify aortic regurgitation.

Close Close this window and leave the study for physician to amend

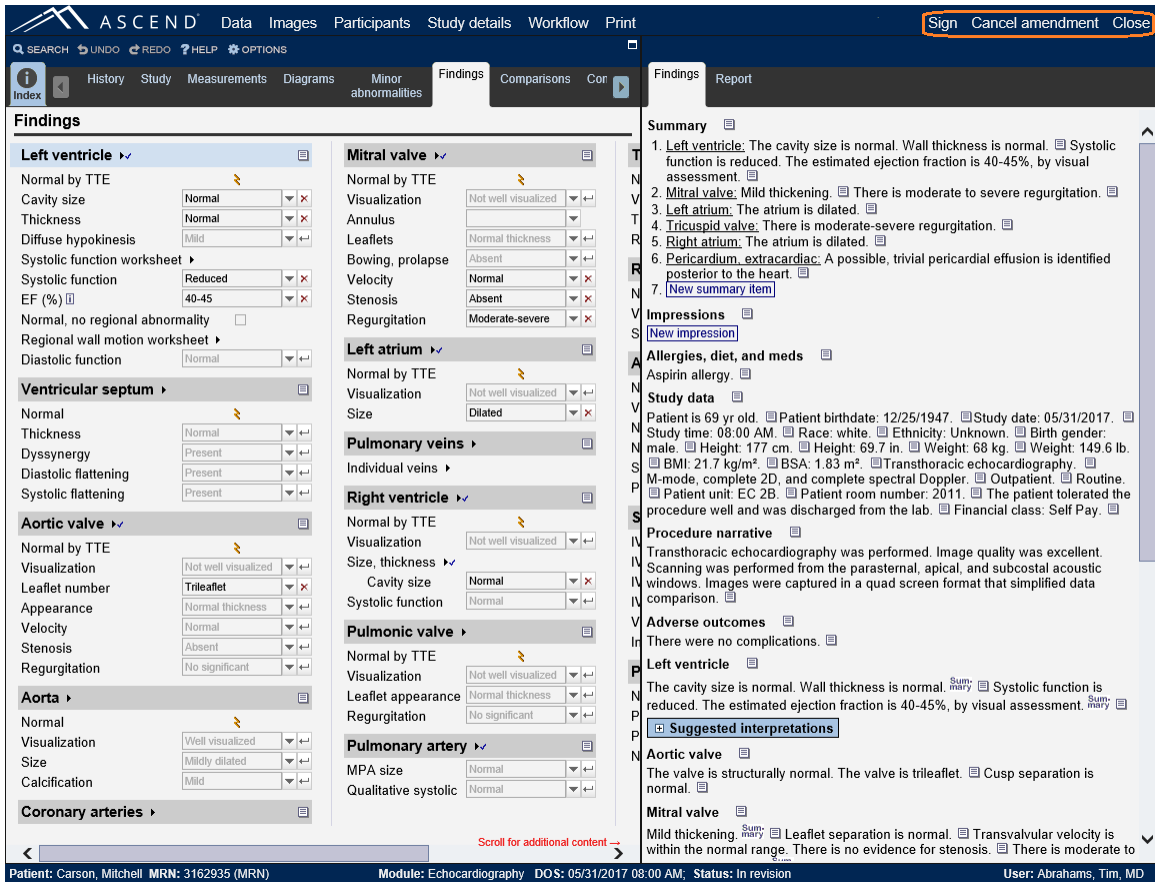
Addendum -- This information is shown on the amended report
This addendum text is optional but must be entered to sign the study without editing the report.

Sign Sign study without editing findings

Edit report Open the study for editing

Cancel


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, if necessary, manually edit this information.

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.

Report signature confirmation



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 Fax: (800) 555-1235

Transthoracic Echocardiography
M-mode, complete 2D, and complete spectral Doppler

Patient:	Mitchell Carson	Study date:	05/31/2017	Height:	177 cm
MRN:	#3162935 (MRN)	Birth date:	12/25/1947		(69.7 in)
Accession:	#12453	Age:	69 yr	Weight:	68 kg
Patient location:	EC 2B 2011	Birth gender:	M		(149.6 lb)
Study status:	Routine	Gender identity:		BSA:	1.83 m ²
Facility:	East Campus			BMI:	21.7 kg/m ²
				Patient status:	Outpatient

Addendum: This addendum text is optional but must be entered to sign the study without editing the report.

Summary:

1. Left ventricle: The cavity size is normal. Wall thickness is normal. Systolic function is reduced. The estimated ejection fraction is 40-45%, by visual assessment.
2. Mitral valve: Mild thickening. There is moderate to severe regurgitation.
3. Left atrium: The atrium is dilated.
4. Tricuspid valve: There is moderate-severe regurgitation.
5. Right atrium: The atrium is dilated.
6. Pericardium, extracardiac: A possible, trivial pericardial effusion is identified posterior to the heart.

History: Allergies: Aspirin allergy.

Study data: Patient unit: EC 2B. Patient room number: 2011. Study status: Routine. Procedure: Transthoracic echocardiography was performed. Image quality was excellent. Scanning was performed from the parasternal, apical, and subcostal acoustic windows. Images were captured in a quad screen format that simplified data comparison. Study completion: The patient tolerated the procedure well and was discharged from the lab. There were no complications.

Left ventricle: The cavity size is normal. Wall thickness is normal. Systolic function is reduced. The estimated ejection fraction is 40-45%, by visual assessment.

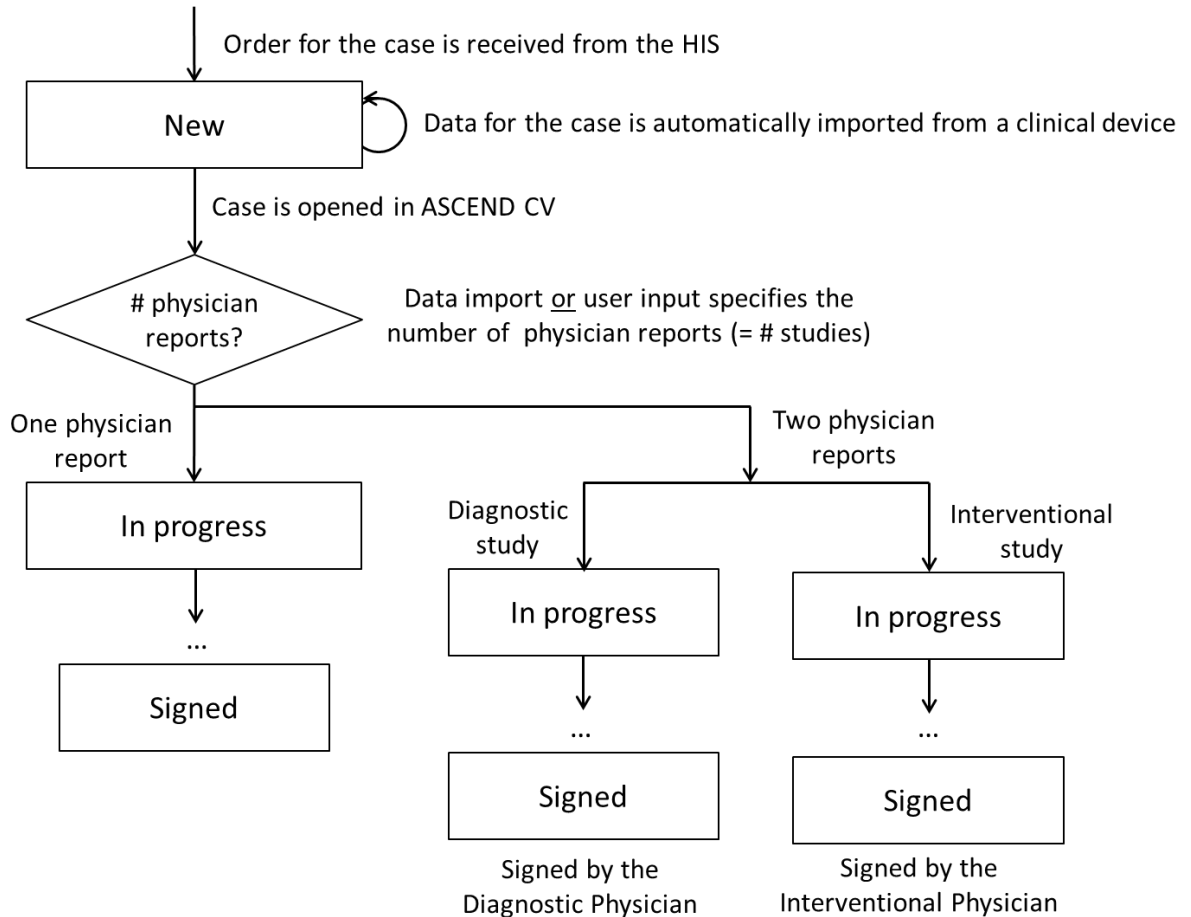
Aortic valve: The valve is structurally normal. The valve is trileaflet. Cusp separation is normal.

I have reviewed this report and assume responsibility for its accuracy and completeness.

Edit addendum
Confirm
Cancel

“Split Case” Workflow

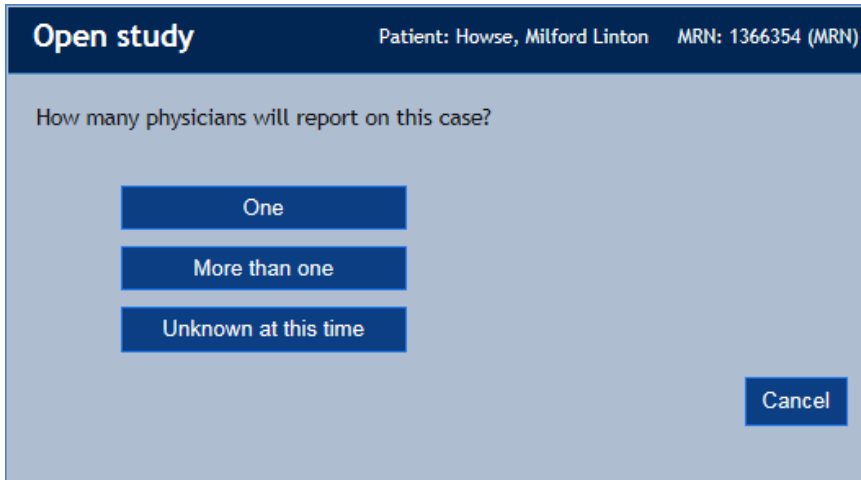
ASCEND CV can be configured to allow multiple physicians to report separately on a case. For example, a Cath case might consist of a diagnostic study performed by one physician followed by an interventional study performed by a different physician, where both studies share the same order (same accession 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.



Another two-physician example includes a Nuclear Stress split case which is completed by a stress ECG physician in combination with the imaging physician. In this case, the final combined report consists of the Stress ECG report with signature concatenated to the end of the Nuclear Imaging report with separate signature.

Specifying the Number of Physician Reports for a Case

Usually for Cath cases, the number of physician reports 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 for a Cath case:

Open study Patient: Howse, Milford Linton MRN: 1366354 (MRN)

Responsible physician	Type	Status	Import	Action
First, John	Diagnostic	In progress	Data available	<input type="button" value="Open"/>
Second, Joan	Interventional	Never opened	Data available	<input type="button" value="Open"/>

- 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. The following example is for a two physician Nuclear Stress case:

Manage studies Patient: Radke, Phill MRN: 433627 (MRN)

Responsible physician	Type	Status	Action	
de Kort, Martin F, MD	Stress ECG	In progress	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>
Lawrence, Christopher Mark, I MD	Nuclear Stress	In progress	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>

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

Completing a “Split” Case

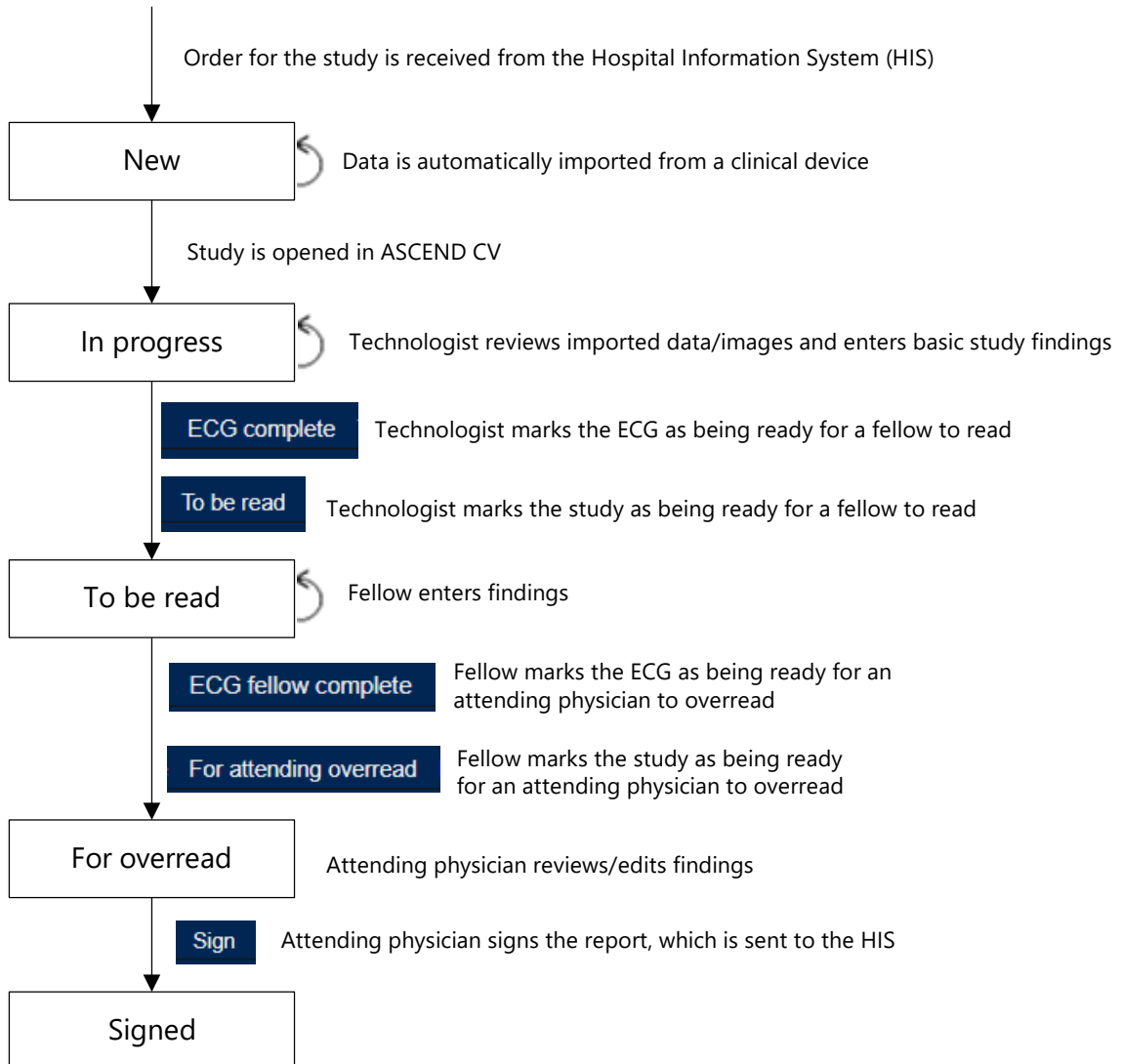
Each study proceeds separately through its own reporting workflow – including

- Data import, with the data imported divided between the two studies appropriately
- Data entry and review
- Signing

In the case of a Nuclear Stress split case, the Stress ECG study must be signed before the nuclear imaging portion can be signed. The final complete result consists of the Stress ECG report concatenated to the end of the Nuclear imaging report.

Multiple Technician Workflow

ASCEND CV can be configured to support multiple technicians for Stress Imaging studies in any of the other workflows. In these workflow variants, one technician reports on ECG stress data, while another reports on imaging. Once the imaging has been reviewed, the **ECG complete** button marks the stress ECG review complete for the “To be read” status. If “For overread” is enabled and configured for multiple technicians, there will be an **ECG fellow complete** button that serves the same purpose for the fellow’s review. If these workflow steps are skipped, a warning message will appear that the ECG piece has not been completed. However, they are optional and do not need to be clicked, if enabled, for a report to move onto the next step in the workflow.



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.

The study is currently locked by Brooks, Jerome X, V TEC. Please try again later. Unlock Edit Close

Report - Current unsigned - Saved on 05/30/2017 20:30 Print

ASCEND General Hospital
 1234 Main St. Anywhere, USA 02345
 Phone: (800) 555-1234
 Fax: (800) 555-1235

Transthoracic Echocardiography
Bruce protocol
M-mode, complete 2D, and complete spectral Doppler

Patient: Ralph Julius Lowell	Study date: 02/15/2013	Height:
MRN: #648379 (MRN)	Birth date: 01/27/1943	Weight:
Accession: #698aod964	Age: 70 yr	BSA:
Patient location: WC 4B 428	Birth gender: M	BMI:
Study status: Routine	Gender identity:	HR:
Facility: East Campus	Patient status: Outpatient	BP:

Summary:
 1. **Left ventricle:** The cavity size is normal. Wall thickness is normal. Systolic function is normal. The estimated ejection fraction is 55-65%. Wall motion is normal; there are no regional wall motion abnormalities.
 2. **Stress ECG conclusions:** Duke scoring: exercise time of 6.25 min; maximum ST deviation of 1.1 mm; ; resulting score is 1. This score predicts a moderate risk of cardiac events.

History and indications: Allergies: No known allergies.

Study data: Patient unit: WC 4B. Patient room number: 428. Study status: Routine. Objective: CP. Procedure: Transthoracic echocardiography was performed. Image quality was adequate. Scanning was performed from the parasternal, apical, and subcostal acoustic windows. Treadmill exercise testing was performed using the Bruce protocol. The patient exercised for 6 min 15 sec, to a maximal work rate of 7.4 mets. Exercise was terminated due to fatigue. Study completion: The patient tolerated the procedure well.

Left ventricle: The cavity size is normal. Wall thickness is normal. Systolic function is normal. The estimated ejection fraction is 55-65%. Wall motion is normal; there are no regional wall motion abnormalities. Wall motion score: 1.00.

Aortic valve: The valve is structurally normal. The valve is trileaflet. Cusp separation is normal. Transvalvular velocity is within the normal range. There is no stenosis. There is no regurgitation.

Aorta: Aortic root: The aortic root is not dilated.

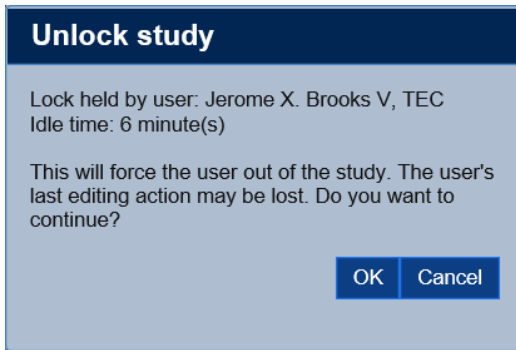
Mitral valve: The valve is structurally normal. Leaflet separation is normal. Transvalvular velocity is within the normal range. There is no evidence for stenosis. There is no regurgitation.

Patient: Lowell, Ralph Julius MRN: 648379 (MRN) Module: Echocardiography DOS: 02/13/2013 09:01 AM Status: In progress User: Abrahams, Tim, MD

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:

The study is currently locked by Brooks, Jerome X, V TEC. Please try again later. Unlock Edit Close

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

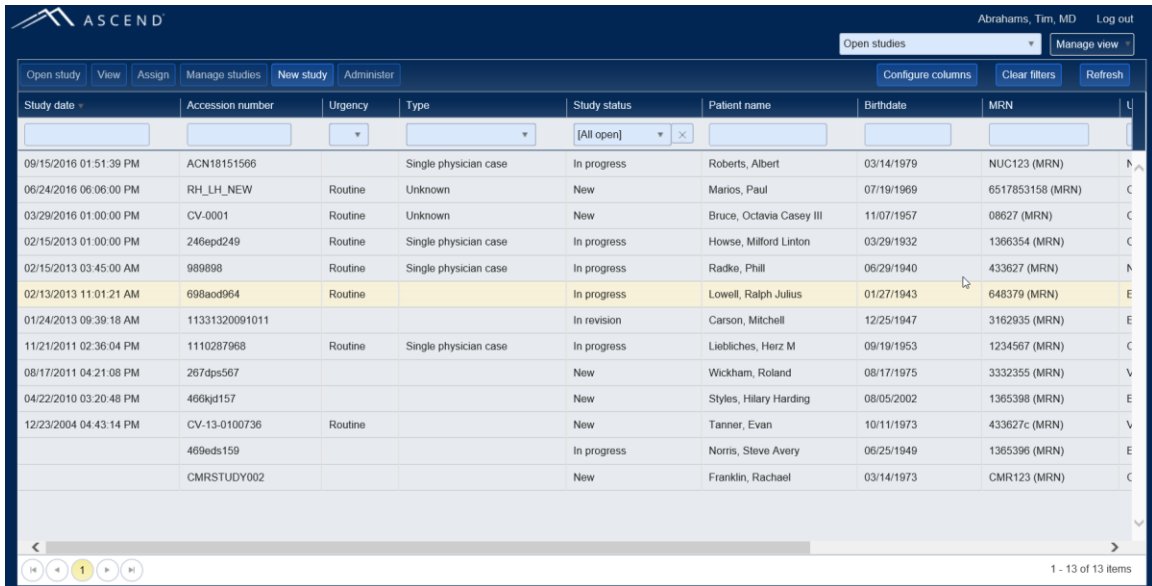


If you then click **OK**, you will have unlocked the study for editing by another user, including yourself. If you now click on the **Edit** button, you will succeed in opening the study for edit.

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.



The screenshot shows the ASCEND CV Worklist interface. At the top, there is a header with the ASCEND logo, the user name 'Abrahams, Tim, MD', and a 'Log out' button. Below the header is a navigation bar with buttons for 'Open study', 'View', 'Assign', 'Manage studies', 'New study', and 'Administer'. There are also buttons for 'Configure columns', 'Clear filters', and 'Refresh'. A search bar labeled 'Open studies' and a 'Manage view' button are also present.

Study date	Accession number	Urgency	Type	Study status	Patient name	Birthdate	MRN	
09/15/2016 01:51:39 PM	ACN18151566		Single physician case	In progress	Roberts, Albert	03/14/1979	NUC123 (MRN)	
06/24/2016 06:06:00 PM	RH_LH_NEW	Routine	Unknown	New	Marios, Paul	07/19/1969	6517853158 (MRN)	
03/29/2016 01:00:00 PM	CV-0001	Routine	Unknown	New	Bruce, Octavia Casey III	11/07/1957	08627 (MRN)	
02/15/2013 01:00:00 PM	246epd249	Routine	Single physician case	In progress	Howse, Milford Linton	03/29/1932	1366354 (MRN)	
02/15/2013 03:45:00 AM	989898	Routine	Single physician case	In progress	Radke, Phill	06/29/1940	433627 (MRN)	
02/13/2013 11:01:21 AM	698aod964	Routine		In progress	Lowell, Ralph Julius	01/27/1943	648379 (MRN)	
01/24/2013 09:39:18 AM	11331320091011			In revision	Carson, Mitchell	12/25/1947	3162935 (MRN)	
11/21/2011 02:36:04 PM	1110287968	Routine	Single physician case	In progress	Liebliches, Herz M	09/19/1953	1234567 (MRN)	
08/17/2011 04:21:08 PM	267dps567			New	Wickham, Roland	08/17/1975	3332355 (MRN)	
04/22/2010 03:20:48 PM	466kjd157			New	Styles, Hilary Harding	08/05/2002	1365398 (MRN)	
12/23/2004 04:43:14 PM	CV-13-0100736	Routine		New	Tanner, Evan	10/11/1973	433627c (MRN)	
	469eds159			In progress	Norris, Steve Avery	06/25/1949	1365396 (MRN)	
	CMRSTUDY002			New	Franklin, Rachael	03/14/1973	CMR123 (MRN)	

At the bottom of the table, there is a pagination bar showing '1 - 13 of 13 items'.

Refreshing the Worklist

Clicking the **Refresh** button refreshes the worklist, displaying 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, or double-clicking the study, opens the study in the ASCEND CV reporting interface. Once you have completed reporting, clicking the appropriate workflow (such as **To be Read**, **Preliminary release**, or **Sign**) or the **Close** button on the workflow toolbar returns you back to the worklist.

The screenshot displays the ASCEND CV reporting interface for a patient named Lowell, Ralph Julius (MRN: 648379). The interface is organized into several key sections:

- Findings:** A detailed list of cardiac structures and their measurements. Key findings include:
 - Left ventricle:** Normal by TTE, cavity size normal, thickness normal, diffuse hypokinesis mild, systolic function normal, EF 55-65%.
 - Mitral valve:** Normal by TTE, visualization not well visualized, annulus normal thickness, leaflets normal, bowing/prolapse absent, velocity normal, stenosis absent, regurgitation absent.
 - Left atrium:** Normal by TTE, visualization not well visualized, size normal.
 - Right ventricle:** Normal by TTE, visualization not well visualized, size/thickness normal, cavity size normal, systolic function normal.
 - Pulmonary veins:** Individual veins not well visualized.
 - Pulmonic valve:** Normal by TTE, visualization not well visualized, leaflet appearance normal thickness, regurgitation absent.
 - Aorta:** Normal, visualization well visualized, size mildly dilated, calcification mild.
- Summary:** A concise overview of the findings, stating: "1. Left ventricle: The cavity size is normal. Wall thickness is normal. Systolic function is normal. The estimated ejection fraction is 55-65%. Wall motion is normal; there are no regional wall motion abnormalities. 2. Stress ECG conclusions: Duke scoring: exercise time of 6.25 min; maximum ST deviation of 1.1 mm; Treadmill angina scale 7, resulting score is 1. This score predicts a moderate risk of cardiac events. 3. New summary item."
- Impressions:** "Allergies, diet, and meds: No known allergies."
- Study data:** Patient is 74 yr old, birthdate 01/27/1943, study date 05/31/2017, study time 12:41 PM, race black, birth gender male, height 177 cm, weight 68 kg, BMI 21.7 kg/m², BSA 1.83 m². Bruce protocol, transthoracic echocardiography, M-mode, complete 2D, and complete spectral Doppler. CP, Outpatient, Routine. Patient unit: WC 4B, Patient room number: 428. The patient tolerated the procedure well and was discharged from the lab. Financial class: Blue Cross.
- Procedure narrative:** Transthoracic echocardiography was performed. Image quality was excellent. Scanning was performed from the parasternal, apical, and subcostal acoustic windows. Images were captured in a quad screen format that simplified data comparison. Treadmill exercise testing was performed using the Bruce protocol. The patient exercised for 6 min 15 sec, to a maximal work rate of 7.4 mets. Exercise was terminated due to fatigue.
- Adverse outcomes:** There were no complications.
- Suggested interpretations:** Aortic valve: The valve is structurally normal. The valve is trileaflet. Cusp separation is normal. Pericardial transvalvular velocity is within the normal range. There is no stenosis. There is no regurgitation. Aorta: The aortic root is not dilated.

The status bar at the bottom indicates: Patient: Lowell, Ralph Julius MRN: 648379 (MRN) Module: Echocardiography DOS: Status: In progress User: Abrahams, Tim, MD

Previewing a Report

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

ASCEND General Hospital
1234 Main St. Anywhere, USA 02345
Phone: (800) 555-1234
Fax: (800) 555-1235

Catheterization Laboratory Study

Patient: Milford Linton Howse
MRN: #1366354 (MRN)
Accession: #246epd249
Patient location: WC 4B 428
Study status:
Facility: East Campus

Study date: 02/15/2013
Birth date: 03/29/1932
Age: 80 yr
Birth gender: M
Gender identity:

Height:
Weight:
BSA:
BMI:
Patient status: Inpatient

Summary: LAD: Mid-vessel lesion. The diagnostic study demonstrated a 90% stenosis. Stent placement was performed (see 1st lesion intervention). Following intervention, there is a residual 5% stenosis.

History and indications: **Risk factors:** Hypertension. Diabetes mellitus; on therapy with diet. Family history is significant for coronary artery disease. **Allergies:** No known allergies.

Labs, prior tests, procedures, and surgery:
Blood tests: Serum creatinine (current admission) of 5.6 mg/dl. Hemoglobin (pre-procedure) of 12.6 g/dl.

Study data: Patient unit: WC 4B. Patient room number: 428. **Study status:** Cardiac cath: elective. **Objective:** CP. **Consent:** The risks, benefits, and alternatives to the procedure were explained to the patient and informed consent was obtained.

Procedures performed:

- Left coronary angiography.
- Right coronary angiography.
- Percutaneous intervention on the 90% stenosis in the mid LAD. Balloon angioplasty. Stent placement.

Procedure:

1. Right femoral artery access. A 6Fr sheath 24cm sheath was advanced into the vessel.
2. Selective left coronary angiography. A JL4.0 6FR LAUNCHER IVG catheter was advanced into the left coronary vessel ostium under fluoroscopic guidance. Contrast was injected. Images were obtained in multiple projections.
3. Selective right coronary angiography. A JR4.0 6FR LAUNCHER IVG catheter was advanced into the right coronary vessel ostium under fluoroscopic guidance. Contrast was injected. Images were obtained in multiple projections.
4. Sheath exchange. The right femoral artery sheath was exchanged for an 8Fr sheath 24cm sheath.
5. A stent was placed in the stenosis in the mid LAD. See detailed description below (1st lesion intervention).

Patient: Howse, Milford Linton MRN: 1366354 (MRN) Module: Cath implant (Single physician case) DOS: 02/15/2013 11:00 AM Status: In progress User: Abrahams, Tim, MD

If there are prior Cardiology studies for the patient associated with the selected study, then a **Show comparison studies** button will be displayed in the top-left. Pressing the button displays any prior reports (left) alongside the report for the selected study (right).

Prior studies
Dr. Lawrence - 01/24/2013 - Nuclear cardiology - SingleStudy - Signed

Current study
SingleStudy report - Current unsigned - Saved on 05/30/2017 20:25

ASCEND General Hospital
1234 Main St. Anywhere, USA 02345
Phone: (800) 555-1234
Fax: (800) 555-1235

Myocardial Perfusion Imaging
Bruce protocol
Gated SPECT and planar imaging

Patient: Phill Radke
MR number: 433627
Age: 63 yr
Birth date: 06/29/1940
Study date: 03/09/2004

Ordering physician: Michael Edwards, MD
Height:
Weight:

Summary: **Stress ECG conclusions:** Duke scoring: exercise time of 6.25 min; maximum ST deviation of 1.1 mm; no angina; resulting score is 1. This score predicts a moderate risk of cardiac events.

Impressions: Abnormal study after maximal exercise without reproduction of symptoms. Cannot exclude myocardial infarction, in the territory of the left circumflex coronary artery.

Recommendations:

1. If patient symptoms persist.
2. Cardiac catheterization should be performed.

History: Moderate exertional chest pain. **Risk factors:** Current tobacco use. Hypertension. Diabetes mellitus. Dyslipidemia.

Study data: **Study status:** Elective. **Consent:** The risks, benefits, and alternatives to the procedure were explained to the patient and informed consent was obtained. **Procedure:** Initial setup. The patient was brought to the laboratory. A baseline ECG was recorded. Intravenous access was obtained. Surface ECG leads and manual cuff blood pressure measurements were monitored. Treadmill exercise testing was performed using the Bruce protocol. The patient exercised for 6 min 15 sec, to a maximal work rate of 7.4 mets. Exercise was terminated due to fatigue. **Study completion:** All catheters inserted during the procedure were removed. The patient tolerated the procedure well and was discharged from the lab.

Stress protocol:

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Myocardial Perfusion Imaging
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Patient: Phill Radke
MRN: #433627 (MRN)
Accession: #989898
Patient location: WC 4B 428
Study status: Routine
Facility: East Campus

Study date: 02/15/2013
Birth date: 06/29/1940
Age: 72 yr
Birth gender: M
Gender identity:

Height:
Weight:
BSA:
BMI:
Patient status: Inpatient

Summary: **Stress ECG conclusions:** Duke scoring: exercise time of 7.92 min; maximum ST deviation of 6.8 mm; .

History and indications: **Allergies:** No known allergies.

Study data: Patient unit: WC 4B. Patient room number: 428. **Study status:** Routine. **Objective:** CP. **Consent:** The risks, benefits, and alternatives to the procedure were explained to the patient and informed consent was obtained. **Procedure:** Initial setup. The patient was brought to the laboratory. A baseline ECG was recorded. Intravenous access was obtained. Surface ECG leads and manual cuff blood pressure measurements were monitored. Treadmill exercise testing was performed using the Bruce protocol. The patient exercised for 7 min 55 sec, to a maximal work rate of 9.1 mets. Exercise was terminated due to fatigue and due to dizziness. **Study completion:** The patient tolerated the procedure well.

Isotope administration:

Stage	Rest	Stress
Agent	Tc-99m sestamibi	Tc-99m sestamibi
Injected dose	6 mCi	24 mCi
Injection to image	00:15	00:15

Patient: Radke, Phill MRN: 433627 (MRN) Module: Nuclear cardiology (Single physician case) DOS: 02/15/2013 01:45 AM Status: In progress User: Abrahams, Tim, MD

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

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Patient location: WC 4B 428
Study status: Routine
Facility: East Campus

Study date: 02/15/2013
Birth date: 06/29/1940
Age: 72 yr
Birth gender: M
Gender identity:

Height:
Weight:
BSA:
BMI:
Patient status: Inpatient

Summary: Stress ECG conclusions; Duke scoring: exercise time of 7.92 min, maximum ST deviation of 6.6 mm, ...

History and indications: Allergies: No known allergies.

Study data: Patient unit: WC 4B. Patient room number: 428. Study status: Routine. Objective: CP. Consent. The risks, benefits, and alternatives to the procedure were explained to the patient and informed consent was obtained. **Procedure:** Initial setup. The patient was brought to the laboratory. A baseline ECG was recorded. Intravenous access was obtained. Surface ECG leads and manual cuff blood pressure measurements were monitored. Treadmill exercise testing was performed using the Bruce protocol. The patient exercised for 7 min 55 sec, to a maximal work rate of 9.1 mets. Exercise was terminated due to fatigue and due to dizziness. **Study completion:** The patient tolerated the procedure well.

Isotope administration:		
Stage	Rest	Stress
Agent	Tc-99m sestamibi	Tc-99m sestamibi
Injected dose	6 mCi	24 mCi
Injection to image	00:15	00:15
Post 1st injection	--	03:00

Image properties: Gated imaging was performed.

Patient: Radke, Phill MRN: 433627 (MRN) Module: Nuclear cardiology (Single physician case) DOS: 02/15/2013 01:45 AM Status: In progress User: Abrahams, Tim, MD

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 force close other studies, after clicking **Edit**, you will be prompted to terminate the session of the other user, along with an indication of how long that 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.

Participants

Show only: East Campus Echocardiography Role

Role	Participant
Responsible physician	Lawrence, Christopher Mark
Preliminary signer	[none]
Sonographer	Brooks, Jerome X, V TEC
Referring physician	[none]
Ordering physician	[none]
Practice	[none]

Ok Cancel

Managing Worklist Views

You can configure the worklist to meet your needs:

- The worklist can be **sorted by column entry**. Clicking on a column heading such as **Study status** toggles between:
 - Unsorted **Study status** with no arrow
 - an increasing sort **Study status ▲** with an up arrow
 - a decreasing sort **Study status ▼** with a down arrow

Clicking on multiple columns combines the sorts across all columns, grouped in the order the columns were clicked. For example, clicking on Study Status, followed by clicking on Patient name creates a nested or grouped sort ordered by patient name within increasing status progression, as seen below:

The screenshot shows the ASCEND software interface. At the top right, the user is identified as 'Abrahams, Tim, MD' with a 'Log out' link. Below this is a search bar containing 'Open studies' and a 'Manage view' button. A navigation bar contains buttons for 'Open study', 'View', 'Assign', 'Manage studies', 'New study', and 'Administer'. To the right of these are 'Configure columns', 'Clear filters', and 'Refresh' buttons. The main table has the following columns: Study date, Accession number, Urgency, Type, Study status ▲, and Patient name ▲. The table contains 15 rows of data. The 'Study status' column is sorted in ascending order, and the 'Patient name' column is sorted within each status group. The current page is 1 of 21 items.

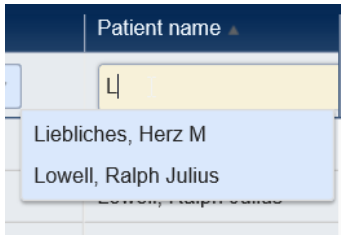
Study date	Accession number	Urgency	Type	Study status ▲	Patient name ▲
03/29/2016 01:00:00 PM	CV-0001	Routine	Unknown	New	Bruce, Octavia Casey III
	CMRSTUDY002			New	Franklin, Rachael
06/24/2016 06:06:00 PM	RH_LH_NEW	Routine	Unknown	New	Marios, Paul
04/22/2010 03:20:48 PM	466kj157			New	Styles, Hilary Harding
12/23/2004 04:43:14 PM	CV-13-0100736	Routine		New	Tanner, Evan
08/17/2011 04:21:08 PM	267dps567			New	Wickham, Roland
02/15/2013 01:00:00 PM	246epd249	Routine	Single physician case	In progress	Howse, Milford Linton
11/21/2011 02:36:04 PM	1110287968	Routine	Single physician case	In progress	Liebliches, Herz M
02/13/2013 11:01:21 AM	698aod964	Routine		In progress	Lowell, Ralph Julius
	469eds159			In progress	Norris, Steve Avery
02/15/2013 03:45:00 AM	989898	Routine	Single physician case	In progress	Radke, Phill
09/15/2016 01:51:39 PM	ACN18151566		Single physician case	In progress	Roberts, Albert
07/23/2015 11:38:24 PM	12453			Signed	Carson, Mitchell
	CMRSTUDY001			Signed	Franklin, Rachael
01/24/2013 09:39:18 AM	55443		Single physician case	Signed	Liebliches, Herz M

- The worklist, when longer than a single screen or page, can be traversed using the worklist paging control at the bottom left.



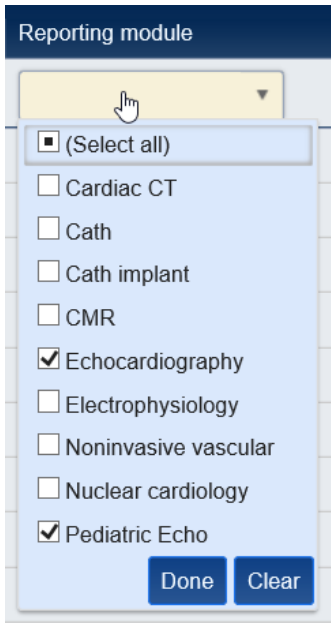
These buttons will display hover text to remind you of their function. From left to right they are:

- Go to the first page
 - Go to the previous page
 - [current page number – not a button]
 - Go to the next page
 - Go to the last page
- The worklist can be **filtered by column entry**. Entering text in a column’s filter box (below the column heading) displays only those studies that contain the specified text in the specified column (the studies that contain “L” in the *Patient name* column, in the example below).

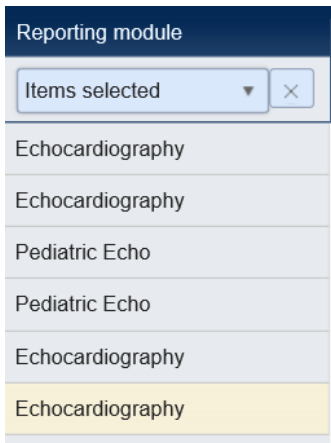



You can either click the mouse outside the dropdown to clear the matching list and display all patient names beginning with “L”, or sub-select one of the matches to display only the studies associated with that one patient.

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.

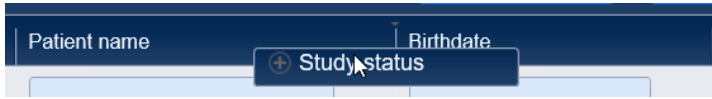


In either case, the filtered column will display **Items selected** to indicate that it is being filtered.

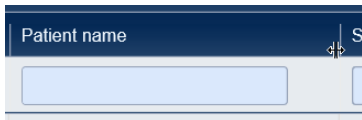


Clicking the  will clear the individual filter. Clicking the **Clear filters** button will clear all filters set across all columns.

- 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.



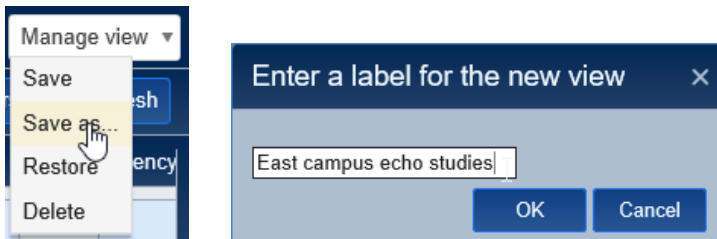
- The worklist **column widths can be adjusted**. To narrow/widen a column, grab its column divider (the dotted line in the example below) and drag it left/right.



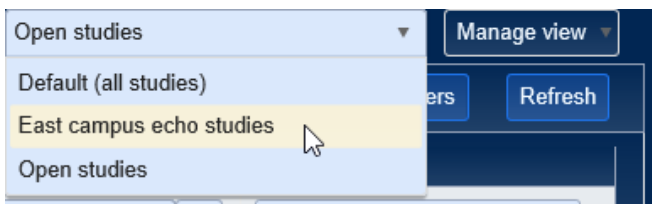
Once you have a worklist configuration that you like, you can save it as a named **worklist view** for future use. The example below shows a worklist whose columns have been reordered and contain open (unsigned) Echocardiography studies performed at the East Campus, sorted by study date/time.

Facility	Reporting module	Study status	Study date	Patient name	Type
East Campus	Echocardiography	Items selected			
East Campus	Echocardiography	New	07/23/2015 11:38:24 PM	Carson, Mitchell	
East Campus	Echocardiography	New	02/13/2013 11:01:21 AM	Lowell, Ralph Julius	

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.

Administer - Case editor

Admission Account number: 10041889 Arrival date/time: 02/13/2013 12:21 PM Admission: Observation	Patient Carson, Mitchell MRN: 3162935 (MRN) DOB: 12/25/1947 Edit patient Change patient Create patient
Order Accession number: 12453 Study instance ID: 1.2.888.77777.6666.1.99999999.4.2 Placer order number: 36099144 Ordered date/time: 02/13/2013 09:40 AM Universal service ID: CardiacEchoca20 [TEE] Order description: Cardiac Echocardiogram Transesopt Urgency: External ID: Order status: Order canceled reason: Facility: East Campus	Case Lab discharge date/time: Location performed: Procedure room: Encounter MRN: 3162935
Study Start date/time: 07/23/2015 09:38 PM Stop date/time:	

Cancel order Reset study Download study xml Save Cancel

Editing Patient Data

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

Administer - Case editor: Patient demographics

Carson, Mitchell

This patient record is shared by all of the studies associated with this patient.
This form should only be used to update patient information.
To change the patient associated with this study, use the **Change patient** function.

ID	713	SSN	184-38-9676
Salutation	<input type="text"/>	MPI	<input type="text"/>
First name	Mitchell	Universal record #	<input type="text"/>
Middle name	<input type="text"/>	<input type="checkbox"/> Foreign health insurance <input type="checkbox"/> Indian health service <input type="checkbox"/> Medicaid <input type="checkbox"/> Medicare <input type="checkbox"/> Military health care <input type="checkbox"/> No health insurance <input type="checkbox"/> Private health insurance <input type="checkbox"/> State specific health care plan	
Last name	Carson		
Family suffix	<input type="text"/>		
Professional suffix	<input type="text"/>		
Address 1	603 THUNDER DR	Death indicator <input type="text"/>	
Address 2	<input type="text"/>	Death date/time <input type="text"/>	
City	PRESCOTT		
State / province	AZ		
Zip / postal code	863035088		
Country	<input type="text"/>		
Email	<input type="text"/>		
Business #	<input type="text"/>		
Home #	(603)400-500		
Fax #	<input type="text"/>		
Birth date	12/25/1947		
Birth gender	Male		
Ethnicity	Unknown		
Race	White		
Marital status	Married		
Primary language	English		

Assigning authority	Type	ID
MRN	MRN	3162935

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.

Administer - Case editor: Patient selector

Search:

Name	MRN	DOB
Bruce, Octavia Casey III	08627	11/07/1957
Carson, Mitchell	3162935	12/25/1947
Franklin, Rachael	CMR123	03/14/1973
Howse, Milford Linton	1366354	03/29/1932
Liebliches, Herz M	1234567	09/19/1953
Lowell, Ralph Julius	648379	01/27/1943
Marios, Paul	6517853158	07/19/1969
Norris, Steve Avery	1365396	06/25/1949
Radke, Phill	433627	06/29/1940
Roberts, Albert	NUC123	03/14/1979
Styles, Hilary Harding	1365398	08/05/2002
Tanner, Evan	433627c	10/11/1973
Wickham, Roland	3332355	08/17/1975

Clicking either the **Create patient** button on the Case Editor form, or the **New** button on the Patient Selector form will display a new form for entering a new patient for the study.

Administer - Case editor: Patient demographics

Salutation

! First name ! SSN

Middle name ! MPI

! Last name ! Universal record #

Family suffix

Professional suffix

Address 1

Address 2

City

State / province

Zip / postal code

Country

Email

Business #

Home #

Fax #

! Birth date ! A minimum of one identifier is required.

Birth gender

Ethnicity

Race

Marital status

Primary language

Foreign health insurance

Indian health service

Medicaid

Medicare

Military health care

No health insurance

Private health insurance

State specific health care plan

Death indicator

Death date/time

Assigning authority	Type	ID
No data available in table		

! Required field is empty or invalid

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

Assigning authority	Type	ID
MRN	MRN	3162935

[New](#)

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.

Reset study

[Edit and resubmit order](#)

The case will be completely deleted, including the associated order and all recorded findings, imported device data, and imported secondary capture images. All studies associated with the case will be deleted. Following reset, you can edit the original order to correct errors and the revised order will be resubmitted. Device data will not be reimported automatically, but can be reimported manually. Secondary capture images will not be reimported automatically and must be recaptured.

Use case: The order has an incorrect patient or study identifier (e.g., MRN, Accession#, USID)

[Reset study](#)

All recorded findings, imported device data, and imported secondary capture images will be deleted, but the original order will be retained. Device data will not be reimported automatically, but can be reimported manually. Secondary capture images will not be reimported automatically and must be recaptured.

Use case: Incorrect device data was imported

[Cancel](#)

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 number of incorrect findings were 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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