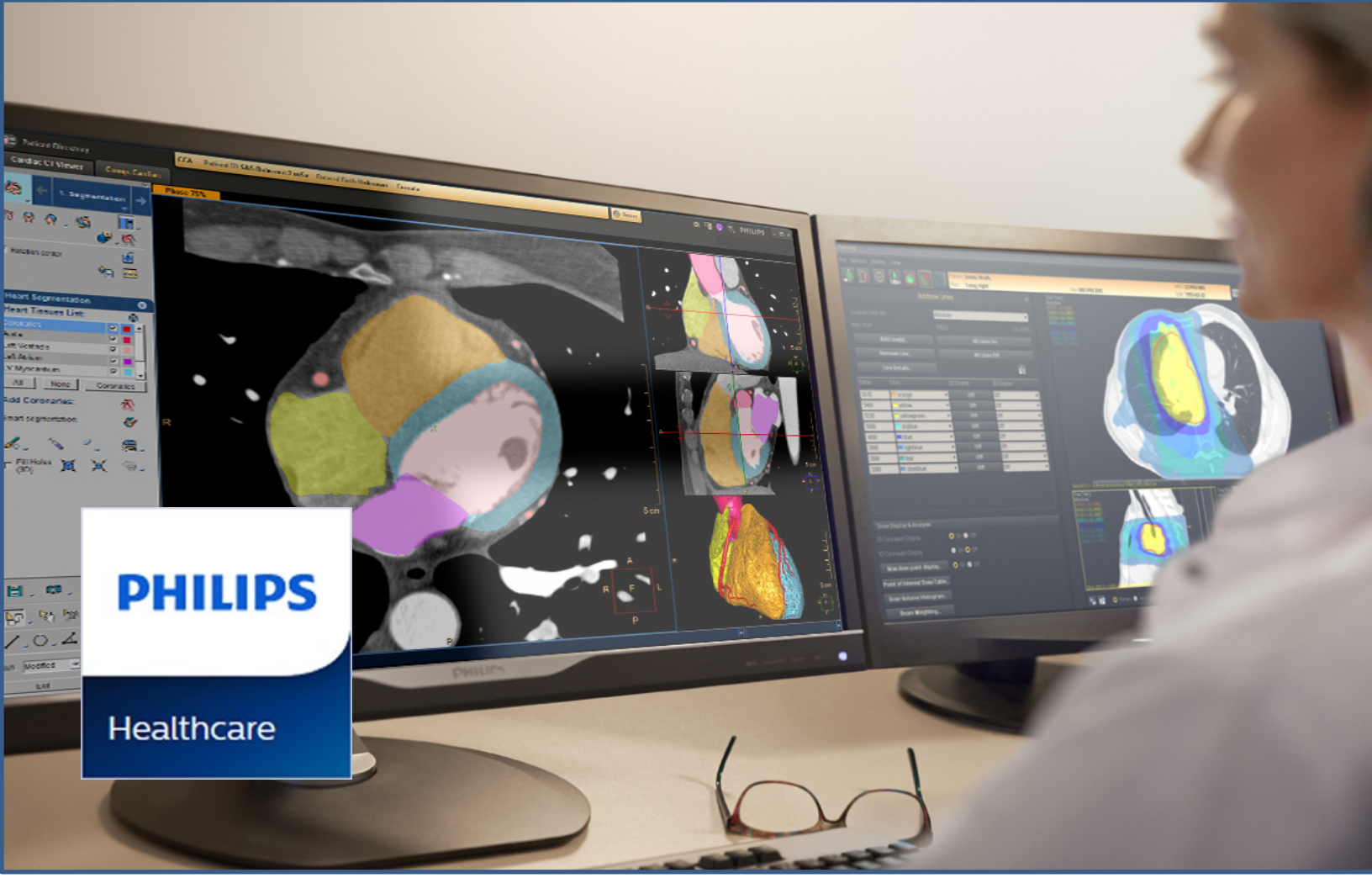

CT Transcatheter Aortic Valve Implantation (TAVI) Planning

Purpose

Provides 2D and 3D visualization and automated measurements designed to assist in proper TAVI-device sizing, on contrast-enhanced, prospectively ECG-gated axial or retrospectively gated helical CT images.

Benefits

- Area and diameter calculations for the aortic annulus, LVOT, sinotubular junction, sinus of valsalva and ascending aorta planes, as well as distance to coronary ostia from the annulus plane.
- Tools such as inspection of minimal diameter, calcifications and vessel tortuosity, to assess the peripheral vessels along the access route. T
- 3D segmentation and visualization of aortic valve calcifications.

Workflow

Before you begin

The application supports contrast-enhanced, prospectively ECG-gated axial or retrospectively gated helical CT images. Acquire a contrast enhanced CT-gated study of the heart.

To process TAVI CT exams:

1. From the **Patient Directory**, select the appropriate cardiac phases and click 

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   - If performing an Aortic Route Assessment select appropriate CTA series, in addition to the needed cardiac phases.

> **Tip** It is recommended to view all phases in **Cardiac Viewer** to evaluate the annulus for optimal phases to load into TAVI.

When the series load, automatic segmentation runs for each loaded phase. After the segmentation is complete, a plane displaying the three (3) aortic sinuses landmarks appears. This allows you to perform the main purpose of the **Verify Landmarks and Segmentation** stage, to view and edit landmarks.

> **Tip** A feature of the IntelliSpace Portal is the ability to capture and save key images and displays. To capture a key image, select the image and press **SPACE** on the keyboard. To capture key displays, press **SHIFT** + **SPACE** on the keyboard.

2. Do one or more of the following as needed:
   - Click  (**Go to Aortic Sinuses landmarks**) and edit Sinuses landmarks if needed.
   - Click  (**Go to RCA/LMCA Ostia landmarks**) and edit Coronary Ostia landmarks if needed.
3. Click  (**Accept all landmarks**) to verify the landmarks.
4. Click  (the Forward arrow) next to Verify Landmarks & Segmentation to move to step 2, **Device Sizing**.

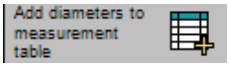
   There are five automatically detected planes that must be reviewed and edited for correctness. By default, none of the automatically detected planes are accepted. Review the planes, edit them as needed, and then accept them to continue to the next step.

   Each unaccepted plane will have a red question mark next to it in planes table and on the image.

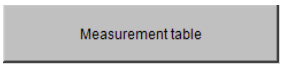
5. Do one or more of the following:
   - To accept the plane highlighted under Edit Planes, click  (**Accept plane**).
   - To edit the plane highlighted under **Edit Planes**, select the ends of the red line(s) in the bottom viewports and rotate the plane as needed.


Note

After the highlighted plane is accepted, the system automatically advances to the next plane in the list.

6. Repeat Step 5 until all the planes are accepted.
7. Draw sinus of Valsalva diameters.
8. The next step in the **Device Sizing** stage is **Edit Measurements**, which is used to review and edit the contours of the accepted planes.
   - If you want to edit contours, click **Edit Measurements**, point to the contour you want to edit, and then click and drag the contour line as needed.
   - To accept the measurements and automatically advance to the **Review Results** stage, under **Edit Measurements** click  (**Accept all**).
9. Under **Review Results**, select one of the following radio buttons to indicate how you want to view measurements:
   - **Summary**: to see all planes on the right side of screen.
   - **Single Plane**: to view one plane at a time.
   - **Optimal CathLab Angle**: to view all optimal cath-lab angles. To add commonly used cath lab angles, click  (**Add your angl**es).
10. Click  (the Forward arrow) next to Device Sizing to move to step 3, **Access Route Assessment**
11. Extract Vessels as needed using the following tools:
    - Mark Aorta and Iliacs - mark aorta and iliac bifurcations as needed, then click Finish centerline creation
    - Mark Any Vessel Manual
    - Mark Any Vessel Automatic
    - Edit/ extend centerline as needed
12. Measure vessels diameters using the following tools:
    - **Measure Diameters**  - draw a MaxD
    - **Show/Edit auto lumen contours** 
13. In the cross section viewport, locate an area of interest and click 

(**Add diameters to measurement table**)

14. Click 

(**Measurement table**)
15. Do one or more of the following:
    - To save images, click  (**Save**) and select the way you want to save the images.
    - To save tables in non-DICOM format, click  (**Save all tables as**).
    - To save a key image(s), in the Navigation pane click the  (drop-down arrow) and select Key Images. Then select a single image and click  or press CTRL on the keyboard, select multiple images, and click  .
    - To bookmark the images, click  (Bookmark) and set the bookmark in the Save Bookmark dialog box.
    - To send the final images to the reporting package, click  (Send selected images to report).
    - To send the patients clinical information to the report click the drop-down arrow next to the displayed reporting option and click  (Report clinical results).

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