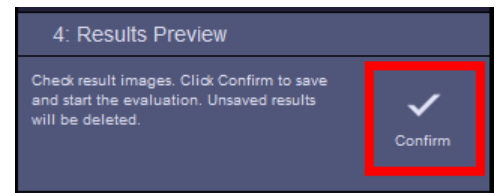
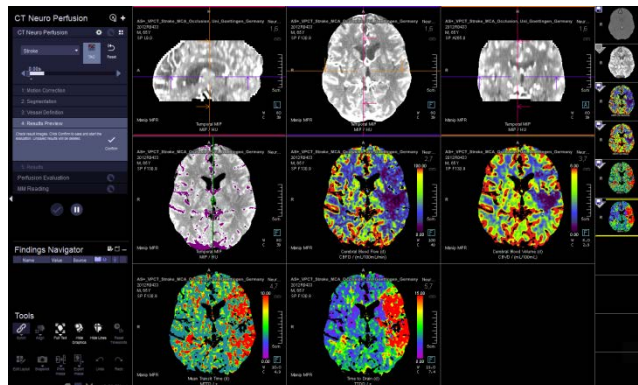
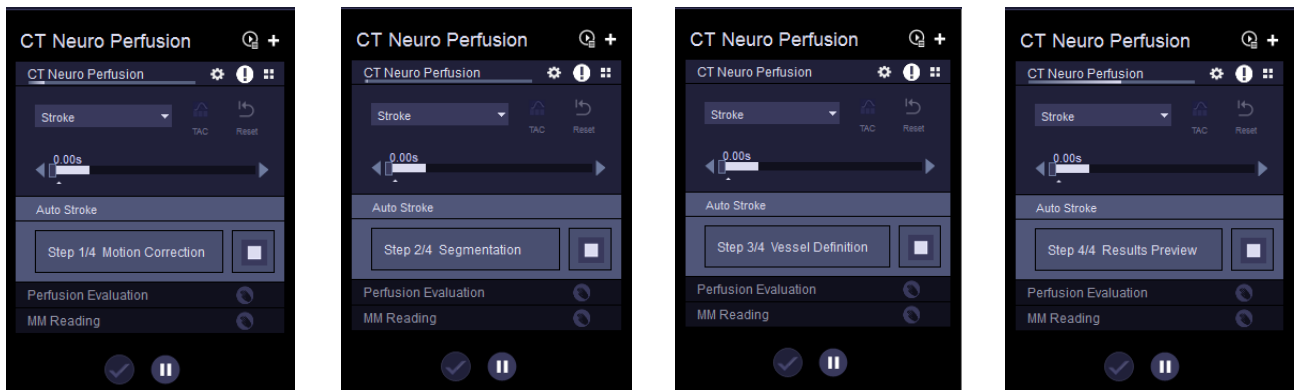


syngo.via[®] VB20 - CT Neuro Perfusion

syngo.CT Neuro Perfusion is designed to aid in the diagnostic evaluation of cerebral perfusion. By providing images of blood flow, blood volume, and local bolus timing (such as mean transit time or time to peak) from one set of dynamic CT images, it allows fast evaluation of tissue at risk (TAR) and non-viable tissue (NVT) in the brain.

1. From the **Patient Worklist**, load an appropriate data set into the CT Neuro Perfusion Workflow:
 - If the examination has been correctly mapped, double click to load
 - If manual mapping is required, right-click the examination and select Open With > CT Neuro Perfusion
2. Timely evaluation of potential stroke is critical to improving patient outcomes. In the CT Neuro Perfusion workflow, **Auto Stroke** enables **automated post-processing** of the Motion Correction, Segmentation, Vessel Definition, and Results Preview steps to help facilitate faster results.
 - Auto Stroke is performed when an auto stroke-enabled template is selected
 - The Motion Correction, Segmentation, Vessel Definition, and Results Preview steps are hidden while Auto Stroke is running
 - When Auto Stroke is finished, the usual workflow steps are displayed along with the **Results Preview** step with the calculated result maps.
 - If you are satisfied with the results in the Results Preview step, press the **Confirm** button.
 - You can now manually navigate through the various workflow steps if desired.

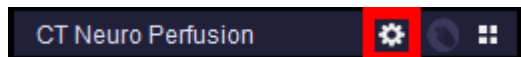


3. In the **Perfusion Evaluation** step, Circular or Freehand ROIs can be drawn to obtain additional quantitative information about the neuro perfusion data set. Results are populated to the **Statistics** tab, which can be exported with a right mouse click.

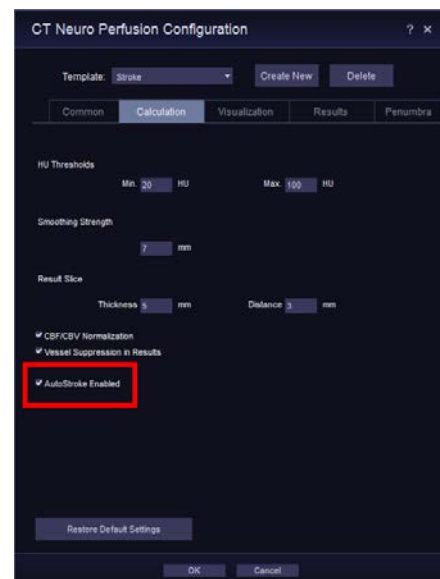


4. Auto Stroke is configured and enabled/disabled in the **CT Neuro Perfusion Configuration** dialog box

- Open the CT Neuro Perfusion configuration dialog box by clicking the settings icon on the workflow step

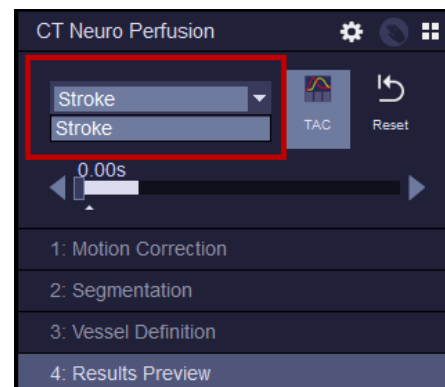
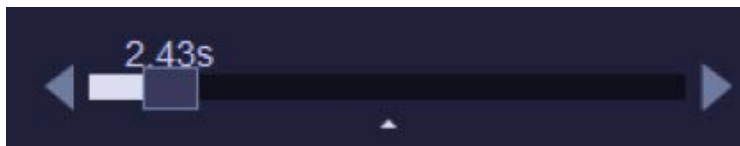


- Clinical administrators can **create** or **delete** templates to be used in Neuro Perfusion evaluation.
- User-defined configurations to the motion correction base time point, brain segmentation and stroke evaluation base values, initial display, automatic preparation and archiving, and penumbra/tissue at risk properties and color coding can be made on the **Common**, **Calculation**, **Visualization**, **Results**, and **Penumbra** tabs.

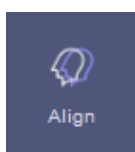


- Should a manual evaluation be desired or necessary, return to the CT Neuro Perfusion workflow step and select the desired non-auto stroke template.

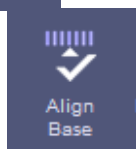
Evaluate the quality of the CT examination by navigating through the time points of the data set using the Time Slider.



- ❖ **Motion Correction and Time Point Exclusion:** During preprocessing, *syngo.via* performs a motion correction of the dynamic data set. Use the **Motion Correction** step to improve images that still show motion.

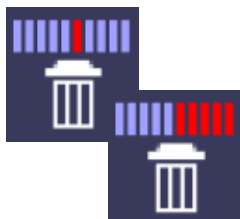


- To perform an automated neuro motion correction, click the **Align** icon.



- To **define a new motion correction base**:
 - Navigate on the **Time Slider** to the desired time point.
 - Click the **Align Base** icon on the Case Navigator, and the white triangle will jump to the selected time point.

- To **exclude time points from evaluation**:



- Navigate on the **Time Slider** to the desired time point.
- In the Case Navigator, click the **Exclude** icon to exclude the currently displayed time point, or click the **Range Exclude** icon to exclude all time points from the currently displayed to the last available time point.

- ❖ **Segmentation and 4D Noise Reduction:** Use the Segmentation step to reduce image noise and to check and define the volume and structures for evaluation.

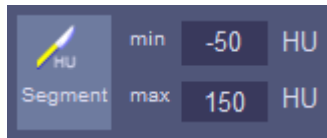


- If the images are very noisy because of low kV or low dose, enable the Reduce Noise icon to perform a 4D Noise Reduction.



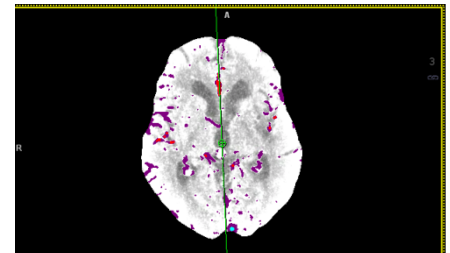
- Brain Segmentation removes all structures automatically except for the brain.

- You can also **exclude structures** that lie outside a defined minimum and maximum HU threshold. The HU-based segmentation operates exclusively in the baseline volume (i.e. those time points with no appreciable contrast).

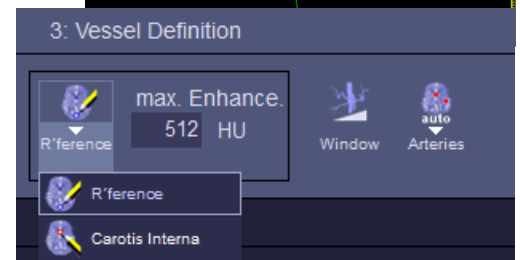


- Enable the **HU Segmentation** icon.
- Enter desired values in the min or max HU fields and press **Return**.

- ❖ **Vessel Definition:** On the temporal MIP data, check that the vessels appear magenta, the major arteries are red, that the light blue reference vessel ROI is present (typically in the superior sagittal sinus), and the green hemisphere plane is visible and accurate.

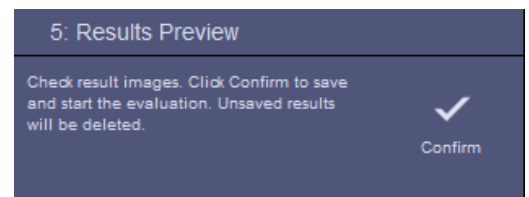


- To **define an artery manually**:
 - Enable the **Reference Vessel Definition** icon.
 - Click and drag an ROI in the superior sagittal sinus, if possible. A carotid artery can also be used.
 - Disable the icon to complete.

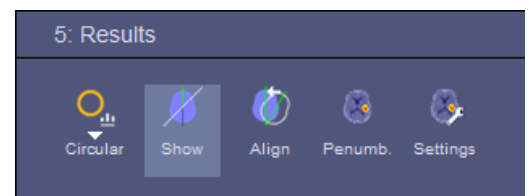


- ❖ **Results Preview:** Click the Results Preview step once the vessels are properly defined.

- Check the displayed result images
- Click **Confirm** to start the evaluation and to proceed to the **Results** step.



- ❖ **Results:** In the **Results** step, Circular or Freehand ROIs can be drawn to obtain additional quantitative information about the neuro perfusion data set.



The Tissue at Risk (TAR) can be evaluated by clicking the **Penumbra** icon. Core infarct and non-viable tissue (NVT) will be displayed in red and yellow based on user-configured settings.

Results are populated to the Statistics tab, which can be exported with a right mouse click.