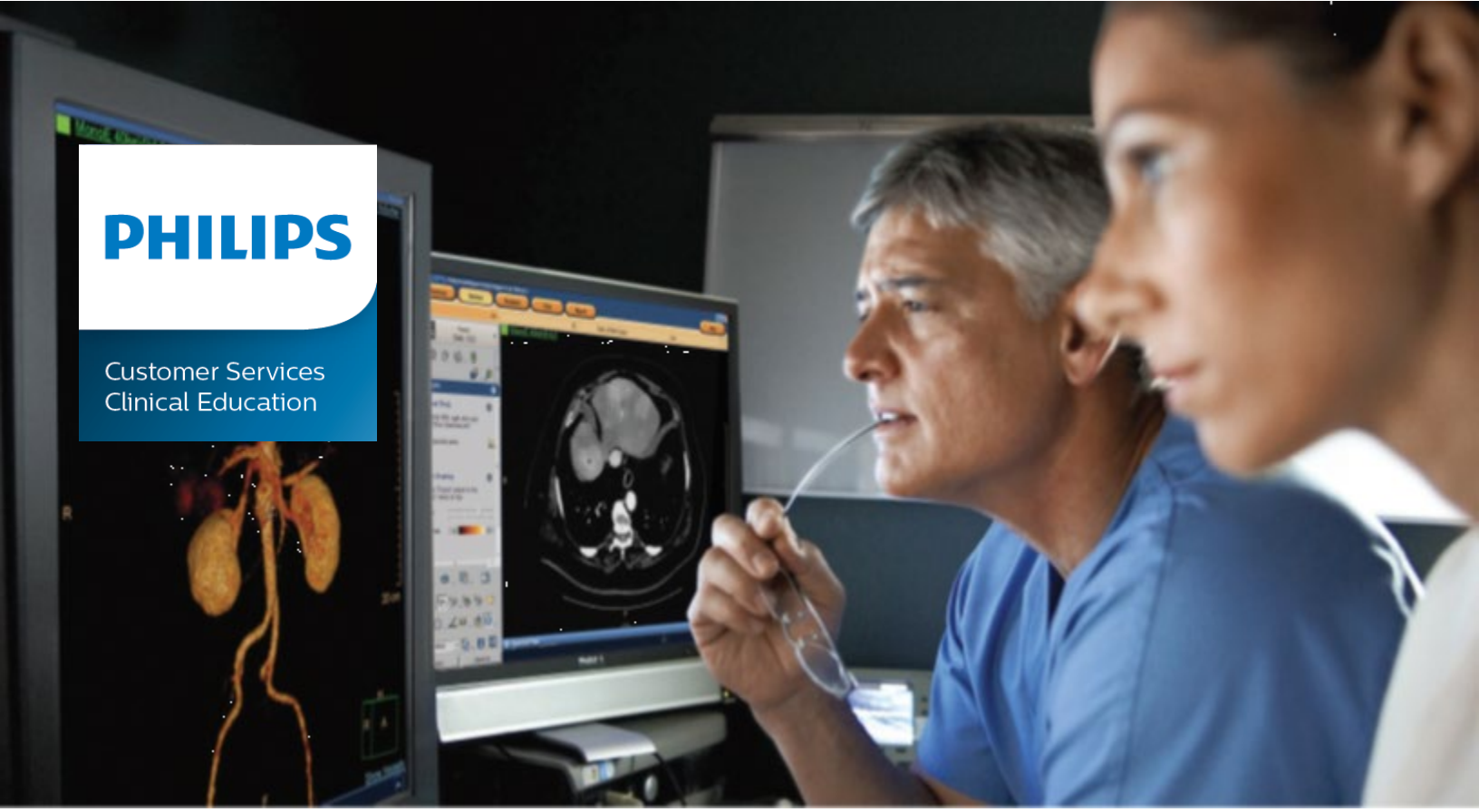


MR Advanced Diffusion Analysis

Diffusion Signal Analysis (IVIM & Kurtosis)

Purpose

IVIM and Kurtosis Map Creation

The aim of IVIM & Kurtosis MR Imaging is to separate the different physical properties affecting the signal intensity changes observed by diffusion acquisition techniques.

The application provides the following options for calculation of diffusion maps:

- **Mono-exponential**: Based on 2 B-Values, creates the Diffusion maps (as simple ADC).
- **Simplified IVIM**: Requires at least 3 B-Values. Creates the Diffusion and Perfusion fraction maps.
- **Bi-Exponential**: Requires at least 4 B-Values. Creates Diffusions, Perfusion Fraction and DStar.
- **Kurtosis-Mono exponential**: Requires at least 3 b-values. Creates Diffusion and Kurtosis maps.
- **Kurtosis-Simplified IVIM**: Requires at least 4 b-values. Creates Diffusion, Perfusion fraction and Kurtosis maps.

Workflow

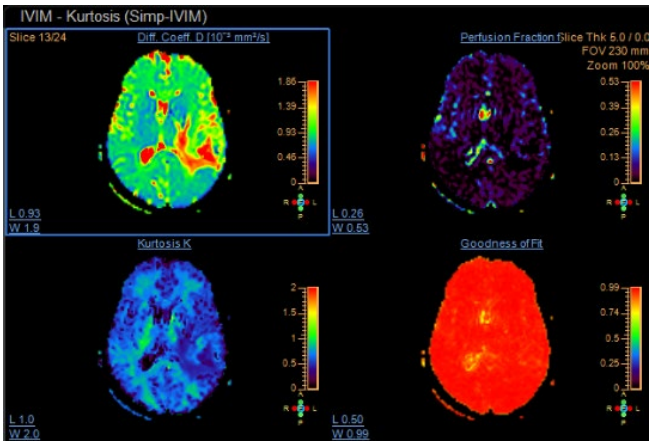
Launch a Diffusion Study to the MR ADA Application:

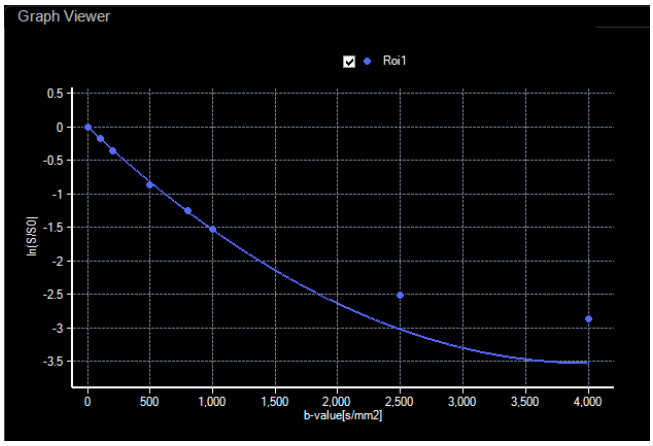
1. From the Task Guidance Panel, select **Analyse Diffusion Signal**
2. The upper left viewport displays the DWI image series used as input while the upper right viewport displays the calculated parametric maps (depending on the selected algorithm)
3. To change the model, select one of the available models from the drop-down menu in the task guidance panel (**Step 1**, **Select Model**)
4. To change the b-values used for calculation, click **Edit input b-values** and select or deselect the corresponding b-values in the dialog box. NOTE: *the output parameters will automatically be calculated according to the best available model for the selected b-values*.
5. To apply a mask to hide unwanted pixels in the calculation, expand **Step 2, Define mask**, and drag the slider to define the width of the mask.
6. To draw a ROI, select the ROI tool from the task guidance panel, step 4 **Measure ROIs**.

Generate a new series

7. To generate a new series for the selected outputs, click **Generate Series** in the task guidance panel, name the new series and select if the series should be registered before generating.

The generated series and images can be opened in MultiModality Viewer, the MR Diffusion Application or sent to a PACS system. The file names of the generated series and images contain details of the model and the b-values used. This information is also available in the DICOM tag.





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