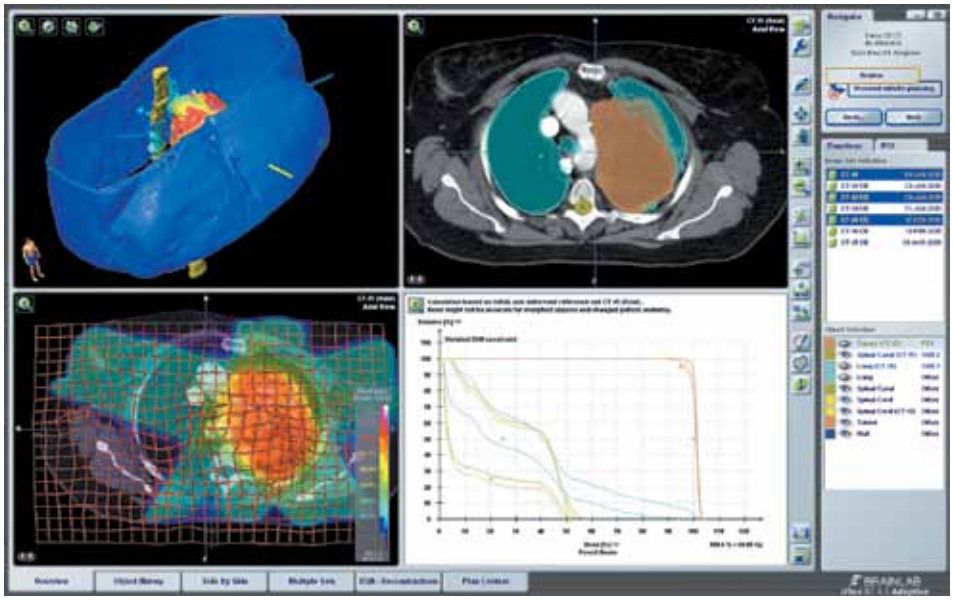
BRAINLAB

TREAT REVIEW ADAPT

iPlan® RT Adaptive addresses anatomical changes with automated object morphing and dynamic plan updates.



REDEFINING CLINICAL IMPACT

As part of the iPlan® family of planning and treatment software, iPlan® RT Adaptive shows the current clinical situation combined with advanced display, evaluation and adaptation tools. It automatically facilitates plan updates based on periodic patient scans, simplifying and streamlining the decision-making process. Adaptive radiotherapy becomes both clinically and financially feasible.

Advancements in radiotherapy and radiosurgery create an increased need for periodic plan checks which provides up-to-date anatomical information critical to achieving dose plan accuracy necessary for complex treatments. Anatomical changes—such as organ filling or position during hypofractionated treatments, and tumor shrinkage or weight fluctuation during hyperfractionated treatments—may have significant dosimetric impact that cannot be compensated by image-guided radiation therapy (IGRT).

SIMPLE INTEGRATION

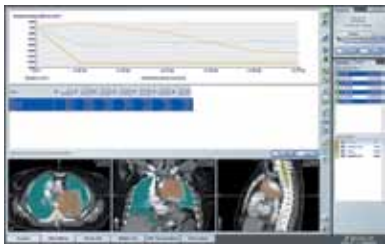
iPlan® RT Adaptive enables fast and simple DICOM import of additional datasets. A proven multi-modality image fusion algorithm is used to identify anatomical changes through the correlation of new datasets to the initial CT scan's 3D space.

ELASTIC FUSION AND MORPHING

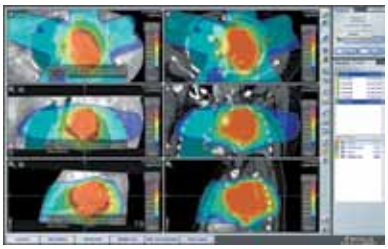
The iPlan RT Adaptive algorithm elastically deforms the original planning set to match the anatomy of the target dataset (e.g. Cone Beam CT). The outlined objects are also deformed and automatically transferred from the treatment planning CT scan to the new dataset.

INTERPRETATION AND EVALUATION

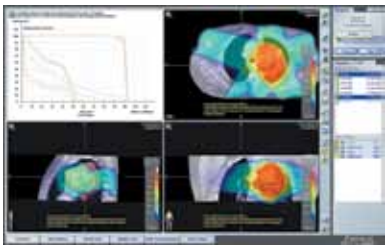
Our software provides volume change analysis, dose coverage analysis for treatment targets and cumulative dose analysis for organs at risk (OAR)—resulting in a sophisticated display of volumetric changes, including overlay, blending and aperture. iPlan RT Adaptive empowers clinical decisions regarding treatment continuation with the existing plan or re-planning based on a new CT scan through the dose overlay onto new and original structures. It also uses a dose-volume histogram (DVH) calculation for old and new objects based on the original dose distribution.



Volumetric Changes – Graph Display



Side-by-Side Display with Dose Overlay



DVH for Original and Morphed Objects

AUTOMATED RE-PLANNING

iPlan RT Adaptive offers complete, automated re-planning based on new datasets with adjusted structures from the original plan, making re-planning feasible and efficient.

CLINICAL OUTLOOK

"In our head and neck preclinical study, the automatic deformation software revealed an accuracy of more than 90%. The ART software looks promising to speed up the re-planning process inherent to adaptive radiotherapy."

DR. JEAN FRANCOIS DAISNE, Radiation Oncologist, Clinique & Maternité Ste-Elisabeth, Namur, Belgium