ADVANCING CANCER TREATMENT

SUPPORTING CLINICS WORLDWIDE
RaySearch is advancing cancer treatment through pioneering software. We believe software has unlimited potential, and that it is now the driving force for innovation in oncology. Medical science never stands still, and neither does RaySearch. We work in close cooperation with leading cancer centers to bring scientific advancements faster to the clinical world. Today, our solutions support thousands of clinics worldwide in the fight against cancer.

Our treatment planning systems RayPlan® and RayStation® support the quality of decision-making, create new treatment possibilities and get maximum value from your existing treatment machines. By making treatment planning faster, easier and more flexible, we enable better care for cancer patients worldwide. And this is just the beginning.
WITH YOU ALL THE WAY

RayPlan covers the functionality you need for effective radiation therapy using today’s most important techniques. It also provides an unmatched user experience, with a GUI carefully designed around your needs and workflow. You will quickly feel at home and be able to plan in a more intuitive and effective way. High-quality treatment planning is fast and straightforward with RayPlan.

VIRTUAL SIMULATION
- One-click plan creation with orthogonal beam pair
- Isocenter placement using DRR pair
- Export to patient marking systems

PHOTON AND ELECTRON PLANNING
- 3D-CRT
- Electron
- MR-based planning
- Co-optimization of multiple beam sets
- IMRT
- VMAT

PHOTON DOSE CALCULATION
- Collapsed cone photon dose calculation engine
- Beam commissioning workspace with auto-modeling

ELECTRON DOSE CALCULATION
- Dose calculation engine with Monte Carlo

PATIENT MODELING
- Manual and semi-automatic organ and target delineation tools
- Rigid image registration and fusion tools
- Model-based segmentation

PLAN EVALUATION
- Dose statistics and clinical goal lists
- Plan evaluation tools
- Perturbed dose computation

UPGRADE PATH TO RAYSTATION
- For access to the full capabilities of RayStation

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EXCELLENCE IN THE ESSENTIAL TECHNIQUES

RayPlan optimizes for all the most important treatment techniques. The system’s ultrafast multi-purpose optimization engine can solve virtually any optimization problem within radiation therapy, using many degrees of freedom of the treatment unit.

3D-CRT
Fast and consistent conventional 3D-CRT treatment planning with manual and automatic tools for conformal treatment using treat-and-protect, beam weighting, wedges, etc. Efficient planning for static arcs and dynamic conformal arcs. Modern inverse planning techniques are provided for creating conventional 3D-CRT plans, which can be automatically optimized in regard to any combination of segment shapes, segment monitor units, collimator, gantry and couch angles.

ELECTRON
Creation of mixed electron and photon plans is enabled, with multiple coupled or independent beam sets applied in a single treatment plan. 3D visualization of the treatment setup makes it possible to inspect the physical perimeter of the selected applicator in the patient geometry, which assists in collision avoidance. The electron module supports automatic generation of the cutout shape, using the same treat-and-protect tools as the 3D-CRT module. The cutout can also be created and edited using manual tools.

IMRT
State-of-the-art tools make it simple to design and optimize IMRT treatment plans. Direct optimization of step-and-shoot segments ensures high-quality plans with a minimum number of segments, speeding up the planning and delivery processes. Conversion for Sliding Window (dynamic MLC) IMRT is also supported.

VMAT
Design and optimization of single- or multiple-arc VMAT plans through an optimization procedure (inverse planning). Objectives and constraints are defined for the desired dose, and the system creates a plan that matches these criteria as closely as possible within the limitations of the treatment machine. The optimized plan is directly deliverable, without the need for post-processing that might degrade quality.
REVOLUTIONIZING COMPUTATION SPEED

RayPlan gives you unrivaled computation speed that can radically transform your treatment planning process.

As the computation time is seconds rather than minutes, you can efficiently produce several alternative treatment plans to assess different trade-off situations, instead of opening a second case or going on a break during computations.

Optimization and clinical dose computation takes less than 10 seconds for a standard prostate IMRT case, and around 30 seconds for a more complex 9-beam IMRT head and neck case on a high resolution 2 mm dose grid.*

Depending on the modality, RayPlan uses different beam models and dose calculation engines to calculate dose. In the latest release, CC dose algorithms have been rewritten for CPU and GPU to further speed up dose computation.

*Results may vary as dose computation time depends on several variables.

SMOOTHEN YOUR WORKFLOW WITH FULLY INTEGRATED VIRTUAL SIMULATION

We’re talking SECONDS! not minutes ...

VIRTUAL SIMULATION
RayPlan offers a dedicated workspace for performing virtual simulation tasks related to isocenter placement, export to patient marking systems and beam design. This will smoothen your workflow prior to planning as the virtual simulation module is integrated into RayPlan.

KEY FEATURES:
• Dedicated workspace for virtual simulation
• One-click creation of plan with orthogonal beam pair
• Isocenter placement using R&D par
• Export to patient marking systems
• A multitude of beam design tools for field shaping
MANUAL AND SEMI-AUTOMATIC CONTOURING
RayPlan includes a comprehensive toolset for manual contouring, such as polygon, freehand, paintbrush/2D rollerball and local deformations (push-and-pull). The image-guided smart brush and smart line tools facilitate contouring by snapping to image features. There is also support for automatic interpolation of intermediate contours, seamless 2D-3D conversion and 4D visualization. With derived ROIs, it is possible to create Boolean ROI algebra structures where the Boolean expression is stored in the structure. Structure templates can be saved with or without the geometries included, which can then be recalled for future patients.

IMAGE REGISTRATION/FUSION
Both rigid and deformable registration of multimodality imaging (CT, CBCT, PET or MR) are fully supported and integrated. These capabilities can be used to show fused images as a reference while contouring and to map regions or points of interest between image sets.

MODEL-BASED SEGMENTATION (MBS)
MBS is a semi-automatic tool for delineation of ROIs based on statistical information about organs. Volumetric images are segmented semi-automatically, utilizing a combination of grayscale gradients and models with knowledge of how organs may change shape. Multiple ROIs can be delineated simultaneously, which increases throughput, accuracy and reproducibility.

PLAN EVALUATION
RayPlan includes a comprehensive toolbox for evaluation and comparison of treatment plans and plan approval. Several predefined layouts are available for simultaneous comparison of dose distribution, dose statistics, clinical goals and dose-volume histograms for up to three different plans.

Dose can be directly computed on additional image sets and summed up using deformable registration. For evaluation of robustness, dose can also be computed for a density perturbation or isocenter shift.
RayPlan is compatible with most commercially available linear accelerators. Its data model is fully compatible with the DICOM standard, making it easy to import or export any DICOM RT object. This includes multiple CT, MR and PET image series, 4D-CT, structure sets and doses. In addition, RayPlan communicates with other data sources, such as IHE RO, DICOM senders and receivers and DICOM archives, using either file transfer, DICOM storage service classes or DICOM query/retrieve.

RayPlan offers unlimited patient data storage and allows for flexible configuration of multiple parallel databases and gradual archiving. A dedicated graphical user interface is available for photon and electron modeling. This workspace allows for evaluation of models and treatment planning tools prior to commissioning a machine.

The module for Quality Assurance preparation makes it straightforward to transfer the clinical plan to a phantom and recalculate dose, either beam by beam or for the entire plan. The output from the module is the dose distribution in DICOM format or a 2D dose plane, a QA report and, optionally, a new treatment plan with collapsed gantry angles.

Key Features:
- Collapsed cone photon dose calculation engine for high accuracy
- Singular value decomposition photon dose calculation engine for real-time purposes
- State-of-the-art direct Monte Carlo code for electrons

Compatibility and Hardware Independence

Quality Assurance
### WHICH SYSTEM MEETS YOUR NEEDS?

RayPlan and RayStation comparison. This list below covers the available features but does not describe the license configuration.

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<th>Features</th>
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<th>RayStation</th>
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