

Case study: HEIDELBERG UNIVERSITY HOSPITAL

ONCOLOGY INFORMATION SYSTEM RAYCARE FOR A SUPERIOR WORKFLOW



Heidelberg University Hospital has used RayCare clinically since May 2019, managing about 2200 patients with RayCare workflows.

The department of radiation oncology at Heidelberg University Hospital has a mission to provide the best possible individualized care for cancer patients. To achieve this, the department has established a dedicated translational radiation oncology research program focusing on the latest radiation therapy approaches and technology—including innovative treatment planning and oncology information software.

Heidelberg University Hospital is one of Europe's leading medical centers, renowned for outstanding patient care, research and teaching. The proximity of its specialist departments supports interdisciplinary treatment, ensuring an excellent care experience for around 4,000 cancer patients per year.

The hospital provides a wide range of radiation therapy treatment forms, together with the affiliated Ion Beam Therapy Center (HIT, Heidelberger Ion-beam Therapy). About 90% of the patients at the conventional C-arm linacs are treated with VMAT, while additional treatment techniques include helical tomotherapy, brachytherapy, intraoperative radiation therapy (IORT), Total Body Irradiations (TBI), Total Skin Electron Irradiation (TSEI), Total Marrow Irradiation (TMI), stereotactic radiosurgery using the Accuray CyberKnife®, and MRI-guided radiation therapy. At HIT patients are treated with Protons and Carbon Ions at horizontal beam lines and using the world's largest ion beam gantry. In 2021 RayStation®* will be used to treat patients with helium ions.

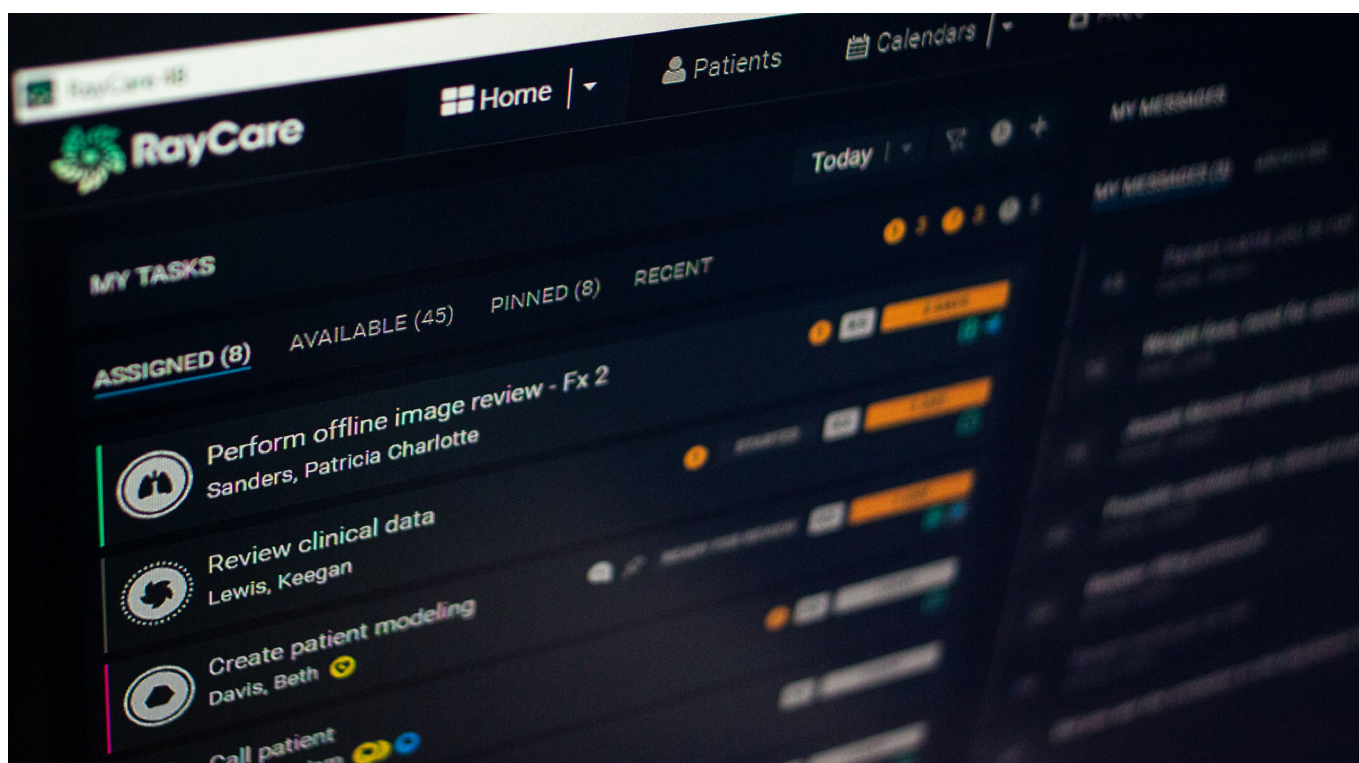
The radiation oncology team at Heidelberg is continuously researching ways to improve and optimize treatment, together with national and international partners. In 2018, Heidelberg and RaySearch entered into a strategic research partnership to further refine the functionality of the RayStation treatment planning system and the pioneering RayCare®* oncology information system.

*Subject to regulatory clearance in some markets.



“The document handling in RayCare, with its version and signature handling, supports us in becoming a more and more paperless environment.”

— Prof. Dr. Dr. Jürgen Debus, Medical Director for the Department of Radiation Oncology and Radiation Therapy at Heidelberg University Hospital, Director of the Heidelberg Ion Beam Therapy Center and the Heidelberg Institute for Radiation Oncology



RayCare is fully integrated with RayStation for all planning activities. In the latest RayCare version the task list will be shared with RayStation for an even more unified experience. The planning and QA whiteboards provide an interactive real-time overview of all planning and QA related tasks.

A READILY ACCESSIBLE OIS

Heidelberg has selected RayStation as its sole treatment planning system, consolidating several existing systems. RayStation was chosen for conventional photon beam therapy in 2015, and the hospital subsequently ordered the world's first clinical release with support for helium ion therapy.

Heidelberg has used RayCare clinically since May 2019, managing about 2200 patients with RayCare workflows. In combination with RayStation, it forms the central system for some very vital areas: managing relevant patient data, and communication and workflow support. RayCare is integrated with the hospital information system (HIS) which is the master system for all patient records and identifiers.

"Integration with the hospital environment is of vital importance. We adhere to HL7 standards within the hospital information system. When any patient enters our system, they are automatically imported into RayCare. We currently have over 14000 patients integrated into our RayCare system along with 250 users within the hospital domain", says Dr. Kai Schubert, Medical Physicist at the Department of Radiation Oncology and Radiation Therapy at Heidelberg University Hospital.

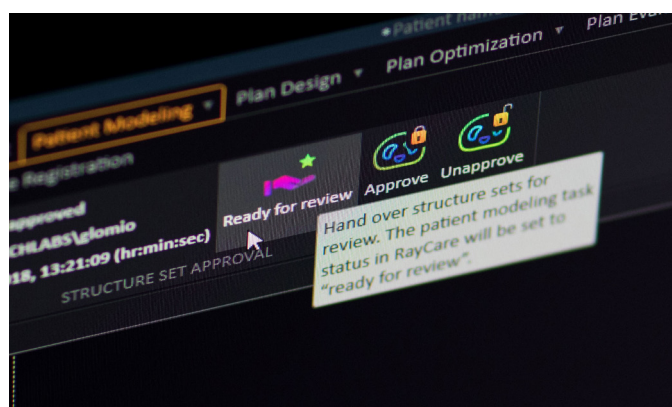
The RaySearch IT department supported the process of deployment and integration into the hospital environment. RayCare is now available on every standard PC in the department, and the intuitive interface has significantly improved efficiency for clinicians.

RayCare allows users to be assigned to different treatment teams and enables the automated import of patient documents assigned to specific patient identifiers. This makes documentation much faster and more reliable within the clinical setting.

"Our complex environment means it is a significant advantage to have a centralized OIS and planning workflow support," says Prof. Dr. Dr. Jürgen Debus, Medical Director for the Department of Radiation Oncology and Radiation Therapy at Heidelberg University Hospital, Director of the Heidelberg Ion Beam Therapy Center and the Heidelberg Institute for Radiation Oncology. "Centralizing this information improves transparency and thus patient safety."

EFFICIENCY GAINS

All patients treated at HIT, on the Tomotherapy unit, or at one of the conventional Elekta machines, are now managed using RayCare workflows customized to the specific needs of the clinic. These cover all patient tasks—from the first contact through to the start of the treatment.



RayCare is a user friendly and workflow oriented information system, ready to support the future of cancer treatment with multiple parallel treatments and workflows. The workflows are designed to be highly configurable, and tasks for specific staff members can be triggered automatically triggered by defined events.



RayCare enables us to unify our workflows where possible and keep them specific where needed. With a single system, we can centralize planning workflow support and resources, communication and QA checkpoints. The whiteboard function gives us an excellent overview of the patient throughout the treatment process, and it can be used to follow-up and manage the workflow tasks.”

— **Dr. Kai Schubert, Medical Physicist at the Department of Radiation Oncology and Radiation Therapy at Heidelberg University Hospital**

“We needed an oncology information system that could be tailored to our clinical needs, and which would be accessible from all locations in the hospital,” says Dr. Schubert. “An OIS that would be a visible and tangible part of our workflow – tailored and optimized to meet our current and future needs. We also needed a system that could unify the important components of radiation therapy and treatment planning to improve the patient journey.”

RayCare brings significant efficiency gains to Heidelberg. Fewer phone calls are needed, and registration of patients at the front desk is faster, as the treatment unit knows when a specific patient has arrived.

The integrated RayPACS system is acting as the gateway to the centralized hospital PACS, as well as the import interface to external data on CD, or DVD. Once imported in RayPACS images, structure sets and dose distributions are available throughout the hospital, even without the use of RayStation. Since RayCare can also handle PDF documents, we have a strong link between treatment reports and dose distributions, which is specifically of interest when pre-irradiation data is used.

There is also a smoother and faster handover of tasks between physicians and staff who carry out CT scanning and treatment planning. RayCare informs staff directly when the previous step in the treatment process is completed, eliminating waiting time. Steps performed at different locations in the department are coordinated with high efficiency.

“The document handling in RayCare, with its version and signature handling, supports us in becoming a more and more paperless environment.” – Prof. Jürgen Debus

Having a single treatment planning platform with workflow support for all patients enables the radiation oncology team to fine-tune the treatment plans of patients receiving a combination of treatment types and evaluate the best treatment options for more complex cases.

Once the patient enters the facility and proceeds through the outpatient process (reception CT scan, and so forth) the doctor will then approve the CT scan and the treatment process begins. Here the status of the patient’s treatment plan is exchanged between RayCare and RayStation in real time and the person responsible for the next step is informed by the availability of his task in his individual workspace. Needed information can be added directly to the patient chart, or sent with direct patient context in the internal messaging system in RayCare. This way the whole planning workflow works seamlessly without any further communication although users still work decentralized in different sections of the department. “This very strong interaction between RayStation and RayCare is where RayCare gives us huge efficiency gains” says Dr. Kai Schubert.

“Workflows are the central part of our use of RayCare. We’ve learned a lot about ourselves and how we work, and we were able to gain significant efficiency just by the process of implementing RayCare.” – Dr. Kai Schubert

A SYSTEM FOR TOMORROW'S WORKFLOWS

Through integrating RayCare and RayStation with their existing hospital systems and activities, Heidelberg University Hospital has achieved smoother coordination of patient care and better use of time and resources. The challenge into the future is the integration of all patient-individual factors into multidisciplinary treatment approaches that are individualized and adaptive.

“RayCare enables us to unify our workflows where possible and keep them specific where needed,” says Dr. Kai Schubert at Heidelberg University Hospital. With a single system, we can centralize planning workflow support and resources, communication and QA checkpoints. The whiteboard function gives us an excellent overview of the patient throughout the treatment process, and it can be used to follow-up and manage the workflow tasks.”

ADVANCING CANCER TREATMENT

RaySearch is a committed pioneer of oncology software. Since 2000, we have worked in close cooperation with leading centers to improve life and outcomes for patients. We develop all our products from the ground up and continuously revise every aspect, from algorithms to user interface designs. Medical science never stands still, and neither does RaySearch — our relentless drive to do things better leads us to ever-higher performance, accuracy, safety and usability. And this is just the beginning.

We believe software is the driving force for innovation in oncology. Our systems use groundbreaking automation and machine learning to create new possibilities. RayCare*, the next-generation oncology information system, will enable one workflow for all the oncology disciplines, ensuring fluid coordination of tasks and optimal use of resources. RayStation harmonizes treatment planning, providing one point of control for all planning needs — any equipment, any scale.

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For more information on RayStation and RayCare or to see a demo please contact sales@raysearchlabs.com