

How Swiss Medical Network and NEMC are using iRT InstaPlan Solution to reduce planning time while allowing clinicians to focus on patient care



Swiss Medical Network (SMN) and North Estonia Medical Centre (NEMC) set out to do something deceptively simple: take the waiting out of radiation therapy planning.

Under a conventional pathway, generating and approving a plan can consume multiple working days between CT simulation and first fraction. With iRT™ InstaPlan™ Solution—the combination of GE HealthCare’s Intelligent Radiation Therapy (iRT) orchestration and RaySearch’s RayStation® TPS—both institutions reported in pilot evaluations that clinically acceptable plans for prostate cases could be produced within minutes of CT acquisition, enabling earlier clinical decision-making and freeing up time for more complex tasks.¹

“Our objective is to reduce the time it takes for patients to begin treatment. With InstaPlan Solution, we are able to obtain a clinically acceptable treatment plan within only a few minutes after CT acquisition, rather than days,” said Prof. Dr. Oscar Matzinger, Head of Radiation Oncology, Swiss Medical Network. To complement the Swiss experience, NEMC reported parallel advances that underscored the potential scalability of InstaPlan Solution across different clinical environments.

“At NEMC, automation has allowed us to streamline planning without compromising oversight. The InstaPlan Solution helps us reduce inefficiencies, and concentrate more on patient care,” added Dr. Eduard Gershkevitch, North Estonia Medical Centre.

When every day counts

SMN operates a multi-site radiation oncology program that faces the full spectrum of complexities familiar to modern radiation therapy: CT simulation, image management, contouring, planning, quality assurance, and the continual coordination required among physicians, medical physicists, and dosimetrists. According to Prof. Dr. Oscar Matzinger, in the traditional manual pathway the elapsed time from CT to the delivery of the first treatment fraction is approximately five working days. This interval typically includes about 1.5 days for segmentation, 2.5 days for planning, and 1 day for validation, transfer, and patient-specific QA. As documented in the SMN presentation, this five-day standard of care is an estimate based on the experience of clinicians. Each of those days represents waiting for the patient, with added anxiety, logistical challenges, and for certain tumor types, a potential risk window where disease progression could occur.

At NEMC, the challenges mirrored those at SMN, with high patient volumes and limited staffing compounding the need for efficiency. The aim was the same: shorten the planning timeline without compromising plan quality, and do so in a way that is reproducible, auditable, and scalable across disease sites.

The solution in brief: InstaPlan Solution

iRT is an advanced, interoperable radiation therapy orchestration system that replaces fragmented workflows with a unified, real-time service. It automates manual tasks, integrates with existing systems such as OIS, PACS, EMR, TPS, and QA systems, and enables seamless coordination between radiation oncologists, physicists, therapists, dosimetrists, radiologists and administrative staff. These capabilities help reduce delays with the goal of decreasing planning time so treatment can begin sooner, allowing clinicians to focus on patient care.

The InstaPlan Solution leverages iRT to orchestrate and automate CT and treatment planning steps end to end. Once CT imaging is complete iRT automatically transfers the images to PACS. iRT then triggers RayStation to carry out critical treatment planning operations: creating the isocenter, segmenting organs, optimizing and calculating dose distributions. Under the manual pathway, these tasks consumed several days of back-and-forth among technologists, physicists, and oncologists. In pilot evaluations, tasks were initiated immediately and could be completed within minutes. Physicists and physicians were able to review a clinically acceptable plan on the same day, possibly even while the patient was still positioned on the simulation table. Previously, patients would leave and return days later for a finalized plan; now, planning decisions and assessments occurred in near real time. Currently, the InstaPlan Solution focuses on on breast and prostate treatments, which together represent approximately sixty percent of many centers' case volumes, ensuring meaningful impact where demand is greatest.

Implementation

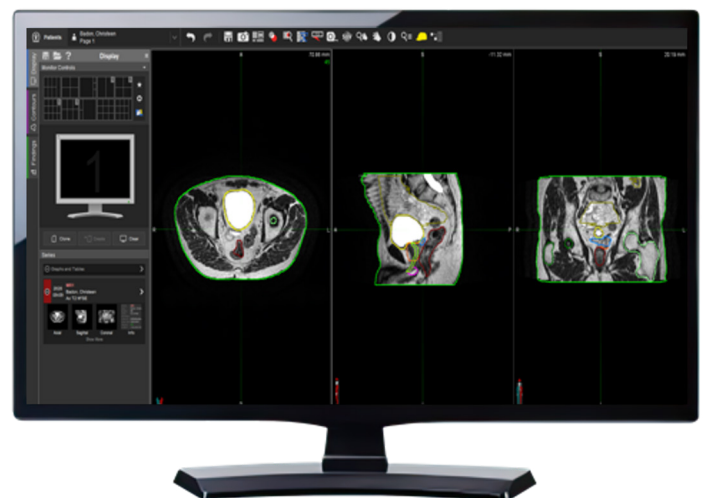
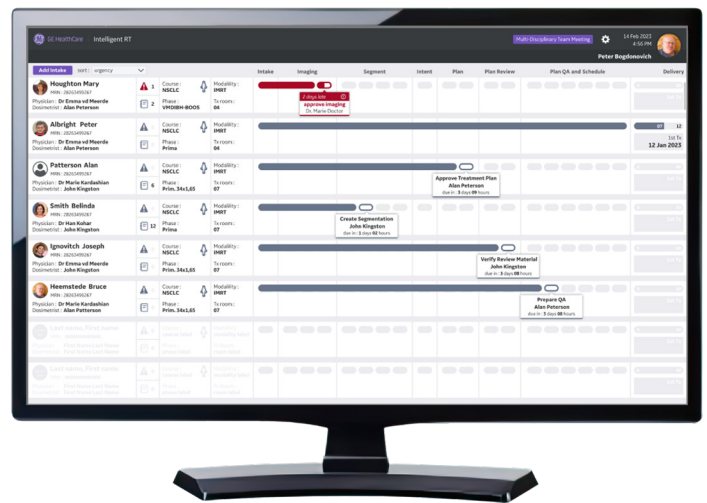
At SMN, the InstaPlan Solution was installed initially in a controlled test environment to evaluate workflow feasibility and output characteristics. The installed components that the clinic chose to implement included: - GE HealthCare CT scanner - RayPACS (part of RayCare version 2024A), RayStation version 2024B (510(k) cleared and CE marked) , and an iRT orchestration layer.

The iRT system managed patient intake and demographic data, operated within the planning protocols defined by the user, transferred data between the CT scanner and RayStation, and coordinated the entire workflow. Before CT, patient intake in iRT captured the following data points: demographic-related information, the CT date and intended treatment start date. After CT, iRT assigned user and approval tasks and triggered RayStation with the planning parameters so that automatic import, segmentation, and plan optimization could begin without delay.

RayStation performed automated steps including importing patient images, segmenting organs and targets, and generating optimized treatment plans. The iRT dashboard displayed the status of each patient in progress, with clearly assigned tasks and approval responsibilities for the clinical team. In this pilot setup, no segmentation results or plans from the study were used for actual patient treatments.¹

For prostate cases, RayStation employed deep-learning based planning, tuned and configured for SMN treatment criteria, including dose prediction for the current anatomy based on historical patient datasets and dose mimicking of the predicted distribution. For breast cases, the system relied on script-based automated planning, providing physicists the ability to encode institutional protocols while still benefiting from automation. The longest step remained the breast boost CTV delineation by the radiation oncologist.

At NEMC, implementation highlighted the importance of automation in high-throughput environments. The DICOM-driven orchestration eliminated delays from manual handoffs, and automated contouring and plan optimization supported reproducibility across cases. The NEMC team emphasized that automation allowed assessment of anatomical conditions in real time, and supported the same principle of same-session review seen at SMN. Institutional protocols were encoded into automated planning while clinical oversight was preserved.



Outcomes



Time Efficiency

At Swiss Medical Network, the pilot evaluation included fourteen patients consisting of four prostate and ten breast cases. The mean time from CT simulation to plan generation was approximately six minutes and thirty seconds for breast cases and six minutes and fifty seconds for prostate cases. This represented a marked reduction from the standard manual process, which typically consumed approximately four working days, to under seven minutes. For breast cases, the longest remaining step was CTV boost delineation. These plan-generation times were recorded as clinician observations collected on a subset of five study patients.²

North Estonia Medical Centre reported similar observed results, with initial automated plans prepared on average in 7.7 minutes.¹ The automation reduced inefficiencies, allowing the clinical team to focus more on patient care rather than administrative coordination.



Clinical Decision-Making

The ability to compress a multi-day sequence into minutes enabled same-day plan review and more agile decision-making. Clinicians could verify positioning immediately, assess anatomical conditions in real time, initiate treatment without delay when appropriate, and review plans while patients remained on the simulation table. Although validation and QA steps remained integral to the process, the main bottleneck of treatment planning was effectively removed, altering the rhythm of team discussions and scheduling.



Patient Experience

Automation provided the opportunity to adjust the patient journey in meaningful ways. Initial plan assessment could occur while patients remained on the CT table, reducing the need for return visits for plan finalization. According to anecdotal experience supplied by NEMC and SMN, this immediate review process lessened patient anxiety and logistical burdens. When repeat scans were required, they could be performed during the same visit rather than scheduling another appointment days later, reducing travel burdens and limiting variability in patient positioning. As a result, earlier initiation of therapy was enabled more consistently in pilot settings.



Operational Impact

The implementation reduced or eliminated numerous manual tasks that had previously consumed substantial staff time. Planning processes initiated automatically, image transfers to PACS occurred without manual intervention, and the need for status update calls between team members was reduced. The standardized protocols decreased variability in routine cases while improving the reproducibility of prostate and breast workflows across different practitioners and sessions.



Team Workflow Redistribution

The InstaPlan Solution restructured how work was distributed across the clinical team. Segmentation and planning followed pre-set institutional protocols, reducing variability while ensuring that oncologists and physicists retained their ability to review, adjust, and approve plans. The automation supported but did not replace clinical judgment, creating a shift of effort away from manual logistics toward more patient-focused interactions. Teams could now focus their expertise on contour edits, clinical trade-offs, and patient discussions about treatment expectations. Staff could have gained more time for meaningful clinical work, changing their daily practice from administrative coordination to patient-centered care.

Dr. Matzinger summarized the change:



“The guiding principle of InstaPlan Solution is simple: request the scan, generate the plan, and review it immediately in one continuous process that shortens the patient’s wait and accelerates the start of therapy.”

Dr. Gershkevitch added:



“Automation should never come at the cost of oversight. At NEMC, InstaPlan Solution automated the manual, but kept clinical judgment at the center.”

The combined experience of Swiss Medical Network and North Estonia Medical Centre demonstrates that iRT InstaPlan Solution may help reduce radiation therapy planning time from a multi-day sequence to a near-real-time step, particularly for breast and prostate cases. By orchestrating CT, PACS, and TPS with a single workflow engine and standardizing routine tasks such as image transfer, segmentation, and plan generation, InstaPlan Solution enabled significant workflow improvements. At SMN, quantitative data from a pilot of nine patients (with timing data from five) showed planning times reduced from an estimated five working days to under seven minutes.² NEMC reported a reduction from approximately seven days to seven minutes.¹



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¹InstaPlan Solution is a commercial offering that includes GE HealthCare's Intelligent RT (iRT) and RayStation by RaySearch. RayStation is manufactured by RaySearch. Not available for sale in all regions.

²Disclosures: Prof. Dr. Oscar Matzinger is Head of Radiation Oncology at Swiss Medical Network and received financial support from GE HealthCare for his participation in the ESTRO 2025 symposium

³Study Context (SMN & NEMC): Results described are specific to pilot evaluations conducted at Swiss Medical Network and North Estonia Medical Centre. Outcomes may vary at other institutions and settings. Results from NEMC represent observed experiences reported by clinicians.

⁴Disclosures (NEMC): Dr. Eduard Gershkevitsh is affiliated with North Estonia Medical Centre and received financial support from GE HealthCare for his participation in the ESTRO 2025 symposium.

⁵Swiss Medical Network Pilot Data: Conducted as part of a test environment at SMN. Patient cohort: 9 (3 prostate, 6 breast). Mean time to plan generation: 6:30 minutes for breast, 6:50 minutes for prostate. Compared with an estimated ~5 working days under manual workflow. Data presented at ESTRO 2025 (May 4, 2025) by Prof. Dr. Oscar Matzinger. No automated plans from the pilot were used for actual patient treatments.

⁶Regulatory Status: RayStation is CE marked and 510(k) cleared. iRT InstaPlan Solution is intended for use by trained professionals. Availability may vary by country.

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