
PRESS RELEASE

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Further clinical implementation of deep learning segmentation in treatment planning system RayStation takes place at Leeds Cancer Centre

RaySearch Laboratories AB (publ) announces that its advanced deep learning segmentation functionality for lung delineation in breast radiation therapy has been carried out using treatment planning system RayStation® at Leeds Cancer Centre (LCC) in the UK.*

Clinicians at LCC have successfully implemented the deep learning segmentation thorax solution available in RayStation following thorough investigation of the geometric and dosimetric accuracy of the generated organs-at-risk structures. Reference contours and deep learning segmentation contours were produced for 10 patients, including left- and right-sided breast and chest wall treatments. A robust auto-contouring evaluation and commissioning method, based on templates and scripted analysis within RayStation 8B, has been developed as a result.

The in-built deep learning segmentation thorax model in RayStation 8B provides fast and excellent performance for ipsilateral lung contouring in the hypofractionated breast RT scenario. Given the positive results, the medical physics department at LCC is working closely with RaySearch to develop other machine learning models for safe and effective clinical implementation for other treatment sites. LCC staff are developing a script-driven quality management workflow for both deep learning segmentation model training on local data and semi-automated evaluation. This approach will allow them to have clinical confidence in models produced locally from clinical data. Their assessment of clinical confidence and utility in deep learning functionality in RayStation hinged on the assessment of geometric accuracy, dosimetric impact, efficiency and independent, automated checking of patient-specific deep learning segmentation outputs.

The study, which originally concerned the thorax model, was quickly changed to implement the breast hypo fractionation as a consequence of the ongoing COVID-19 situation. As a result of this comprehensive approach, coupled with the quality of the deep learning segmentation contours produced by the RaySearch model, staff at LCC were able to implement deep learning segmentation-derived OAR structures for clinical use.

Dr Vivian Cosgrove, head of radiotherapy physics at LCC, says: "We are really pleased with the new planning innovations that RayStation is bringing to our radiotherapy service. Deep learning segmentation is a highly advanced 'next-step' that will provide further efficiencies to how we plan breast radiotherapy."

Johan Löf, founder and CEO, RaySearch, says: "LCC has become a frontrunner in the use of advanced algorithms to improve cancer treatment. I am pleased that RayStation has been chosen to support the groundbreaking and important work being carried out in Leeds and I look forward to further collaboration in the future."

About Leeds Cancer Centre

The radiation therapy department at Leeds Cancer Centre, located in St James's University Hospital in Leeds, is one of the largest single site centers of its kind in the UK. It maintains 10 clinical linear accelerators (linacs) and two dedicated research-funded linacs with advanced image-guided RT capabilities. More than 7,500 new patients are treated at the center annually from a catchment population of 2.8 million.

About RaySearch

RaySearch is a medical technology company that develops innovative software solutions to improve cancer care. The company markets worldwide its treatment planning system RayStation and next-generation oncology information system RayCare. Over 2,600 clinics in more than 65 countries use RaySearch software to improve life and outcomes for patients. The company was founded in 2000 and the share has been listed on Nasdaq Stockholm since 2003.

About RayStation

RayStation is a flexible, innovative treatment planning system, chosen by many of the leading cancer centers worldwide. It combines unique features such as unmatched adaptive therapy capabilities, multi-criteria optimization, market-leading algorithms for IMRT and VMAT optimization with highly accurate dose engines for photon, electron, proton and carbon ion therapy. RayStation supports a wide range of treatment machines, providing one control center for all treatment planning needs and ensuring centers get greater value from existing equipment. RayStation also seamlessly integrates with RayCare, the next-generation oncology information system. By harmonizing the treatment planning, we enable better care for cancer patients worldwide.

** Subject to regulatory clearance in some markets.*

More information about RaySearch is available at www.raysearchlabs.com

For further information, please contact:

Johan Löf, Founder and CEO, RaySearch Laboratories AB (publ)

Telephone: +46 (0)8-510 530 00

johan.lof@raysearchlabs.com

Peter Thysell, CFO, RaySearch Laboratories AB (publ)

Telephone: +46 (0)70 661 05 59

peter.thysell@raysearchlabs.com