PRESS RELEASE
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Strong uptake of RayStation Monte Carlo dose engine among proton therapy centers

13 out of 18 RayStation proton sites in clinical operation are now using the proton Monte Carlo (MC) dose engine, and this just a year after it was released. That according to a survey. "The implementation of the RayStation Monte Carlo dose engine has expanded our capability to serve more and a wider range of patients", says Chang Chang, Director of Physics, Texas Center for Proton Therapy.

One year after RaySearch's first release of the proton MC dose engine in RayStation 6, a survey was sent out to the 18 RayStation proton sites that are in clinical operation with pencil beam scanning. The survey focused on the clinical implementation and use of the new MC dose engine. The answers showed that no less than 13 of the 18 clinics have implemented the MC dose engine in their clinical work flows, with remaining clinics currently in commissioning. Several clinics report that they use the MC dose engine for all patients, while others use it for selected cases where high accuracy is important, such as lung, brain, breast or head and neck.

Peer reviewed research papers are being published showing that Monte Carlo is now considered key for certain cancer types, which has prompted rapid implementation and acceptance. One prime example is "Pencil Beam Algorithms Are Unsuitable for Proton Dose Calculations in Lung"[1] .

Significantly, all clinics that have adopted MC for final dose computation, state that they also use it to drive the optimization. No significant deviations in the clinics validation studies have been reported. Also, all clinics mention very good results in the patient specific QA, especially for fields that employ a range shifter as compared to the results with the analytical dose engine.

Chang Chang, Director of Physics, Texas Center for Proton Therapy says: "The implementation of the RayStation Monte Carlo dose engine has expanded our capability to serve more and a wider range of patients. For example, it enabled us to use larger range shifter to patient air gaps, which streamlined our process in the treatment rooms. In addition, the higher accuracy of the Monte Carlo dose engine allowed us to treat sites like lung, complicated head and neck, and breast with more confidence. "

Xavier Vermeren, Chief physicist, West German Proton Therapy Centre Essen says: "Now, when we find a rare deviation in our patient specific QA, we always double check our QA setup and data first. We simply expect the RayStation Monte Carlo dose to be correct, and we have yet to see a field that fails the QA. "

Johan Löf, CEO of RaySearch, says: "We are extremely pleased to see that such a high fraction of our customers has implemented the Monte Carlo dose engine in a relative short time. It is also highly rewarding to learn how this new product has increased the quality of the treatments, while at the same time saving time for the physicists thanks to the improved QA results. "

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[1] Int J Radiat Oncol Biol Phys. 2017 Nov 1;99(3):750-756. doi: 10.1016/j.ijrobp.2017.06.003. Epub 2017 Jun 13

About RayStation

RayStation integrates all RaySearch's advanced treatment planning solutions into a flexible treatment planning system. It combines unique features such as multi-criteria optimization tools with full support for 4D adaptive radiation therapy. It also includes functionality such as RaySearch's market-leading algorithms for IMRT and VMAT optimization and highly accurate dose engines for photon, electron, proton and carbon ion therapy. The system is built on the latest software architecture and features a graphical user interface with state-of-the-art usability.

About RaySearch

RaySearch Laboratories AB (publ) is a medical technology company that develops innovative software solutions for improved cancer treatment. RaySearch markets the RayStation treatment planning system to clinics all over the world and distributes products through licensing agreements with leading medical technology companies. The company has now launched the next-generation oncology information system, RayCare*, which comprises a new product area for RaySearch. RaySearch's software is used by over 2,600 clinics in more than 65 countries. The company was founded in 2000 as a spin-off from Karolinska Institute in Stockholm and the share has been listed on Nasdaq Stockholm since 2003.

To learn more about RaySearch, go to: www.raysearchlabs.com

* Subject to regulatory clearance in some markets.

For further information, please contact:
Johan Löf, President and CEO, RaySearch Laboratories AB (publ)
Telephone: +46 (0)8-510 530 00
johan.lof@raysearchlabs.com