Elekta Monaco users win top-ranking in global contest for SBRT lung plans

Six of top 10 plans produced with Monaco using the Monte Carlo algorithm for 2017 Radiosurgery Society Plan and Contouring Studies competition

ATLANTA, November 16 – Users of Elekta’s Monaco® treatment planning system at the Radiation Oncology Department at King Hamad University Hospital (KHUH, Kingdom of Bahrain) earned the first and second highest scores for the 2017 Radiosurgery Society (RSS) Annual Scientific Meeting Plan and Contouring Studies challenge, coordinated by RSS and ProKnow. The goals of the contest are to study the variation in treatment plan quality observed over many planning techniques and modalities, learn the most effective methods employed by the highest performing plans and share this knowledge globally.

The top- and second-ranking VMAT SBRT lung plans were created by, respectively, Irina Fotina, PhD, Radiotherapy Medical Physicist and Charbel Attieh, MSc, MPE, Head Medical Physicist, both at KHUH. The plans were developed on Monaco v.5.11. The competition specified that participants create a plan to treat a target on a case provided by contest coordinators.

“Monaco is an extremely intuitive system that offers a great choice of tools, so high quality plans with low doses to healthy tissues can be achieved within a reasonable time,” says Dr. Fotina, whose plan scored 138.1 out of 150. “I also have to credit our Versa HD™ system because the use of its High Dose Rate mode and Agility™ multileaf collimator contributed to the necessary plan modulation and sparing of surrounding organs.”

“The treatment planning system’s Monte Carlo algorithm also allowed us to achieve excellent accuracy with respect to the dose calculation,” adds Attieh, whose plan scored 138.0. “Additionally, the ability to create high quality plans without using an excessive number of arcs or beams and monitor units, results in a shorter SBRT treatment that reduces the patient’s time on the treatment table.”

The Director of KHUH Oncology Center, Dr. Elias Fadel comments: “With the availability of the equipment and proper education, we believe that the number of SBRT lung treatments will increase worldwide. This is because SBRT not only provides superb results for early-stage lung cancer patients who cannot tolerate surgery, but also can be considered for patients who have had previous surgery or conformal radiotherapy.”

KHUH CEO Maj. Gen. Dr. Shaikh Salman Bin Ateyatallah Al Khalifa adds: “With the recent installation of Versa HD in our oncology center and the excellent performance of our physics team in the international plan study, we are aiming to achieve the highest patient care standards in Bahrain, even for the most challenging radiotherapy techniques.”

Monaco user Alex Nevelsky, PhD, Senior Physicist at Rambam Medical Center (Haifa, Israel) – with a score of 135.7 – was among the participants who scored in the top 20 percent of the SBRT lung plan study.

“With Monaco treatment planning software, we have all we need for lung SBRT planning: the Monte Carlo algorithm for reliable dose calculation, plan templates for efficient workflow, radiobiological cost functions for simple and robust planning, and a cost functions hierarchy, which eliminates the need to add in special structures for optimization,” he explains. “Participation in the plan challenge competitions over the past several years allows us to compare ourselves with other centers and gives our team the confidence that with Monaco we can create stereotactic treatment plans of the highest quality.”
Another top 20 percent performer and China’s best scorer, Minghui Li, Senior Physicist at the Chinese Academy of Medical Sciences (Beijing), was impressed by the power of two non-coplanar arcs with Monaco planning.

“I did not realize that small couch kicks could improve the plan quality by so much,” says Li, whose plan scored 135.2. “Monaco must have taken advantage of the increased number of beam directions with non-coplanar arcs. Now we know, and we can apply this technique in clinic.”

To learn more about Monaco, visit www.elekta.com/Monaco.

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