
Health Canada Clears Multi-Leaf Collimator for Nationwide Clinical Application



Two female patients became the first in Canada to receive radiation therapy on a treatment system equipped with Elekta's Agility™ 160 leaf multi-leaf collimator (MLC), which rapidly and accurately shapes the beams used in radiation therapy. Clinicians administered the treatments on November 26 at Centre intégré de cancerologie de Laval (CICL), located on the North Shore of Montreal. Elekta recently received clearance from Health Canada to sell Agility within the Canadian health care system.

"CICL is a new cancer facility that began treating patients in February 2012," says CICL's Head of Physics Fadi Hobeila. "Since our mission is clinical excellence, we wanted to have the best technology possible on our two Elekta Synergy® treatment machines, which meant upgrading them with Agility."

With double the leaf speed of other MLCs used in concert with Elekta's Continuously Variable Dose Rate (CVDR) – Agility, with the Integrity™ digital control system, has enabled CICL physicians to fully exploit Volumetric Modulated Arc Therapy (VMAT), a fast arc technique that significantly accelerates treatments.

"One of the patients we treated employed a two-arc VMAT plan, which took just 1.5 minutes per arc," reports Marie-Andree Fortin, M.D., Head of Radiation Oncology at Centre de sante et de services sociaux (CSSS) de Laval, CICL's parent organization. "Before Agility, we wouldn't have treated that patient with VMAT, because the plan quality would not be equivalent. We would have used standard step-and-shoot IMRT, which would have taken 12 to 15 minutes to deliver the beams."

CICL uses VMAT in 25 percent of its caseload, she adds.

Other Agility features – narrow 5 mm leaves, extremely low transmission and high positional accuracy – combine to create an exceptional MLC, according to Mr. Hobeila.

"The conformance to the target is much better with the narrow leaf width – and it's the same leaf width across the entire 40 cm X 40 cm field," he says. "And Agility has really excellent transmission characteristics. I have worked with many MLC's and Agility is the best for transmission. The positional precision and reproducibility are excellent, which is important when you do IMRT or inverse planning – anything that involves constraints. It eliminates part of the physical constraints of the MLC, but gives more flexibility to the treatment planning system to develop a better plan."

CICL clinicians plan to ramp up their two Agility-equipped Elekta Synergy systems to full capacity quickly.

"We expect the two linacs to be running full schedules by December 10," Dr. Fortin says. "We treated two patients today, tomorrow we will treat seven patients. By the end of the week it will be 15 patients, and by the end of the following week it will be up to a full schedule of 30 patients for each system."

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