

# Swiss clinic's use of secondary dose check delivers confidence in online adaptive RT



MRgRT

Dec 7, 2023 4 minute read



## Hôpital Riviera-Chablais physicists employ ThinkQA Secondary Dose Check for Elekta Unity to ensure safe, accurate treatments in their MR-guided online workflow

During MR-guided online adaptive radiotherapy (ART), patients stay on the treatment couch for recontouring of targets and organs-at-risk, therefore time is critical. Medical physicists need

[Contact and Support](#)



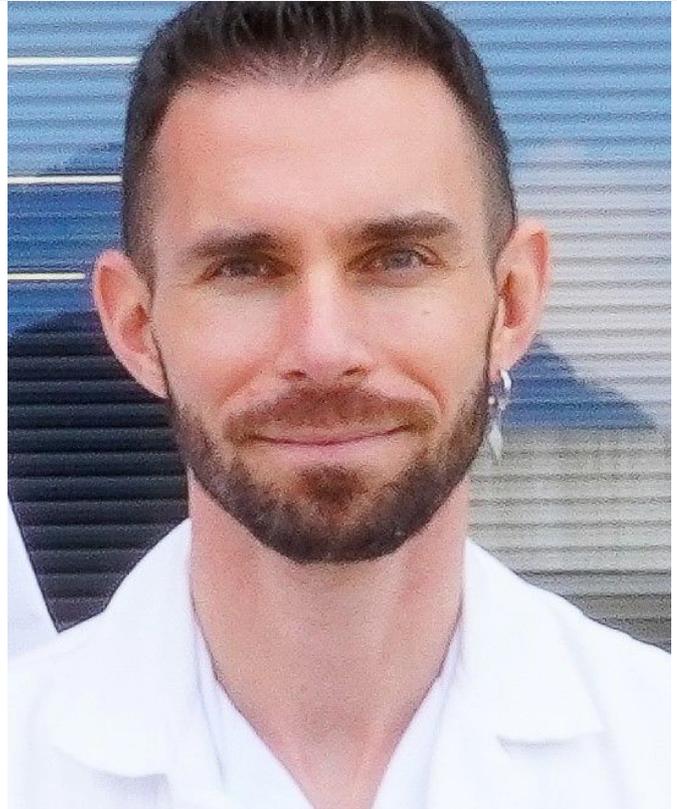
Secondary Dose Check (SDC)\* \*\*, a web-based software that helps them verify – in just a few minutes – that the TPS-calculated dose distribution is consistent with plan parameters. The software can be specifically adapted for use with the [Elekta Unity MR-Linac](#).



Pisaturo, PhD. “If we do adapt-to-shape or adapt-to-position daily treatment adaptation, it’s always a new plan. So, we need to perform an independent calculation of monitor units and leaf positions for every fraction, so we know the dose is as accurate as possible before irradiation.”

However, when clinicians began treating with Elekta Unity in January 2020, a dedicated SDC solution was unavailable, which required them to use the SDC provided by their non-Elekta treatment planning system. They soon found that it was impractical for use in an online ART workflow, as it involved a complex and manual process of plan exporting and importing, and the use of scripts to arrive at a calculation result.

“In the end it would take 10 minutes to do the job,” he recalls. “We found we couldn’t do that feasibly for all patients and all fractions on Unity; only physicists perform this task at our facility and since we’re a small department we don’t always have a physicist on hand at the system.”



Olivier Pisaturo, PhD

## Commissioning of ThinkQA Secondary Dose Check was straightforward

Hôpital Riviera-Chablais was one of three centers to participate in a pilot program for the new ThinkQA SDC solution specifically developed by DOSIsoft for the Monaco-based Elekta Unity workflow. By every relevant metric, the Rennaz team found the software an ideal solution for dose verification in the online adaptive workflow and is now using ThinkQA for all eight to 10 Elekta Unity patients the center treats each day.



🔍 Login

“Commissioning was simple and straightforward because the

Contact and Support



## Elekta Unity.”

“Commissioning was simple and



Elekta Unity, the Unity 2500, just asked us for the cryogen level data, which was acquired during the MR-Linac commissioning process following installation. For the actual commissioning, we tested the dosimetry on different localizations on 10 to 15 patients over a two-day period and sent that information to the company, which performed some fine-tuning of the beam model. Then, I and medical physicist Dr. Sarah Ghandour did the validation over a two-day period.”



The Hôpital Riviera-Chablais Elekta Unity team. (far right: Olivier Pisaturo, PhD)

## Speed, accuracy, simplicity

Dr. Pisaturo and his colleagues have found that the key benefits of ThinkQA SDC are speed, accuracy and simplicity.

“Within just a few minutes after exporting the Monaco plan to the software we have the result, so ThinkQA is super-fast.”

“Within a few minutes after exporting the Monaco plan to the software we have the result, so ThinkQA is super-fast and works automatically,” he says. “It’s also very simple to use because it’s a web interface, so you can have ThinkQA on every computer in the department – you don’t need to be close to the workstation. A traffic light system makes it very easy for the RTT to know when to proceed – if the light is green we can treat, if it’s red we can check the details of the calculation by referencing the simple graphics to find out why and then resolve the issue. The ThinkQA graphics show a dose matrix analysis, including automatic volume indicators and DVH, but the parameter we’re most interested in is the gamma passing rate [Figure 1].

“ThinkQA satisfies our criteria of no more than three percent difference between the TPS-specified dose and the result the software provides.”

“In terms of accuracy,” Dr. Pisaturo adds, “ThinkQA satisfies our criteria of no more than three percent difference between the TPS-specified dose and the result the software provides. It was a great surprise when we did our initial accuracy check, because the Collapsed Cone Convolution [CCC] algorithm doesn’t account for the static magnetic field [B<sub>0</sub>]. It’s a standard

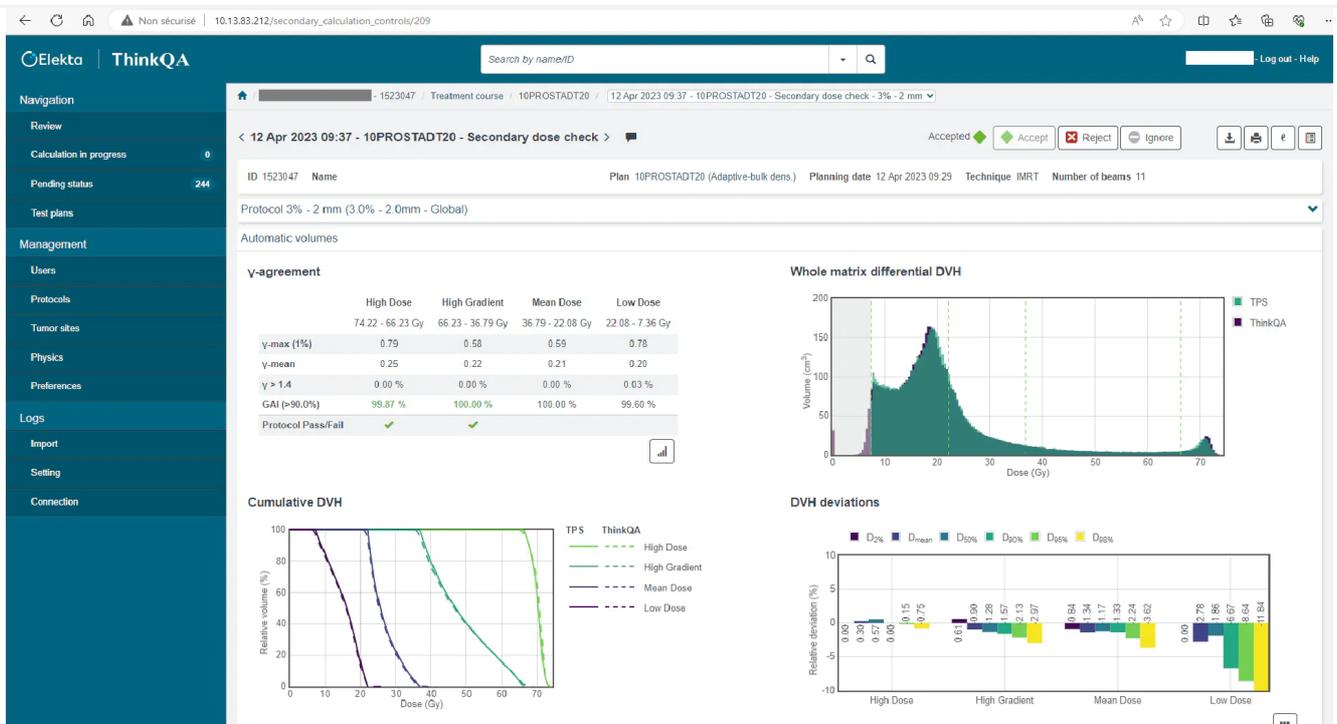


Figure 1. ThinkQA graphics

“The conclusion was that the beam model and software are very accurate,” he says. “The difference we observed was not more than two to two-and-half percent.”

For the center’s online adaptive radiotherapy workflow, ThinkQA SDC has satisfied all key requirements, ensuring a streamlined workflow, safe patient treatments and compliance with AAPM recommendations – contributing significantly to the confidence of Hôpital Riviera-Chablais physicists.

“With Elekta Unity, we’re providing patients with the most advanced, personalized radiotherapy possible,” Dr. Pisaturo says. “Having a secondary dose calculation solution that is precise, fast and easy to use in the Elekta Unity online adaptive workflow has been extremely beneficial for department productivity and for our patients.”

[Learn more about ThinkQA Secondary Dose Check.](#)

\* Product is designed by DOSIsoft S.A. and distributed exclusively by Elekta.

\*\* DOSIsoft QA secondary dose check is U.S. FDA 510(k) pending. Device is not commercially available for sale in U.S. Device is not available in all markets.

LARMRL231128

Contact and Support



## Enjoy the article?

Feel free to share.

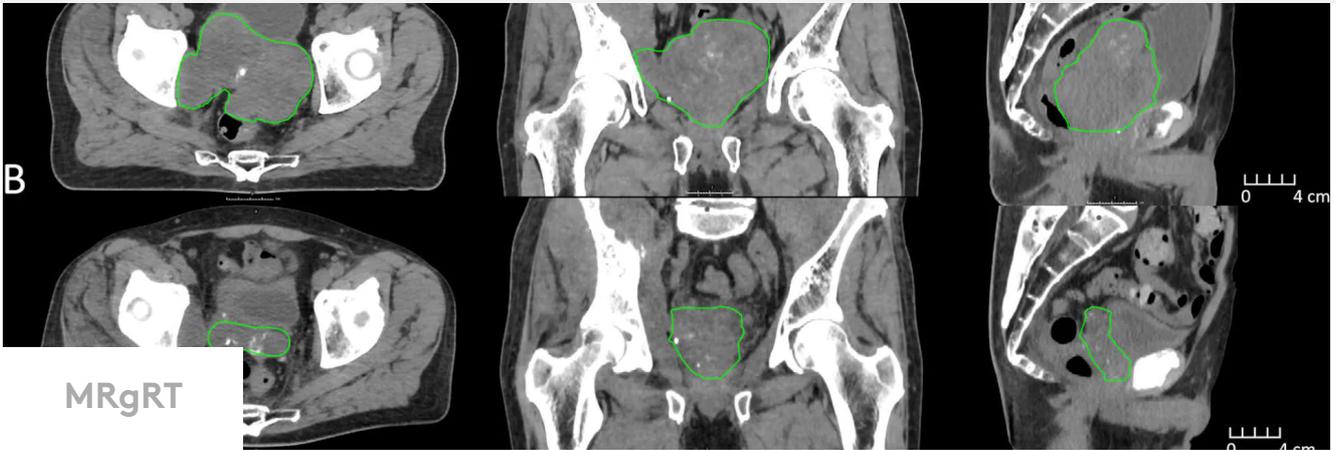
## Related articles



MRgRT

### Yaowarat is philosophical about overcoming cervical cancer

Nov 21, 2023    3 minute read



## RTTs assume key role in the adaptive radiotherapy workflow

Nov 2, 2023     9 minute read



MRgRT

## Korean medical center marks one-year anniversary with country's first Elekta Unity MR-Linac

Nov 1, 2022     9 minute read



 **FOCUS** ELEKTA'S ONLINE MAGAZINE



MRgRT

## Evolution of prostate radiotherapy accelerates with Elekta Unity MR-Linac

Sep 5, 2022    8 minute read



MRgRT

## Wayne makes a hole in one with his prostate cancer treatment

Jul 27, 2022    2 minute read

Contact and Support





## Leadership Perspectives

# Elekta MR-Linac Consortium meeting debuts new programs, opportunities for all Elekta Unity users

Jul 5, 2022     4 minute read

## Products

- Radiation Therapy
- Stereotactic Radiosurgery
- Oncology Software
- Brachytherapy
- Neurosurgery
- Veterinary Radiation Therapy
- Life Sciences

## Patients

- MR-Linac Treatment
- Brachytherapy Treatment

## Contact and Support

## Services

- Elekta Care
- Elekta Care Support Services
- Elekta Care 360
- Elekta Care Learning
- Elekta Care Community
- Elekta Partner Community

## Company

- Partnering with Elekta
- About us



[Radiation Therapy Treatment](#)

[Treatment Centers](#)

[Corporate Governance](#)

[Investors](#)

[Newsroom](#)



[Digital Product Security](#)

[Offices](#)



©2023 Elekta

[Legal notices](#)

[Privacy policy](#)

[Cookies](#)

[Subscription center](#)

Important Safety Information: Radiation therapy is not appropriate for all patients. Radiation treatments may cause side effects that can vary depending on the part of the body being treated. In some patients, they can be severe. Treatment sessions may vary in complexity and time. Refer to individual product labeling (instructions for use) for more complete information on product safety and effectiveness for its intended use.

[Contact and Support](#)

