



## Customer Spotlight

### Saint Luke's Radiation Oncology Network

#### About Saint Luke's Radiation Oncology Network

Established in 1952, Saint Luke's Hospital in Dublin, Ireland expanded in 2010 to form the Saint Luke's Radiation Oncology Network (SLRON) by adding two additional centers in Dublin.

SLRON treats more than 5,000 new patients per year across three sites and offers a wide range of services that focus on providing high-quality, effective, and cutting-edge treatments to their patients.



# Customer Spotlight

## Saint Luke's Radiation Oncology Network

### What was SLRON's experience when implementing Adaptiiv's 3D printing software solution into the existing RT workflow?

We decided to go with the Adaptiiv solution as it is designed with a radiotherapy workflow in mind. The software integrates directly with our treatment planning system, allows us to find the best solution for each patient, and allows us to validate what we have printed in the TPS before treatment.

Overall, it was a positive experience working with Adaptiiv to implement 3D printing in our network, rather than trying to piece together a 3D printing solution ourselves with software/hardware not specifically designed and validated for radiotherapy.



An illustration of how the Adaptiiv solution integrates with the radiotherapy workflow.

### What clinical benefits has SLRON achieved as a result of using Adaptiiv's solution for patients?

In practice, using flat sheets on an irregular or curved patient surface results in air gaps, degrading the dose build-up effect. Other solutions include moldable boluses, such as wax, thermoplastic sheets, or thermoplastic pellets which can be difficult and labor-intensive to mold accurately to the desired thickness.

Wet gauze, which is also highly user-dependent, is difficult to place and can vary considerably from the planned density. Introducing 3D printing allowed us to print a customized bolus, designed to fit precisely on the patient surface. To date, bolus printed at SLRON has been well received by clinicians, patients, and our treatment staff who find it easy to place (especially compared to wet gauze).

# Customer Spotlight

## Saint Luke's Radiation Oncology Network

### Has using Adaptiiv software and 3D printing benefited the treatment of complex cases?

Our initial plan was to use the Adaptiiv solution to create bolus for complex cases requiring customized bolus. After reviewing our first 50 patients, we found H&N and extremity sites were the cohorts that benefited the most from a 3D printed approach.

For cases that previously required wax or wet gauze, a 3D printed approach offered an improvement as the fit on the patient is more consistent and uniform in density throughout treatment.



First 3D printed boluses created at SLRON:  
Upper left: breast; upper right: vulva; bottom left: nose; bottom right: neck.

### How did SLRON build the business case to adopt Adaptiiv's solution?

We built our business case around these key benefits that Adaptiiv would provide:

1. A fully supported and maintained solution that integrates directly with our treatment planning system.
2. Time savings in both fabrication (as the patient would not need to be present when the bolus is created) and treatment setup.
3. Cost savings on using bolus for complex cases.

# Customer Spotlight

## Saint Luke's Radiation Oncology Network

### In what area was SLRON able to achieve cost savings?

What we looked at initially was a comparison between the cost of creating bolus using our conventional materials and the equivalent cost to create the same bolus using 3D printing.

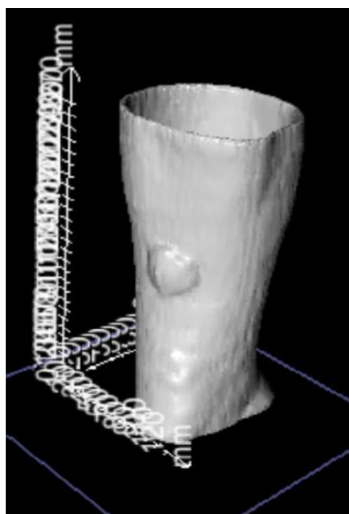
There was a clear cost savings argument to be made, as the materials used in 3D printing are very inexpensive relative to most of the other accessories used in radiotherapy.

These cost savings were most evident when treating complicated cases that would typically require cutting sheets of bolus material to achieve good coverage.

### How has your staff been able to save time by using Adaptiiv?

Time is quite hard to quantify. In complex extremity cases, it was quite clear that being able to print a single bolus (or one cleaved into two pieces that fit together) that could be placed quickly for each fraction was an obvious benefit. Extremity cases that require a full wrap of bolus (such as a leg or arm) can take a considerable amount of time when using traditional bolus, so having the ability to cleave the 3D printed accessory into two pieces for easier setup was very advantageous.

Not only did we see the value in time saved during fabrication and setup, but also the overall benefit to the patient experience.



An example of a full leg wrap bolus that was cleaved into two parts using Adaptiiv software.



# Customer Spotlight

## Saint Luke's Radiation Oncology Network

### Has SLRON considered utilizing the Adaptiiv software for a wider range of use cases?

Now that we have the clinical workflow in place for creating 3D printed bolus, our plan is to move on to using more modules offered by Adaptiiv, particularly the Modulated Electron Bolus and HDR Surface Brachytherapy modules.

In addition, we are keen to collaborating directly with Adaptiiv to explore ideas and help develop new directions for their product innovation roadmap.



SLRON 3D printing lab and Adaptiiv workstation. Adaptiiv provided in-depth training to help launch SLRON's 3D printing program.



**“Adaptiiv has enabled us to confidently tackle situations where we would normally struggle to apply bolus.** The benefit has already been seen in reduced setup times, improved patient comfort and reproducibility. The ability to print the precise bolus required for electrons or photons is a powerful tool in an RT department.”

CIARAN MALONE, MEDICAL PHYSICIST  
SAINT LUKE'S RADIATION ONCOLOGY NETWORK  
DUBLIN, IRELAND