

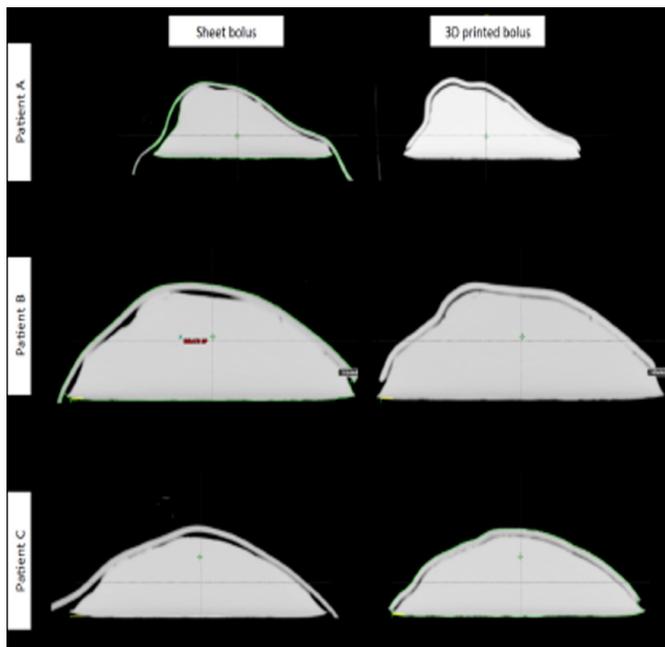
# Simple Bolus

Improve treatment accuracy and comply with regulatory bodies with Adaptiiv's patient-specific bolus. Adaptiiv provides a regulated 3D printing solution that is fully validated for use in radiation oncology. Adaptiiv's solution eliminates the guesswork in plan verification because it integrates directly with the clinically commissioned TPS and allows users to verify their plan against the patient-specific bolus prior to printing.



## Key Benefits

- The only regulated solution that allows users to customize a bolus, seamlessly export the modified structure back into their TPS and then use their clinically commissioned TPS to calculate dose.
- Patient-specific fit reduces air gaps and surface dose uncertainty providing superior fit compared to traditional sheet bolus while improving treatment accuracy.
- Adaptiiv eliminates the need for multiple, 3rd party software solutions that require excessive design time, can't be easily verified in your TPS, and do not have regulatory clearance.
- Users can have confidence that what is planned in the TPS will result in a printed accessory that follows strict QA requirements used in the field of radiation therapy.
- Cleaving function allows users to easily cleave a bolus or applicator into two parts (at any angle) to treat complex patient anatomies, such as large extremities.
- In Vivo Dosimetry function allows users to automatically create and print dosimeter pockets directly within a bolus or applicator, enabling real-time recording of dose received by individual patients.



*"3D printed bolus reduced total air gap volume by a factor ranging from 1.4 to 16.3." (Robar et al. 2016)*

**"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

# Clinical Benefits

	Radiation Oncologist	Medical Physicist	Radiation Therapist / Dosimetrist	Administrator
<b>Patient Consult</b>	Highlight/demonstrate use of innovative technology to improve reproducibility and accuracy during treatment delivery.			Highlight/demonstrate use of innovative technology to promote center's modern approach to treatment.
<b>CT Simulation</b>	Improve patient comfort through simplified, faster setup during CT simulation and treatment.		Increased efficiency and confidence. Manual bolus fabrication is replaced by 3D printing bolus workflow. Workflow is simplified & objective vs. manual bolus fabrication.	3D printed bolus meets requirements for existing billing codes: can be billed as a patient-specific complex device.
<b>Image contouring</b>		Standard TPS contouring tools are used to design the patient-specific bolus based on the CT scan and body contour. This structure will be a fabricated patient-specific bolus.		
<b>Treatment Planning</b>		Bolus shape during treatment planning accurately reflects bolus shape during treatment delivery. This is not true of conventional methods such as Superflab.		Seamless integration to existing TPS means faster, cheaper setup.
<b>Plan Quality Assurance</b>		Rigorous pre-Tx QA of bolus is simple (CT scan) and verification of placement on patient does not need to impact patient workflow (CT, CBCT).		Improve the accuracy of treatment delivery.
<b>Patient Setup at Tx Unit</b>	Setup is simplified and objective versus manual bolus and provides increased confidence in the delivery of the plan.	Increased RT confidence, as a result of simplified setup, means less consult calls to the unit.	Shown to decrease setup time for complex cases by as much as 30%.	Increases efficiencies leading to increased throughput and capacity.
<b>Image Guidance</b>	CBCT assessments of conformity demonstrate improved reproducibility.	CBCT can be used to assess conformity.	CBCT can be used to assess conformity.	
<b>Treatment Delivery</b>	Improved confidence in accuracy of superficial dose delivery to patient.	Improved confidence in accuracy of superficial dose delivery to patient.	Improved patient and staff experience: <ul style="list-style-type: none"> <li>• Eliminate wax and wet gauze.</li> <li>• Reduce need for tape.</li> <li>• Increased set up efficiency.</li> <li>• Increased confidence as a result of simple workflow.</li> </ul>	Reduces the risk of using unverified accessories during treatment.

# Why Adaptiiv?

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Adaptiiv offers an advanced 3D printing software solution designed specifically for radiation therapy. Our solution integrates fully with existing TPS and clinical workflows. This enables users to create patient-specific accessories on demand and provides the following advantages over traditional methods and alternative commercial solutions:

1. Improved treatment accuracy by reducing air gaps that cause underdose.
2. An integrated commercial solution that allows users to view the newly designed patient-specific bolus in their TPS to verify the plan prior to plan sign-off.
3. The only turnkey 3D printing software solution backed by a regulatory cleared QMS. Radiation therapy accessories are created on demand without the need for a highly dedicated staff skill-set or the assumed risk associated with use of multiple versions of open source software.
4. Adaptiiv's software facilitates and amalgamates multiple radiation therapy-specific post-processing features which saves time and eliminates the need for multiple versions of open source software.
5. Adaptiiv is an in-house solution that gives users greater control over commissioning and QA processes compared to external solutions used to design/fabricate medical accessories.
6. Reduced long term cost of fabrication with no shipping costs or delays in treatment when compared to outsourcing.