



The increasing demand for rapid-access palliative radiotherapy requires treatment pathways that are both efficient and clinically robust. Adaptive radiotherapy systems such as the Varian Ethos platform offer streamlined workflows, yet their suitability for palliative indications—where simplicity, speed, and reliability are paramount—requires careful evaluation.

This work describes the commissioning and clinical implementation of palliative radiotherapy planning using the Ethos Treatment Planning System (TPS) within a satellite centre, away from our main cancer centre at Velindre Cardiff. The emphasis here has been

The aim is to develop a radiographer led service that will deliver fast, accurate and conformal palliative treatments for low risk patients in a rural location.–This led to a need to redesign our current process field based approach of delivering palliative radiotherapy to that would avoid increasing demands on physicists to create planned treatments

Methods and Materials :

Commissioning focused on validating Ethos-generated template-driven plans for common palliative indications, initially spine and lung. A library of intent-specific templates was created with beam geometries, optimisation parameters, dose constraints and AI generated organs at risk tailored for single-fraction and short-course regimens.

Dose calculation accuracy was assessed using phantom measurements, ion chamber point-dose verification, and gamma analysis to evaluate agreement between Ethos dose predictions and reference measurements. Additional end-to-end testing examined workflow reliability from CT simulation through automated plan generation, adaptation, and delivery.

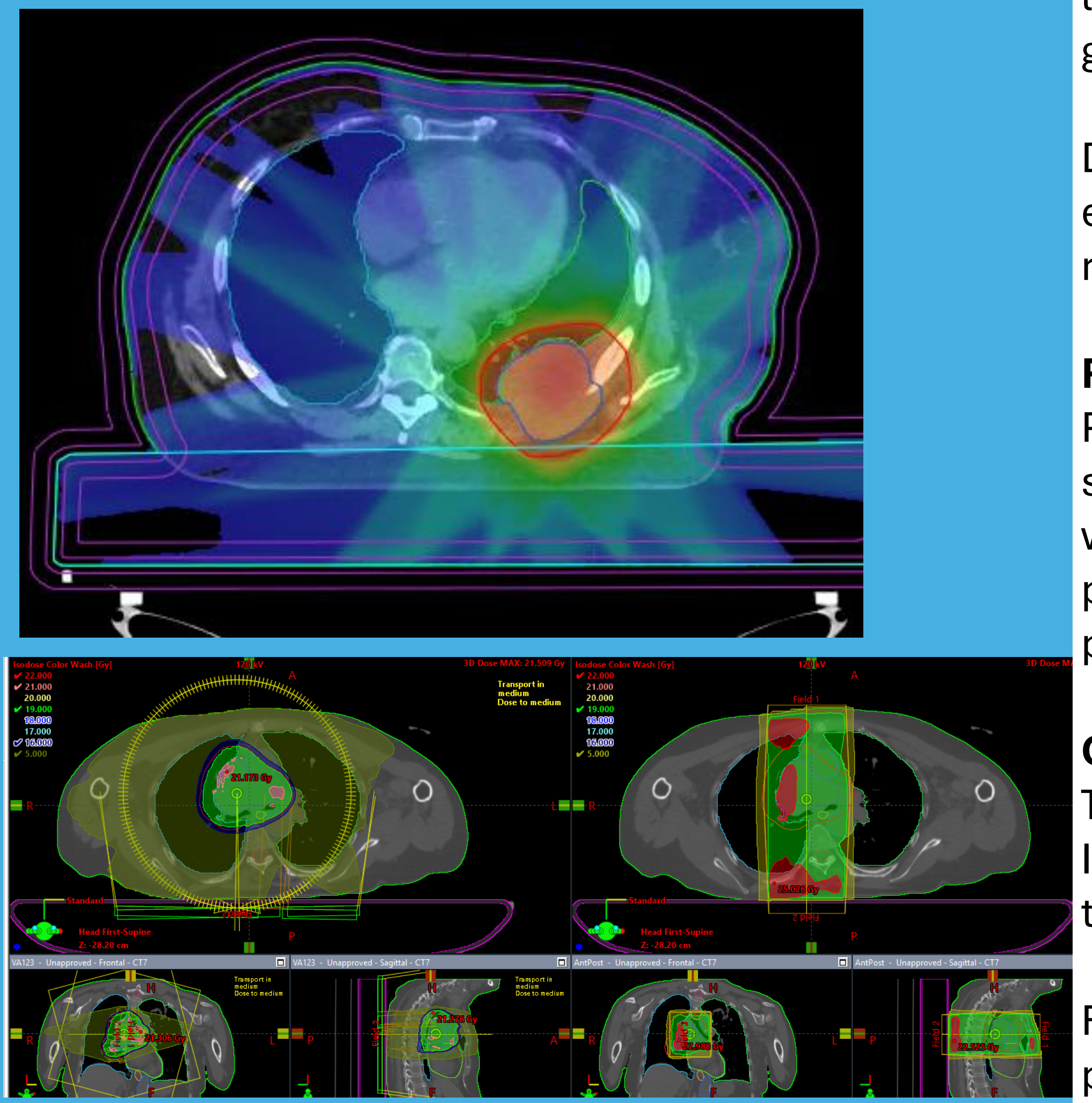
Results :

Pre-clinical validation demonstrated that Ethos automatically generated clinically acceptable plans using the developed templates for standard palliative scenarios with no user intervention for individual patients. The templates consistently achieved target coverage while respecting organ-at-risk aims. The service is now open for patients that meet an initial inclusion criteria and treatment of these patients have so far been successful with further development now focusing on moving from physics involvement in the planning process to a radiographer led service.

Conclusion:

This commissioning project demonstrates that Ethos is a viable and efficient platform for delivering high-quality palliative radiotherapy. Its AI based automation capabilities support rapid-access services and can enhance departmental capacity without compromising treatment quality.

Further work will explore expanding templates and refining workflows for additional palliative indications as well shifting the planning process from being led by our physics team to being radiographer led



more conformal dose distribution for Ethos generated plan (Left) compared to current technique (Right)

