

## AAPM Partners in Solutions 2019

### Siris Medical: 'Headless' adaptive decision support

**Problem/Need:** Adaptive therapy has been proven to improve outcomes when medically necessary.<sup>1,2</sup> However, because workflows remain burdensome, adaptive therapy may be underutilized<sup>1</sup>. The central challenge to the appropriate utilization of adaptive therapy is the creation of a high quality treatment which is required to determine medical necessity. Typically high quality treatment plans require many days to complete. Thus, there is a need for an efficient method to determine if adaptive therapy is necessary.

**Presented solution:** We demonstrate the deployment of MiM software's automated workflow functionality, in conjunction with PlanMD™, an Artificial Intelligence driven clinical decision support tool<sup>3</sup>, to enable automated adaptive therapy determination.

We show that a commercially-available Artificial Intelligence clinical decision support software can streamline the adaptive treatment planning decision-making process, thus leading to information that assists the attending physician to determine the medical necessity of adaptive therapy. This 'headless' workflow will be shown through scripting of the MiM software workflow by three steps:

1. Importing of on-board treatment images during treatment.
2. Deformation of the on-board imaging and coregistration to initial planning structures
3. Background prediction and notification of plan improvement potential

**PlanMD™** is an artificial intelligence-driven clinical decision support system which empowers physicians by enabling the real-time determination of dose outcomes during contouring and prior to treatment planning.

- Provides, for the first time, real-time prescriptive contouring.
- Compatible with all DICOM-RT based planning systems
- FDA 510(k) clearance<sup>4</sup>

**Benefit:** Live use of both products will demonstrate the efficiency, ease of use, and real-time benefit to the radiation oncology team of automated clinical decision support for adaptive therapy.

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<sup>1</sup> Schwartz et al., "Adaptive radiotherapy for head and neck cancer - Dosimetric results from a prospective clinical trial," Radiother. and Oncol., 106 (2013).

<sup>2</sup> Gomez et al., "Adaptive Radiation Therapy for Lung Cancer," Journal of Oncology, 2011

<sup>3</sup> Valdez et al., "Clinical decision support of radiotherapy treatment planning:A data-driven machine learning strategy for patient-specific dosimetric decision making, 125 (2017)."

<sup>4</sup> FDA 501(k) cleared under QuickPlan.