MIM Webinar (8-13-2020)

# Presenter

Krista Curry

With Dana Delrosario, MIM site manager for CRMC

# Overview

The webinar focused on two things:

1. We may try to use the TPS for things that it was never meant for: target vol uncertainties, clinical workflow risks, error detection uncertainties. But that’s where MIM shines. TPSs are not designed to handle multiple image series, multiple registrations, or QA of contours or registrations.
2. Krista and Dana presented several MIM capabilities and offerings that we are not currently using. King and I are under the impression that while we use many of RayStation’s capabilities, we barely scratch MIM’s surface. We stressed that our biggest need is simple interfaces for the physicians, or, better yet, as much automation as possible.

# QA & Adaptive Plans

We were asked what QA we perform on our deformables. Like other clinics, we really just use deformables for visual assessment; our deformables are not accurate enough for targeting, and we do not test them for this. We create deformables to answer the question, “Relative to the bony structures, is there enough mathematical interpolation between the TPCT and the QACT to warrant a new plan? Does the MD think that this makes sense biologically?”

# Is the Target Volume Part of the Rx?

Is the target volume part of the prescription? Or is it equally as important? CRMC uses Chao prescriptions for Tomo H&N. The MD draws the GTV and generates the PTV. We create dose mappings and clinical goals based on Chao and other RTOGs.

Could the target volume come before the prescription? Of course, but we wouldn’t have MD cooperation on getting the Rx in a timely manner. But it is easy to modify what we’ve already done in MIM, based on MD feedback (e.g., removing a fraction).

# Case Study

Study shows very wide variance in contours of the same target by different MDs.

# Benefits of MIM’S Automated Tools

Workflow is less efficient because it if difficult to keep up with what has been done by whom. The more automated the process, the more efficient (fewer transitions between personnel) and accurate it will be.

MIM tools automatically check the correct side of the body, detect empty and stray contours, detect stray voxels, and detect missing slices.

# Deep Learning in MIM

MIM offers several deep learning tools in its latest version (which we don’t yet have). One of these is ProtégéAI, a cloud-based OAR auto-contouring tool. It is, of course, more accurate than atlas-based segmentation.

How was the training data pruned? Well, we don’t have to worry about this regarding targets: targets are not included in ProtégéAI. Krista was not sure how it was determine whether to use a given contour to train ProtégéAI, but she can get us this criteria if we so desire.

# Automating Each Step of the Clinical Workflow

I get the impression that MIM Assistant does a lot of the things that can be automated via scripting in RayStation. Much of MIM is based on big clinics’ needs; MIM frequently adds features based on customer requests and even integrates customer-specific MIM Workflows into future releases.

# Next Steps

Dana will be getting in touch with us in a few weeks to arrange a time to discuss upgrading MIM and learning to use some of the more advanced features.

We requested demos of the following:

* Automatic import from MIM
* Processing w/ atlas-based segmentation
* ProtégéAI case studies
* Building MIM Workflows. MIM doesn’t have scripting capabilities as RayStation does, but there is a drag-and-drop tool that can generate Java to create a Workflow (kind of like an Excel macro).
* Where to get started w/ customizing our MIM installation