Scripting to enable AI-guided adaptive decision support

THE PAST: Going From Point A to B, Faster
- Pick the likeliest / most common path.
- Add TPS accelerators
- Drive and see what happens
- If it's wrong, make a detour / go back to the start

TODAY: Getting From Point A to B, Better
- How important is saving 6 minutes?
- Are there needs or goals to accomplish along the way?
- Are there events or circumstances unique to today / right now / this patient?
Trade-Offs Are Many

Deciding on the best treatment requires navigating the trade-offs between delivering lethal target dose and sparing Organs at Risk.

Clinical decision support (CDS)

"[Enables] the clinical team to determine the best course of treatment before expending resources on a lengthy treatment planning process."

CDS statistical learning

While historical knowledge is used by every clinician, AI recalls massive historical knowledge to enable accurate, on-line decision support.

InsightRT AI engine:

Utilizes OIS, imaging, clinic, clinician, & prescription data to match and identify achievable treatments to gain treatment insights.
Siris software platform

Supporting better decisions, better outcomes

Physician-driven dose assessment
QuickMatch Decision support, workflow accelerator, plan QA

Inform / provide confidence to the physician

Siris Medical Artificial Intelligence

Prescription & Contouring
Plan Execution
Radiation Therapy Delivery

Standard planning workflow

Planning is complex and resource intensive

1-2 Weeks

Prescription & Contouring
Plan iteration, exploration, & execution
Approved Plan? RT Delivery
Remove the iterative process

3-5 Days
Physician Directive → Plan iteration, exploration, & execution → Approved Plan & RT Delivery

Adaptive RT
Plan Creation → Adaptive decision making → Wkly CBCT
Headless adaptive RT decision support
Plan Creation → Headless decision support → Replan?
Goal: notification system with zero user intervention

1. Automatically pull CBCT from OIS with InsightRT
2. Send to MiM Assistant
3. Workflow:
   a. Use deformable registration to create new structures
   b. Autocontour lung & subtract from deformed ITV
   c. Expand ITV to PTV
   d. Export to InsightRT
4. Load patient in InsightRT

Workflow with MiM Software

Adaptive prediction from InsightRT
Summary of results

- InsightRT can be scripted to create a 'headless' workflow for more efficient determination of the need for adaptive
- New imaging modalities & higher quality imaging will improve decision support capabilities
- Please reach out if you're interested in hearing more:
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