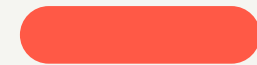# Enhanced Planning Capabilities using VOLO™ Ultra Optimizer for the Radixact® System – Lynn Cancer Institute Findings

Gagandeep Saini, MS, CMD
Senior Medical Dosimetrist, Lynn Cancer Institute, FL

ACCURAY

VOLO™ Ultra Optimization for Radixact® System- Lynn Cancer Institute Findings

GAGANDEEP SAINI, MS, CMD

SR. MEDICAL DOSIMETRIST

LYNN CANCER INSTITUTE, BOCA RATON FL

Accuray Disclaimers and Disclosure

Disclosure

The views contained and expressed in this presentation, including any accompanying oral commentary, are those of the presenter and do not necessarily reflect the views or policies of Accuray Incorporated or its subsidiaries. No official endorsement by Accuray Incorporated or any of its subsidiaries of any vendor, products or services contained in this presentation is intended or should be inferred.

An honorarium is provided by Accuray for this presentation.

Medical Advice Disclaimer

Accuray Incorporated as a medical device manufacturer cannot and does not recommend specific treatment approaches. Individual results may vary.

Safety Statement

Most side effects of radiotherapy, including radiotherapy delivered with Accuray systems, are mild and temporary, often involving fatigue, nausea, and skin irritation. Side effects can be severe, however, leading to pain, alterations in normal body functions (for example, urinary or salivary function), deterioration of quality of life, permanent injury and even death. Side effects can occur during or shortly after radiation treatment or in the months and years following radiation. The nature and severity of side effects depend on many factors, including the size and location of the treated tumor, the treatment technique (for example, the radiation dose), the patient's general medical condition, to name a few. For more details about the side effects of your radiation therapy, and if treatment with an Accuray product is right for you, ask your doctor.

Content

- Lynn Cancer Institute at a Glance
- First Impression
- Appearances
- Normal Tissue Objectives
- Overlap Priority
- Snapshots
- Prescription-Rescale Dose
- LCI Findings: Pros/Cons

Lynn Cancer Institute at a Glance

Boca Raton
701 NW 13th St Floor 3, Boca Raton, FL 33486

Delray Beach
16313 South Military Trail Delray Beach, FL 33484

Bethesda Health City in Boynton Beach
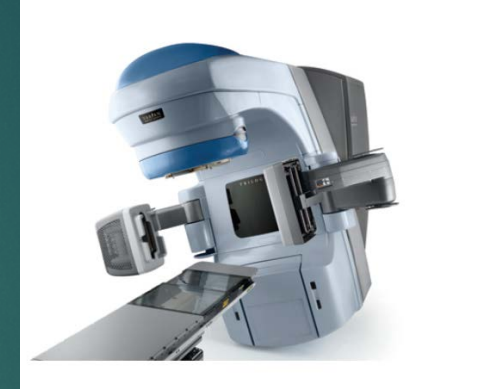10301 Hagen Ranch Road, Suite A-960
Boynton Beach, FL 33437

Current Radiotherapy Technology at LCI

Varian® TrueBeam™

Varian® Novalis Tx

Varian® Trilogy

Radixact® System

CyberKnife® M6™

Elekta Flexitron

Current Treatment Planning Software at LCI

Varian Eclipse™ TPS for Varian Linear Accelerators

Accuray Precision® TPS for Radixact® and CyberKnife®

Oncentra® TPS for HDR Brachytherapy

What's Coming at LCI?

Expected to Go-Live in late 2022
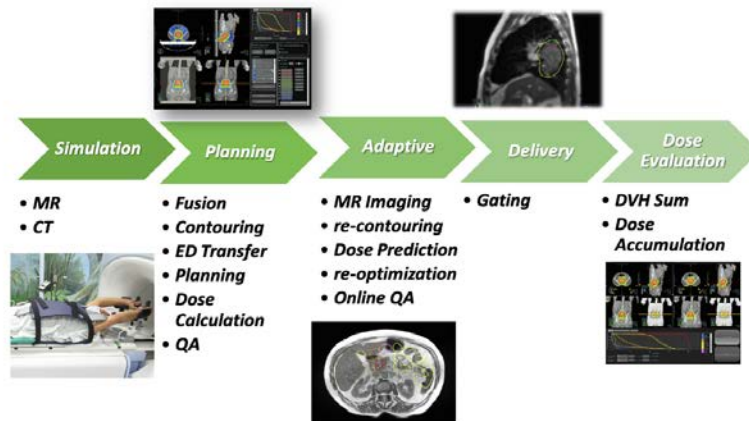
What's coming at LCI?

- ► RapidArc Treatment Delivery
- ► kV Imaging System
- ► Advanced imaging
- ► Gated CBCT
- ► 4D CBCT Imaging Package
  - ► Acquire an 4D CBCT images for patient positioning
  - ► Review target motion analysis at the time of treatment delivery
  - ► post treatment delivery

Addition of TrueBeam Linear Accelerators in 2022

Single Room Proton Therapy System

My Radixact® Journey So Far

- ▶ Radixact® System was installed and started clinical operation in October 2020 at LCI

- ▶ I started working at LCI in March 2021

- ▶ Learned Accuray Precision® Treatment planning system and functionality of Radixact from scratch

- ▶ Reduced treatment planning time from weeks to days

- ▶ With VOLO™ Ultra treatment planning is now matter of couple of hours

VOLO™ Ultra First Impressions

▶ Quick and very fast-real time optimization

▶ No overlap priority

▶ More freedom to prescribe the dose as compared to classic optimization

▶ Normal Tissue Objectives (NTO) feature added

▶ Requires less numbers of rings/helping structures

▶ Intractive DVH-Freedom to choose Max, Min or Mean dose

▶ Snapshots

Appearances

VOLO™ Ultra

classic

Fast Optimization-Time savings

- As we know, our time is essential and compared to classic optimizer, VOLO™ Ultra is a very fast optimizer

- Intractive DVH-can change goal type (Min, Mean or Max) any time, can add up to 5 DHV Goals (control points) and drag the arrow to adjust the volume

- Freedom to include or exclude desired Target volume/OAR's at any stage of optimization without losing calculated dose

- Option to control the "Beam on Time," by using either accelerate treatment tab or by choosing time manually

- Option to accelerate the time of optimization

Fast Optimization-Time savings

Normal Tissue Objective

- ▶ NTO is a new feature that is added to VOLO™ Ultra

- ▶ Controls the gradient outside of the target volume

- ▶ Due to this feature, a fewer number of rings/dose limiting structures are required, saving contouring time

- ▶ Start gently with low priority so that target coverage can be achieved
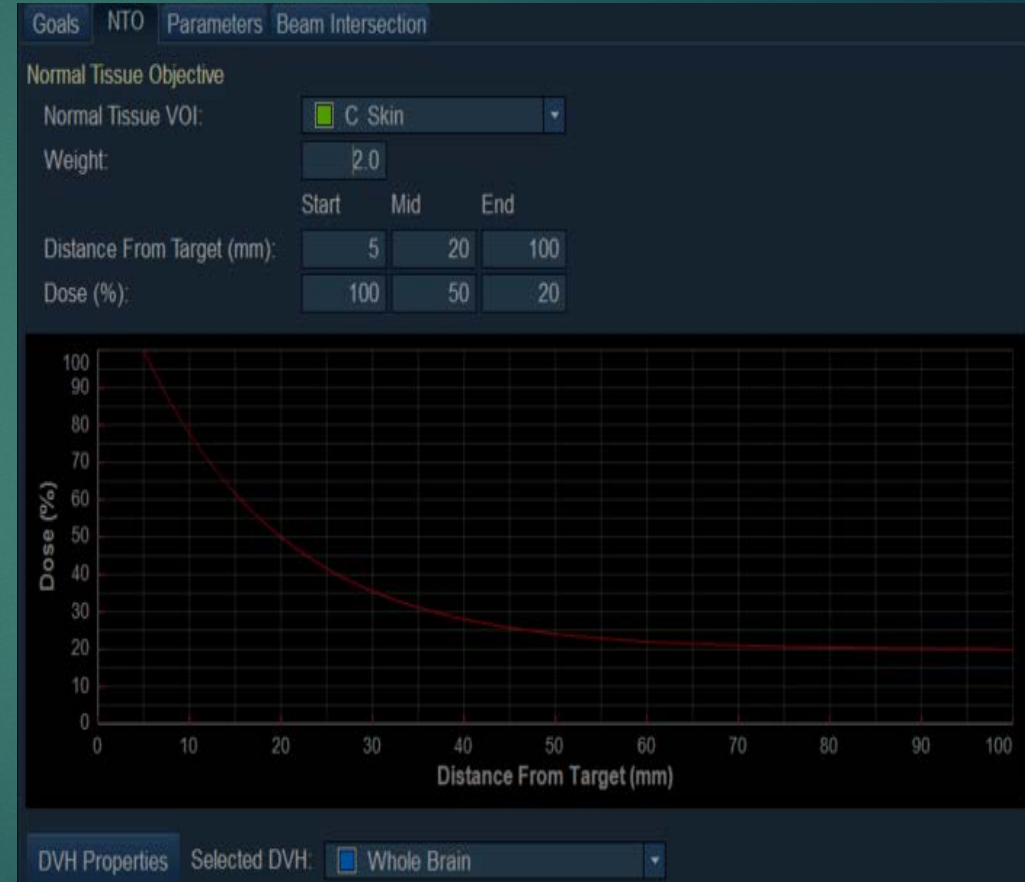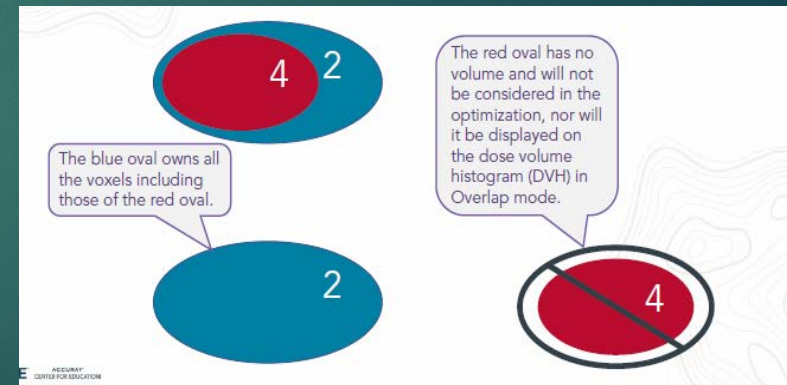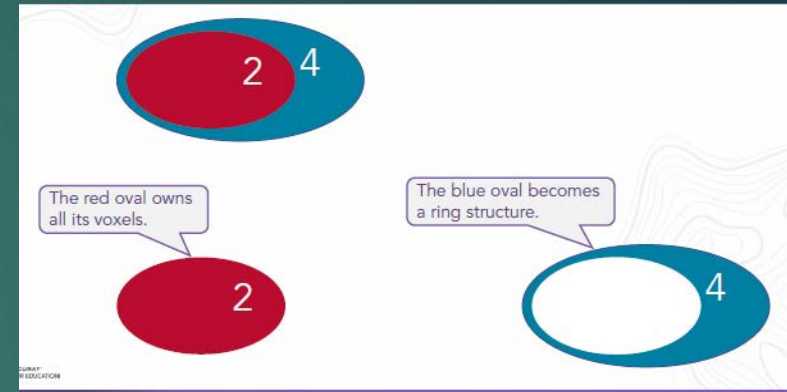
No Overlap Priority

► In the classic optimizer, overlap priority is a deciding factor and cannot be ignored. It determines the ownership of shared voxels for optimization

► Needs to be considered even if structure is not being used for optimization

► With VOLO™ Ultra, it can use sub structures at any time during the optimization to achieve your goals

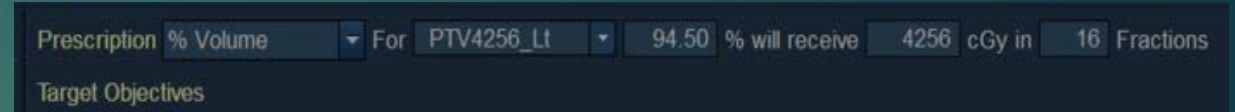# Snapshots

- There are 4 Snapshots that are available for comparison during the planning process

- Select the number and save the plan with unique identity like 98% converge, 105% Hotspot etc.

- Ease to select the plan using snapshots as it shows a comparative DVH

- Save the snapshot before exiting, once you close the plan, unsaved snapshots will delete automatically
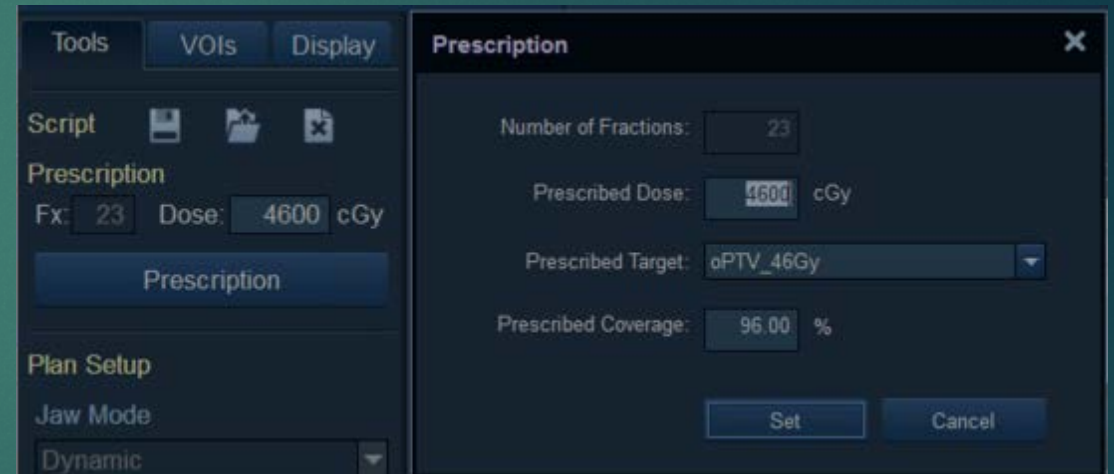
Prescription
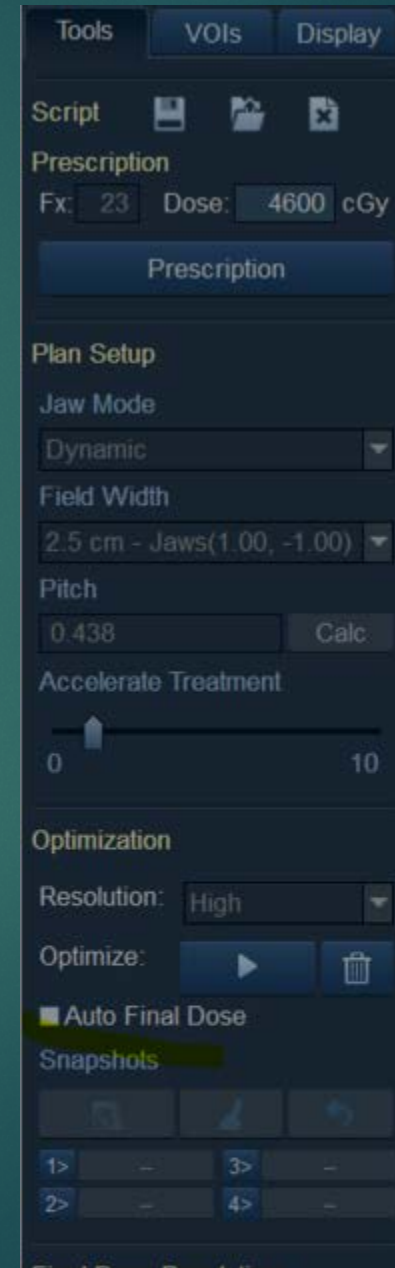
Classic Prescription

► Prescription opens with initial access to the plan tab

► Prescription is used for the isodose display in VOLO™ Ultra

► In classic optimization, the result is normalized to the prescription

VOLO Ultra Prescription

Prescription - Rescale Dose

▶ Rescale dose is another new feature added to VOLO™ Ultra

▶ Run the final dose calculation prior to using this feature

▶ Try to deviate only 1-2% change between the desired and current dose

▶ It is recommended to try to re-optimize if difference between desired and current dose is significant

LCI Findings:

Pros

- No Overlap Priority
- NTO- Rings or NTO are used to control the dose outside of the target
- Rescale final dose option
- Interactive DVH
- Can control the Beam on Time
- Control over Leaf Open/Close time, Cut-Off feature helps Physics to pass QA easily

Cons

- In VOLO™ Ultra, the planner does not control the modulation factor directly
- No unlimited number of total rounds of calculation, as in VOLO Ultra, there are 1-10 rounds in total and each round has 20 iterations
- To overcome Modulation Factor selection, use time manually

Reference:

- Accuray training materials
- Accuray Exchange https://accurayexchange.com/