SNC Webinar (7-7-2021)

We currently have the following SNC products:

* An SNC Machine license for each linac
* A DailyQA3 device for each linac

We are looking for the following from SNC:

* Beam profile data from IC Profiler
  + This is in v3 of SNC Machine. We just need to ensure that TomoDose works on Windows 10, then upgrade SNC Machine.
* A DailyQA3 device
  + Currently working with Josh to get a price review for this.
* A 1D water tank
* SRS MapCHECK
  + Will discuss this in 6 mos to 2 yrs, when we start our SRS program.
* A PDI blue cable for one of the linacs, plus a PDI box for Tomo if we switch from TomoDose to IC Profiler.
  + A full PDI “kit” comes with the water tank, DailyQA3, or SRS MapCHECK.
* Portal (pre-tx) dosimetry
* Log-based patient QA
* Possibly in-vivo dosimetry

We have two options for the last three bullets above:

* SNC Patient
  + PlanCHECK
  + DoseCHECK
  + PerFRACTION
    - Pre-tx QA
    - In-vivo QA
* PerFRACTION only

More info on each:

* Plan Check
  + Physics and dosimetry checks – an alternative to Mobius3D
  + Physics templates for every major tx technique: SRS, VMAT, etc.
  + 70 pre-loaded protocols, such as H&N RTOG 0522
  + Can create your own protocols based on pre-loaded
  + Can scale protocol to targets or to all structures.
  + Requires a manual DICOM export from RS (just like Mobius3D)
* Dose Check
  + 2ry MU/dose calc in 3D
  + Automatically starts as soon as PlanCHECK finishes. If you are not using PlanCHECK, automatically starts the same way PLanCHECK does (when it receives DICOM files)
  + Collapsed cone superposition algo w/ independent beam model.
    - A project manager compares our commissioning data, plus data from a few IMRT and VMAT plans to ensure their model fits our machines.
  + Provides 3D gamma pass rates, global and per-structure
  + Choose which structures pass/fail a plan
  + Failing pixels are colored on patient anatomy
* PerFRACTION
  + Pre-tx QA
    - 2D
      * Uses EPID (absolute cal)
      * Need iView license from Elekta for EPID data
      * Higher res than other 2D QA (e.g., MapCHECK)
      * Use for MLC tests b/c 3D is unreliable for this
    - 3D
      * Uses EPID or Epilog (EPID + logfile)
      * B/c 2D does not use logfile, cannot access certain info that 3D uses: timestamps, dose/MU
    - On Elekta, can run 2D and 3D simultaneously
    - Forward calc from measured plan into CT sim
    - Provides 3D gamma pass rates, global and per-structure
    - Can take device measurements directly in the software
  + In-vivo QA
    - 2D
      * Uses EPID (absolute cal)
      * AKA *transit dosimetry*
      * EPID is out during tx
      * Non-interpretable, so 3D should accompany (possibly not till next day)
      * Used by most US sites
    - 3D
      * Uses log Epilog (EPID + logfile)
      * Really no need for EPID b/c MLC errors will be washed out by other errors
      * Collision risks w/ EPID, esp. on Elekta, so we would use log, not Epilog, for in-vivo QA
    - Pass rates are very different from pre-tx QA pass rates and are site- and technique-specific

Passrates are very different from pre-tx qa, and r site/technique specific. Will email paper

The bottom line: Get SNC Patient if you need PlanCHECK (we don’t, b/c we have Mobius3D). If you don’t need PlanCHECK, get PerFRACTION plus DoseCHECK. DoseCHECK in addition to PerFRACTION adds ~$5K and includes absolute EPID cal for 2D pre-tx QA.

Will adding SNC Patient or PerFRACTION slow down our SNC server? Possibly; we may need a new server. But our current server likely already has GPU cards, so it may just need an add-on. SNC will send us the server specs for our IT to look over.