

**PARTNER**

St. Joseph's/Candler Health System – Nancy N. and J.C. Lewis Cancer & Research Pavilion (Savannah, Georgia)

**CHALLENGE**

Accurate and Efficient QA of Single-Isocenter Multiple-Target (SIMT) Plans

**SOLUTION**

SRS MapCHECK® & SNC Patient™



The Medical Physics staff at St. Joseph's/Candler Health System handle ~20 stereotactic cases per month, or 1,000+ stereotactic deliveries per year, between their Accuray CyberKnife® System and four Varian Medical Systems® TrueBeam® Systems across three sites. In recent years, the St. Joseph's/Candler team have been performing more Single-Isocenter Multiple-Target (SIMT) plans of increasing complexity. Balancing their goal to ensure the safest and most accurate treatment delivery for patients with efficiency for staff is no easy feat.

**Their solution: The SRS MapCHECK® array with SNC Patient™ Software****WHY SRS MapCHECK?**

The team at St. Joseph's/Candler began using SRS MapCHECK for patient-specific QA of their stereotactic program in 2018. When they started their stereotactic program on the Cyberknife System, it took about two hours per plan using film and chamber – with the SRS MapCHECK, it takes only ~20 minutes. Beyond the efficiency afforded to their team, they found SRS MapCHECK met their requirements for complying with AAPM Task Group 218, for accurate results for deliveries that often include vertex fields. Along with SRS MapCHECK, they use the SNC Patient software, which they were already familiar with from other Sun Nuclear Patient QA devices.

**ADDRESSING MULTIPLE TARGETS ON MULTIPLE PLANES**

As the team began performing more SIMT treatments, they needed support for very complex plans that could have as many as ten lesions, all on differing planes. For these types of plans, the

St. Joseph's/Candler team relies on the QA Setup Tool within SNC Patient, which provides guidance for ideal setup of SIMT plans, with real-time visualization of what the SRS MapCHECK detector will measure when rotated and/or shifted.

*“Before you do your QA, you can load up the dose and the plan in the QA Setup Tool. Within the tool, it's easy to flip and rotate the SRS MapCHECK to optimize positioning to capture the most targets in one beam delivery.”*

**Joey Spring, M.S.,** Medical Physicist,  
St. Joseph's/Candler Health System

As an example, in a plan with nine lesions that was to be performed on a Varian Medical Systems® HyperArc™ System, the targets were separated by as much as 12 cm and were in differing planes — making QA with a single delivery impossible. “It wouldn’t matter how big an array is, there is no way that all of the targets could be captured in a single plane,” stated Joey Spring, M.S., Medical Physicist at St. Joseph’s/Candler Health System.

**CONCLUSIONS**

Using the QA Setup Tool, Spring determined that all nine lesions could be measured by rotating the SRS MapCHECK in the StereoPHAN™ to three discreet angles and using four deliveries (see figure below for details). Due to the intuitive nature of the QA Setup Tool, this took less than five minutes to determine.

*“I am not sure how I would figure this out without the QA Setup Tool. Unfortunately, there isn’t any way to do this in the treatment planning system and it would have taken me hours if I had to do this by trial and error.”*

*Joey Spring, M.S., Medical Physicist,  
St. Joseph’s/Candler Health System*

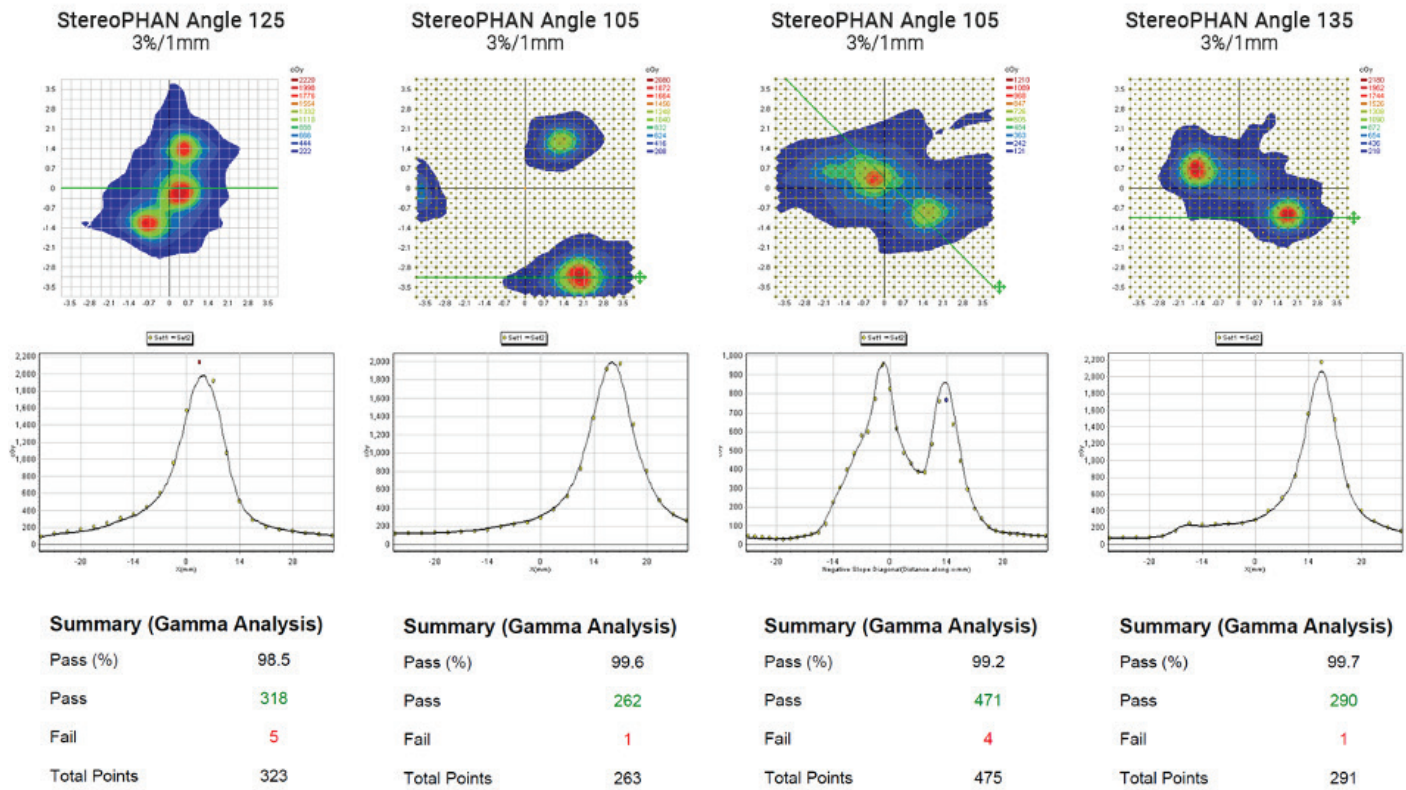


Figure 1 – The four deliveries that captured all nine lesions of an SIMT plan. Note the high passing rates at 3%/1mm criteria

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