Purpose: This study summarizes the stereotactic radiosurgery (SRS) plans created over a period of five years. Additionally, factors that influenced the Radiation Therapy Oncology Group (RTOG) conformity indices of the plans were determined.

Methods: A database of 170 SRS plans for brain metastases patients treated at the Tom Baker Cancer Centre using dynamic conformal arcs between November 2004 and December 2009 was constructed. This database was then used to retrospectively evaluate SRS plans and to determine target parameters that affect RTOG conformity index which is defined by $CI = VRI/TV$ where $VRI$ is the volume that receives the reference isodose and $TV$ is the target volume.

Results: Factors such as maximum dose to the target and minimum dose to the target did not appear to influence RTOG conformity index. However, target volume did relate to RTOG conformity index: conformity index increased as target volume decreased. For the 101 plans with target volumes larger than 1 cm$^3$ the average conformity index value was 1.68. For plans with target volumes smaller than 1 cm$^3$ the average conformity index value was 2.41. Additionally, a decrease in RTOG conformity index was correlated with a decrease in the volume of normal tissue receiving the prescription isodose. For plans where the volume of normal tissue receiving the prescription isodose was less than 1 cm$^3$ the average RTOG conformity index was 1.32 while for plans where the volume of normal tissue receiving the prescription isodose was greater than 1 cm$^3$ the average RTOG conformity index was 2.36.

Conclusions: 170 SRS plans for brain metastases were evaluated and it was found that RTOG conformity index was influenced by target size and could be linked to the volume of non target tissue receiving the prescription isodose.