

AbstractID: 14571 Title: CE - Therapy SAMs

**Title:** Use of Volumetric Modulated Arc Therapy for Intra and Extra Cranial Stereotactic Radiosurgery

**Session Length:** 1 hour

**SAMS:** eligible

**Speakers:** Charles Mayo, Ph.D. , University of Massachusetts Medical School, Worcester, MA  
Peter Balter, Ph.D. , MD Anderson, Houston, TX  
Wilko Verbakel, Ph.D. , VU University Medical Center, Amsterdam, Netherlands

Volumetric modulated arc therapy (VMAT, aka. volumetric IMRT) burst upon the scene two years ago as a practical means of delivering IMRT as the gantry arcs continuously around the patient. The approach leads to shorter treatment times, fewer total MUs and may facilitate reducing normal tissue doses. The technology has come into ever wider use in clinics as the software for treatment planning has become further refined and supported in multiple treatment planning systems and accelerators. During that period, the literature detailing novel use of volumetric IMRT, clinical implementation and experience with outcome has also grown. As a planning and treatment approach, VMAT is well on it's way to becoming standard of care for many anatomic sites.

During this period, wider use of hypo-fractionated dose protocols for carrying out stereotactic radiation therapy/surgery for intra cranial lesions and for extra-cranial lesions in the lung, liver and spine have come into wider use. The concurrence of this trend with the emergence of the technology has quickly led to use of VMAT for stereotactic radiosurgery (SRS) in some centers.

The aim of this lecture is to facilitate understanding the differences and similarities with conventional techniques and the potential implications for radiobiology, patient positioning equipment and QA issues. Effective treatment planning approaches for intra and extra cranial SRS targets will be presented along with normal tissue constraints used. Implications of reduced treatment time enabled by VMAT on radiobiological response of tumors and normal tissues will be discussed. Speakers have been selected to present information on a diverse set of equipment and clinical practices.

**Learning Objectives:**

1. Able to compare and contrast dose distributions for conventional vs. VMAT techniques
2. Understand technical and potential radio-biological implications of using VMAT for SRS
3. Understand implications of single isocenter treatments of multi-focal targets.