AbstractID: 14458 Title: QA of Radiation Delivery Systems

History: Helical tomotherapy is a relatively new modality with integrated imaging, planning and delivery hardware for radiation therapy treatments. In view of the unique hardware design and its implications for routine quality assurance, the Therapy Physics Committee (TPC) of the AAPM commissioned Task Group 148 to review this modality and to make quality assurance recommendations. **General Outline:** Initial chapters provided a brief overview of the technology and describe unique aspects of the technology. These chapters are followed by three chapters that are dedicated to the delivery, imaging, and planning aspects. A final chapter summarizes the QA recommendations and details daily, monthly, quarterly, and annual procedures. **Major Highlights:** This report is designed to provide guidance to the physicist that is charged with establishing a routine QA program for helical tomotherapy. Since the imaging and treatment planning aspects are intimately connected to the physical machine hardware, each of these aspects is covered in this report such that TG-148 provides comprehensive guidelines. **Implementation Plan:** The summary chapter list daily, monthly, quarterly, and annual tests. This chapter is designed to facilitate the implementation of the recommended QA procedures. **Timeline for the Report Release:** This task group was submitted in February 2010 to the Medical Physics Journal for review.

Conflict of Interest: Gustavo Olivera is an employee of TomoTherapy, Inc.; John Balog owns TomoTherapy stock; Katja Langen hold a research agreement with TomoTherapy, Inc.

Learning Objectives:

-Understand the unique aspects of helical tomotherapy

-Understand QA aspects of the delivery, imaging, and planning components of helical tomotherapy

-Implement a routine QA program for helical tomotherapy