AbstractID: 12012 Title: Performance-based QA for Radiotherapy: TG-147 – QA for non-radiographic localization systems

History: Many devices for localizing and monitoring the patient have been developed over the past few years. These devices come as a result of better hardware and software to delivery highly conformal radiation. This task group was commissioned by the AAPM to make recommendations about the quality assurance and use of non-radiographic localization and monitoring systems. These systems include camera based systems, RF guidance systems, and laser alignment systems.

General Outline of Report: The report addresses systems that do not use radiographic localization and specifically describes several systems that are commercially available. Some commercially available systems that are described in this report are Calypso System, VisionRT AlignRT, LAP Galaxy, and C-Rad Sentinel; however the report is written in such as a way as to be used for other systems as they may come available. The primary purpose of these devices is to align the patient to the correct location for treatment. QA recommendations of the report focus on installation recommendations as these systems are peripheral to the linear accelerator system, but must interface with all aspects of the radiotherapy workflow. Some specific issues in multi-vendor installs are addressed. The major component of the report focuses on commissioning of these types of devices and on the routine QA of patient localization systems.

Major Highlights: For non-radiographic localization systems it is important that the system be installed properly relative to the machine isocenter. In order to do this, the linear accelerator mechanical QA should be performed and modifications performed as necessary. As part of the initial install of these peripheral types of localization equipment, a testing of the various communications between systems is important. The report also makes recommendations for testing the integrity of the radiation delivery system following the addition of equipment. The primary tool for QA of the localization system is the end to end test that can give the overall localization accuracy for the device in conjunction with traditional imaging and treatment planning. Recommendations about patient monitoring and tracking are also addressed.

Report as it relates to TG-100: This report makes recommendation on QA to insure that the localization system is working properly. These recommendations could be included in the institutions FEMA analysis in accordance with TG 100.

Timeline for report Release: This report is to be submitted for review this summer and should be available for release sometime in 2010.

Learning objectives:

1.) The audience should be able to identify the types of localization devices included in TG147
2.) The audience should be able to describe the general practice of patient localization and how to implement a localization device
3.) The audience should be able to describe how to setup and perform an end to end test with a localization device and record the devices overall localization accuracy.