AbstractID: 12090 Title: Preliminary report on the application of TG154 recommendations in the clinical setting

Ultrasound (US) imaging is used in radiotherapy for soft tissue target localization. Its primary application is for prostate localization, but has an evolving role for breast and other treatment sites. Guidance regarding quality assurance of these systems is derived primarily from manufacturer recommendations which vary between systems. US imaging possesses characteristics that differentiate it from other radiotherapy image-guided localization techniques, including good soft tissue contrast, the absence of additional radiation risk and cost-effectiveness. Image interpretation can be challenging due to limited penetration depth and image noise. The AAPM charged Task Group 154 to devise quality assurance recommendations for radiotherapy US localization systems.

Guidance regarding periodic quality assurance is provided in the report and will be presented. Emphasis is placed on spatial, mechanical and imaging quality assurance techniques. Recommendations regarding initial user training and ongoing competency credentialing are discussed, as well as practical usage issues that have the potential to improve image quality and localization accuracy. The evolution of the role that US imaging plays in radiotherapy localization is discussed in the context of other image-guidance techniques, including kV imaging and gold seed markers.

Learning Objectives:

1. Understand the recommended periodic quality assurance procedures for US localization technologies.

2. Become familiar with the role of US localization in the context of other image-guidance techniques.

3. Understand the importance and structure of user training programs.