

## AbstractID: 12818 Title: Advancing Safety in Brachytherapy

In the past two decades, permanent prostate seed implant brachytherapy has become firmly established in our field; however, it has certainly not reached maturation, and continues to experience development. Improvements in imaging, treatment planning, and the introduction of innovative implant techniques are just some of the advancements that make this an exciting time for this treatment modality.

In tandem with staying up to date with the latest developments in prostate seed implant brachytherapy, as well as those in external beam, clinical physicists continue to be challenged to ensure that the permanent prostate seed implant program at their institution is of good quality, that it remains safe, and that grievous errors are prevented from occurring.

Recently, a significant amount of effort has and is being made by physicists to promote formal techniques for analyzing and reporting errors, which in turn are ultimately meant for improving a quality management program and safety. Some of these include Process Trees, Fault Tree Analysis (FTA), Failure Mode and Effects Analysis (FMEA), and development of in-house error reporting software. Parallel to these efforts is the promotion of a safety culture at the federal and international levels by groups like the NRC and the IAEA.

This lecture will provide a brief discussion of errors pertinent to prostate seed implant brachytherapy, current definitions of safety culture, a discussion of concepts related to bolstering a safety culture, a general overview of a couple formal techniques for analyzing errors, and provide a few practical illustrations to show how the safety culture concept can be realized.

### Educational Objectives:

1. Become familiar with where errors have generally occurred in LDR brachytherapy and what has, in general, caused them.
2. Become familiar with a few practical process improvement strategies, including FMEA and checklists.
3. Become familiar with the "safety culture" concept and some of the key issues that have been identified for strengthening it.