

Commissioning and Implementation of New Equipment or Treatment Paradigms

Presenters:

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Abstract:

A fundamental responsibility of the Clinical Medical Physics is to assist in the project management and commissioning of new equipment. The undertaking of such responsibilities may appear overwhelming when added to the routine clinical physics responsibilities of an operational center. In addition, the unique challenge of effective implementation requires extensive collaborative efforts from the entire staff, including physicians, therapists, nursing and administration. Methods for successful cooperation typically fall outside the realm of formal training programs. It is the responsibility of the onsite medical physicist to first understand the functionality, the capabilities, and the limitation of their new equipment and then to productively pass this information along to the clinical staff.

Several simple strategies can be considered before, during and after the commissioning duties. These include creating a clear, well defined plan with transparent expectations of the physicians, the clinical staff and administration. While this is obvious, it is not always clear how this is accomplished and what pitfalls one may encounter in the process. A new modality often requires the use of the latest, possibly less familiar tools. The physicist must ensure proper access and appropriate training for these tools often leading to unanticipated problems and unfamiliar results. A key component is to realistically estimate the amount of time it will require and to communicate that to the whole team. A comprehensive awareness of the complete system by entire planning team must be a fundamental beginning product of the project and should be permitted to be flexible enough to process unexpected complications exposed in the commissioning process.

The use of these tactics will be discussed in two clinical cases: 1) The implementation of 4-D CT in a proton therapy environment and 2) the commissioning of an Elekta accelerator for both CMS-XIO and CMS Monaco. While specific vendors will be used in the examples, the tactics discussed will be generally applicable to any vendor or equipment.

Learning Objective:

1. Understand basic strategies, processes and techniques employed in safe and effective execution of a project plan.
2. Examine the described strategies used by the speakers in two actual clinical examples.
3. Understand organizational issues that one may have to address prior to and during the commissioning and implementation of new equipment.