

In radiation therapy, adapted QA procedures must be defined and performed to ensure that the system is delivering the required clinical beam within the parameters determined during commissioning for accurate and safe treatment delivery. One of the main aspects of QA concern the general equipment functionalities including dosimetry, imaging for patient positioning and mechanical aspects.

QA procedures are based on guidelines and recommendations and specific risk analysis relative to the equipments characteristics, limitations and use.

Since 1991, at the Institut Curie, Center of protontherapy in Orsay, more than 7800 patients have been treated for ocular protontherapy on a fixed beam line using passive scattering delivery beam technique. This 30 years' experience and the online beam check lead to a very optimized QA procedures in terms of measurements and time. Thus, daily checks are limited to two dose measurements in a clinical reference condition which control dose and range constancy, and mandatory safety equipment checks. The output (clinical MU) for each new treatment plan is established using a database of dose measurements acquired in a water phantom and checked every year. The use of specific detectors (range check with QUBE detector and lateral dose profiles with Lynx detector) allows to reduce the time of weekly and monthly QA processes.