

**Title :** RTT DOSIMETRIST-QA and risk management

**Topic :** RTT: Quality Assurance

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### **Purpose/Objectif**

Quality assurance (QA) refers to the planned and systematic activities implemented in a quality system so that quality requirements for a product or service will be fulfilled. In the field of radiotherapy is the main goal to deliver a tailored treatment with the best outcome for the patient. It is the systematic measurement, comparison with a standard, monitoring of processes and an associated feedback loop that confers error prevention. For an optimal error prevention Risk management (RM) has to start with encourage a culture of reporting incidents. There for is a strong need for a non blame policy in the department where staff member can communicate without fear and shame detected mistakes, errors and in the worst case wrong treatments.

The implementation of modern technology can lead to continuous improvement in the outcome of treatment with respect to a high tumour control probability and a low rate of complications to normal tissue. On the other hand, because of its complexity, radiation treatment is subject to various sources of uncertainties, which may arise during different steps of radiotherapy chain, from dose prescription to dose delivery. In addition to inherent uncertainties in the planning and carrying out of treatment, there is a possibility of errors, including human mistakes and equipment related problems, which can occur during the process of treatment.

It is a known fact that many patients receive less than optimal radiation treatments, some being treated inadequately, with the increased probability of a lower cure rate or of severe complications. This problem concerns not only the developing countries without sufficient expertise or resources, but also several cancer centres in developed countries.

The risk of inadequate radiation treatment can be minimized through the systematic execution of a comprehensive Quality Assurance (QA) programme, which involves programmes for quality management and includes periodic quality control of equipment.

### **Conclusions**

Quality assurance is a process-centered approach to ensuring that a radiotherapy department is providing the best possible treatment services. It is related to quality control, which focuses on the end result of each process in the workflow.

Radiotherapy of cancers is a complex multistep process from beam calibration to verifications during treatment. Each step includes measurement uncertainties, risks of systematic and occasional deviations. The final step, the treatment of the patient, incorporates the sum of all deviations added to the potential errors specific to this ultimate event. Hence, quality management must address quality control procedures at each step and at the final product e.g. the treatment of the patient.