

## ▶ The Importance of Understanding Dosing

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Patient dose optimization, as described in the EU council directive 97/43/EURATOM, is one of the most important basic radiation protection principles in order to keep the doses as low as reasonably achievable [1]. The effective dose is the most used overall risk-related dose indicator. The concept of effective dose is often applied for optimization purposes [2]. In contemporary Nuclear Medicine, however, the radiation dose to the patient is linked to both the internal radiation dose from the radiopharmaceutical as well as the external radiation from CT, if hybrid instrumentation is used. Hence, a proper estimation of the effective dose is not straightforward and implies the use of conversion factors.

As the internal radiation dose depends on the administered activity, accurate measurements of the activity is a prerequisite in nuclear medicine. Hence, the activity meter should comply with a series of minimal quality requirements. Both the EANM as the European Commission have established quality control criteria for nuclear medicine instrumentation [3,4]. In practice, the technologist plays an important role in performing an important part of the routine quality control measurements.

In CT, the patient dose is described by the computed tomography dose index (CTDI) and the dose length product (DLP). Both of them are linked with a series of acquisition parameters such as kVp, mAs, pitch,... The latter parameters are regularly checked by a medical physics expert [3].

The use of diagnostic reference levels is important in the optimization process of patient radiation doses [1,2]. Administered activity, CTDI and DLP are the most important reference quantities to be used to set up the latter reference levels.

### References

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