

Patient entrance skin doses in diagnostic radiology at Groote Schuur Hospital

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Abstract

Assessment and optimization of the radiation dose received by patients in diagnostic radiology are important tasks in radiological protection. Patient exposure assessment is necessary to keeping an awareness of exposure, to establish guidance levels by means of surveys, to use guidance levels as reference to compare with at individual facilities, to apply methods of dose reductions and optimizations of protection and to assess population doses.

This survey of patient doses at Groote Schuur Hospital served the following purpose:

- To establish guidance levels;
- To compare doses for the same type of examination, done with different exposure parameters or with different equipment;
- To compare patient exposures for different types of examinations; and
- To assess relative contributions to collective doses from various types of examinations.

The need to optimize the protection of patients results from the fact that medical exposures are by far the largest source of radiation exposure. One aid in minimizing unnecessary exposure in diagnostic imaging is through the use of patient exposure guidelines. Radiation protection of patients is based on the application of the two major radiation protection principles, i.e. justification and optimisation. In order to evaluate that procedures are effectively optimised and remain optimised as time passes, it is necessary to establish quantitative indicators regarding the doses delivered.

Entrance skin doses were measured for a number of diagnostic examinations. When compared with similar studies in other countries, a large variation in dose was observed, particularly for chest and abdomen examinations.

Actions taken in other countries which led to a significant dose reduction will also be presented.

In summary, it seems that it is possible to develop reference values for a wide range of common examinations and use them as investigation levels.

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