Patient Exposure in Multi Slice Computed Tomography (MSCT) Compared to Single Slice CT (SSCT): The Effects of Changing From SSCT to a New 16 Row MSCT.

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Body of Abstract: Computed Tomography (CT) has over the years evolved to become one of the most important radiological examination, with growing frequency and increased patient dose. Advances in CT technology have reduced examination times and opened new fields of examinations possibilities, for the benefit of the patient. In its publication nr. 87 (2001), Managing Patient Doses in Computed Tomography, the ICRP recommends CT users to address justification and optimization of CT examinations. In 1998 CT examinations accounted for about 14% of all diagnostic x-ray examinations in Iceland and had increased by 93% in 5 years. It was also estimated that CT contributed to more than 50% of the Collective Effective Dose (CED). At that time there were 5 Single Slice Computed Tomography (SSCT) units in the country and 2 of them were spiral CT’s. Today there are still only 5 CT units in the country but 2 of them are now Multi Slice Computed Tomography (MSCT) units (4 rows). In September 2003 the third MSCT will replace an old SSCT unit and two new MSCT units will be installed.

In an effort to investigate the affects of new CT technology on examination frequency and patient doses, data on CT examination frequency and examination protocols is collected and will be reported. In addition the effects of replacing a SSCT with a MSCT on patient exposure in CT examinations as well as optimization efforts will be reported. Data for different typical CT examination protocol’s (medical indications, such as head, thorax, abdomen, liver and spine) will be presented. The effective dose to a standard patient is assessed from collected CTDI and DLP values. Comparison is made on how protocols where transferred from the SSCT unit to a new 16 row MSCT unit and optimized.