

Reflections and perspectives on optimisation and how to achieve it

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CT optimisation has become a 'hot topic' in recent years. Reasons for this include the substantial increase in numbers of CT scans shown in serial surveys, notably from PHE and its predecessor bodies in the UK^{1,3-6}, and the consequent substantial increase in population doses from CT examinations²⁻⁶. Worldwide, just under 43% of the radiation dose to the world's population from medical exposures arises from CT scanning⁷. This has prompted predictions of consequential radiation-induced cancer, e.g. from Brenner et al⁸, with recent epidemiological studies^{9,10} demonstrating CT-cancer associations, though these are areas of scientific controversy. Radiation risk from CT has become an issue of public interest following several incidents in the USA resulting in deterministic effects, prompting new legislation. This has been against a background of significant developments in CT technology¹¹ and significant informatics developments opening the door to 'big data' data-mining techniques which are likely to play a large role in future CT optimisation¹².

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