

## **Model for Determination of Protective Shielding Thickness for Diagnostic Radiology Rooms**

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### **INTRODUCTION**

The NCRP 49 (1976) (1) standard presents a methodology to determine protective shielding for diagnostic and therapeutic X-ray rooms. This methodology has been reviewed by several authors in the recent years (2). This work presents contributions for this new shielding evaluation method, taking into account information regarding patient attenuation and scattering, as well as workload spectra for diagnostic imaging modalities. The main object of the investigation was the development of a method for determining the thickness of a given material required to correct attenuation of primary, scattered and leakage radiation spectra which reach a structural barrier in a radiological room. This methodology was combined to new information regarding spectral distributions of radiation scattered by a phantom in order to allow the determination of ambient dose equivalents in X-ray rooms. The product of this work consists of a model that provides an optimised treatment for the problem of determining shielding thickness of the barriers necessary for radiological room protection.