ABSTRACT

This study aims to evaluate radiation safety in the General Radiography Room of Rajawali at Dr. Kariadi General Hospital, Semarang, and determine the most efficient shielding material based on thickness calculations using the guidelines from NCRP Report No. 147. The research was conducted by measuring radiation exposure on the existing shielding materials to assess their safety levels. The results showed that the current materials did not fully meet protection standards, prompting a recalculation of the required shielding material thickness. The calculations were performed numerically for each type of material at various wall locations, including primary, secondary, and ceiling walls.

The findings indicate that lead is the most efficient material, requiring the smallest thickness for all wall locations, both primary and secondary. Steel ranks second, with a greater thickness than lead but remains more efficient than concrete. Other materials, such as gypsum, glass, and wood, require significantly greater thicknesses, making them less efficient for use as shielding materials.

Keywords: Radiation, Shielding, General Radiography, Material