

Design of The Aluminum Compensating Filter to Improve The Image Quality in The Lateral Projection of Lumbosacral Vertebrae

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Abstract	<p>This study aims to obtain an optimum design of the aluminum filter for producing a better X-ray contrast film of the lateral projection of Lumbosacral. The additional filter thickness was in accordance with the lumbosacral vertebral density. This study was conducted using the Quantum CS 2 X-ray equipment in Room 2 of the Radio Diagnostic Unit of Margono Soekarjo Hospital (RSMS) Purwokerto with the PBU-50 Phantom object. The aluminum filter was inserted gradually from 1 mm to 15 mm and followed by contrast film calculation. The radiographs were processed by CR reader and imported into Weasis version 2.0.7 software for pixel value analysis. The result shows different compensation filter thicknesses in the lumbar and sacral regions to improve the image quality of the lateral projection lumbosacral vertebrae radiography. The aluminum filters for the exposure factor of 85 kV and 25 mAs with a thickness of 13.3 mm and 2.8 mm were considered optimal for compensating for the lumbar region (L1-L4) and the sacrum area (L5-S2), respectively.</p>
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