

عنوان مقاله:

An Enumeration Survey on Diagnostic X-Ray Generators and Essential Safety Parameters in Mizoram, India

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خلاصه مقاله:

Introduction: Best radiography practice involves operational optimal machine performance, delivering cost-effective healthcare services under appropriate safety conditions for workers and the public. The present study aimed to investigate the safety status of diagnostic X-ray installations in Mizoram, India. Material and Methods: Linearity of time (sec), linearity of current (mA), output reproducibility, table dose ($\mu\text{Gy/mAs}$), peak voltage (kVp) accuracy, and 16 essential safety parameters of 135 X-ray machines were considered in this study. A battery-operated dosimeter and wide-range digital kVp meter were used to measure output radiation and effective peak potential of X-ray tube. Data analysis was performed using SPSS software to obtain the mean, standard deviation, and coefficient of variation. Results: Among different electronic parameters, 59.2% linearity of time, 82.6% linearity of current, 89.7% kVp accuracy, 35.1% output reproducibility, and 92.8% table dose were beyond the acceptable limits. Based on 16 essential safety parameters, it was observed that 98.7% of X-ray machines did not receive proper quality assurance test, 1.9% of the installations employed lead-line patient entrance doors, 46.8% of the machines were operated without any protective barriers and 83.1% of the units were operated without personnel monitoring service. Conclusion: The present study had concluded with more problems than the previous studies in different parts of the world in this regard. Due to the absence of proper quality control (QC) programs, many installations did not follow standard installation guidelines. The authors recommended that proper QC should be implemented by the frequent monitoring of each and every diagnostic X-ray installation.

کلمات کلیدی:

Quality Assurance Diagnostic X, Ray Radiation Protection

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