

Development of an Immobilizer for Pediatrics during Chest Radiography

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Radiographers have to pay much attention towards paediatric imaging to obtain good quality images considering the accuracy of the final diagnosis of diseases while avoiding unnecessary radiation exposure to the patient. Unexpected results in image quality may arise from the mobilization of patients during the exposure. Therefore, ensuring patient immobilization is paramount importance. As the current practice of immobilization has many disadvantages, an effective method of immobilization for pediatrics is essential. Chest radiography is the most common examination performed in the radiology department. This study was designed to develop an immobilizer for paediatrics during chest radiography. As the initial step, an immobilizer was designed with seating and head resting area, velcro strips as immobilizers and small lead shields as protective devices. Sixty (60) paediatric patients at the age range of birth to two years, who attended for chest radiography examination to radiology unit at Specialized Children's Hospital in the Central Province were selected as the study population. Chest radiographs (CXRs) those were taken applying the new immobilizer were considered as Experimental Group (EG) and CXRs those were taken without applying the new immobilizer were considered as the Control Group (CG). Quality of the final radiographic images was graded as good, poor and very poor based on the evaluation report given by two senior qualified radiographers considering the recommended image evaluation criteria that are used to assess the quality of the chest radiograph. The incidences of "good" "poor" and "very poor" quality radiographs were 60%, 33.3% and 0% respectively for the experimental group, whereas 43.3%, 43.3% and 13% for the control group. The results showed incidence of good quality radiographs is higher, as well as no very poor quality radiographs were reported among the experimental group.

The study concluded that newly produced immobilizer improves the quality of the final chest radiograph.

Keywords: Pediatrics, Chest radiography, Immobilizer, Image quality