



Survey of S-values from Digital Chest X-ray Examinations at Srinagarind Hospital

Onpabha Pewluang, Petcharakorn Hanpanich
Department of Radiology, Faculty of Medicine, KhonKaen University.

Poster

Background and objective : The exposure index or sensitivity value (S-value) in digital radiography has been used to indicate the relative speed and sensitivity of the digital receptor to incident X-rays. The S-value provides feedback regarding the proper radiographic techniques for an optimal image regarding appropriate quality and low radiation dose. The purpose of this study was to survey the S-values from chest X-ray examinations done in Srinagarind Hospital, Faculty of Medicine, Khon Kaen University.

Methods: Before data collection, extensive quality control tests were performed to evaluate exposure parameters regarding accuracy and reproducibility. A random survey of 900 patients underwent digital radiography of the chest. Individual exposure parameters and patient demographic data (age and sex) were recorded. S-value measurement were done using Fuji software.

Results : The respective mean and standard deviation

S-value of chest X-rays in 450 adult and 450 pediatric patients was 446.9 \pm 157.3 and 269.8 \pm 132.4. The current results are comparable with the commercial S-value references (viz., between 200 – 600). Notwithstanding, the S-value for chest X-rays in adults and children in our study were within the range of the commercially provided references.

Conclusion : S-values or “sensitivity” values represent the numeric value of exposure received by the receptors in the digital system. A low exposure would result in a high calculated S number and a high exposure would produce low S numbers. A comparison with the commercial reference values should help in optimizing radiographic examinations. The results presented will serve as a baseline for deriving diagnostic reference S-values and radiation dose levels for other X-ray examinations.

Keywords: Digital radiography, Digital radiography exposure index, S-value