

A systematic review on repetition rate of routine digital radiography

ABSTRACT

Background: Repetition of radiograph is a critical event in routine digital radiography. High repetition rate also consumes equipment life time, increases operational cost, decreases patient satisfaction, increase world load and dose of radiation to the professionals. **Objective:** This article aims to review published literature on the repetition rate of digital radiography including its associated factors, reporting, and interventions. **Methods:** English articles in ScienceDirect, Pub-MED, CINAHL and Medline from 2009 to January 2016 were reviewed using key words of "repetition rate" or "digital radiography". Inclusion criteria were studies in full free text, studies conducted in routine, conventional, or digital radiography, and focussed on repetition rate measurements. Studies conducted on other branches of diagnostic imaging department, as well as studies carried out on diseases, radiological equipment and radiation protection were not included. **Results:** After removal of duplicated studies, a total of 37 articles were selected, the full text were read, and seven studies fulfilled the inclusion and exclusion criteria, of which four were intervention and three cross-sectional studies. The repetition rate reported in the studies ranged from 4.9% to 15.5%. **Conclusion:** Seven studies conducted all over the world imply the existing issue of repetition rate measurement and its analysis. The interventions studies are statistically significant. Interventions were almost technical. In addition, positioning errors were the main causes of repetition in the most studies which imply that radiographers are playing important role in repetition.

Keyword: Routine digital radiography; Quality control; Repetition rate; Intervention