

Dedication

To:

My little family

My coming baby

Dears

Father ..

Mother ..

Wiam

Acknowledgement

Let me express the unlimited gratitude and appreciation to my supervisor Dr. Jumma Yousif Tamboul for his sincere supervision.

Thanks extended, also to the staff of Sudan atomic energy commission, especially radiation protection and environmental monitoring department staff for their great help to fulfill this study. Also appreciation is to the staff of the x-ray department in Omdurman children hospital and to them, who helped and supported.

Abstract

A practical study was conducted about the importance of quality assurance in pediatric radiology in Omdurman pediatric hospital. The objectives of the study were to assess the performance and efficiency of the x-ray department in Omdurman pediatrics emergency hospital. In term of improvement to the image quality, save time and low cost. Relevant data were collected and obtained by observation, practical measurements, Interviews, Reject film analysis and quality control tests in order to achieve the above mentioned objectives.

The study revealed that there are no radiation protection tools for technologists, patients and co-patients in the x-ray department. No immobilization tools and high overall reject rate (8.5 %). The quality control tests illustrate that the x-ray machine needs calibration and the dark room is not ideal.

The study recommended that the control unit should be separated from the dark room. Light leakage to x-ray films in the dark room through the door should be treated. The x-ray department should be supplied with radiation protection and immobilization tools, that is to ensure low cost, save time and image quality.

ملخص الدراسة

اجريت الدراسة العملية لتوضيح أهمية ضبط الجودة في قسم الأشعة التشخيصية بمستشفى حوادث الأطفال - أمدرمان. أهداف هذه الدراسة تقييم أداء وكفاءة قسم الأشعة التشخيصية بمستشفى حوادث الأطفال - أمدرمان. وذلك لتحسين جودة الصور وتوفير الوقت وتقليل التكلفة. تم جمع البيانات عن طريق الملاحظة والمقابلة الشخصية والقياسات العملية وتحليل الأفلام التالفة وإختبارات ضبط الجودة للوصول الي الأهداف أعلاه.

أوضحت الدراسة عدم وجود أدوات الوقاية من الإشعاع للعاملين والمرضى والمرافقين في قسم الأشعة التشخيصية. عدم وجود أدوات التثبيت ونسبة عالية من الأفلام التالفة (8,5%). أوضحت الدراسة أن جهاز الأشعة يحتاج إلي تقييس والغرفة المظلمة غير مناسبة.

أوصت الدراسة بضرورة فصل وحدة التحكم عن الغرفة المظلمة ومعالجة تسرب الضوء إلي الأفلام عن طريق باب الغرفة المظلمة. يجب أن يزود قسم الأشعة بأدوات الوقاية من الأشعاع و أدوات التثبيت وذلك لتأكيد تكلفة منخفضة وتوفير الزمن وتحسين نوعية الصورة.

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List of abbreviations

Kvp :Kilo voltage peak
mA :Milli ampere

mAs	:Milli ampere second
AP	:Antreo-posterior
PA	:Postero-anterior
FFD	:Focal film distance
HVL	:Half Value Layer
QC	:Quality control
QCP	:Quality control program
QA	:Quality Assurance
QAP	:Quality assurance program
QAC	:Quality assurance Committee
T	:Time
LBD	:Light beam diaphragm