

DOES EVERY SECOND COUNTS IN EMERGENCY IMAGING? CAUSES OF DELAYS IN PORTABLE X-RAYS IN EMERGENCY DEPARTMENT EVALUATED

Muhammad Asif Bilal, Raza Sayani, Amin Rajani, Uzma Naz, Syed Jabir Abbas

Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan.

PJR July - September 2011; 21(3): 139-141

Introduction

In an emergency department 'where every second counts for patients management' every single individual and every department involved with the patient care makes a difference in patient's rapid diagnosis and treatment.¹ Portable x-rays play a vital role in early diagnosis and thereof management of patient however it has been observed that there are frequent delays in performing the required imaging. We looked into the problem faced by the radiographers in performing the x-ray thus resulting in delays. Identifying and rectifying these causes may help prompt service and better patient care.

Objectives of the Study

The objective of this study is to evaluate the causes of delay in performance of portable x-rays in a tertiary care hospital's emergency department.

Material and Methods

This was Observational study conducted at emergency department of Aga Khan University Hospital. The data collection was from the date 23rd November 2009 to 28th November 2009.

The study included all patients in whom portable x-rays were performed in emergency department. Rests of the portable x-rays performed in wards were excluded.

A portable chest x-ray requires no special preparation however patient's clothes may need be removed or replaced by a gown during the examination as preparation. Jewellery, dentures, eye glasses and any

metal objects or clothing may be removed as they may interfere with the x-ray images.

Every portable x-ray of emergency is included to complete the required sample.

The following variables were captured. Patient M.R No, Age, Sex, Shift Time (morning, evening, night), whether the patient is prepared or not, radiology request is ready or not and if staff is available to support during x-ray and the radiographer's designation.

Results

Radiographers experienced many problems before performing specific x-rays. They included; incomplete radiology request form, patient's dress was not changed, or support staff was not available for assistance of placing the x-ray cassette. Sometimes patients were undergoing other procedures (like catheterization, cannulation or blood sampling), due to these and other issues and problems radiographers had to wait in emergency room to perform the portable x-rays. This results in delay to provide portable services to other critical areas including ICU, CICU, NICU and CCU etc.

Out of 55 patients, 10(18%) patients were not ready for x-ray (Fig. 1), in 4(7.2%) patients dresses were not changed for x-ray, 5(9%) patients were busy in I.V Cannulation, and 1(1.8%) patients had other procedures going on. In 10(18%) patient's radiology request forms were not ready (Fig. 2). In 37(67%) x-ray cases, ER support staffs were not available to help the radiographer for patient handling and placing of x-ray cassettes (Fig. 3).

Most of the times radiographers have back log of pending portable x-ray cases elsewhere while they are performing X-rays in ER. In study it was found that

Correspondence : Mr. Amin Rajani
Department of Radiology,
Aga Khan University Hospital,
Stadium Road, P.O. Box 3500, Karachi 74800
Pakistan. Tel. No: 34930051 - Ext. 2020
E-mail: rajani.amin@aku.edu

53(96%) patients had pending x-rays in wards while the radiographers were performing X-rays in ER for 55 patients, which means that on each occasion of emergency portable call in ER, the radiographer had to keep pending or delay one portable x-ray elsewhere in hospital. Fortunately in neither of the cases the pending deferred was not from ICU or critical care areas. But in all 55 cases Radiographers responded to their paging requests from ER within 5 to 10 min duration.

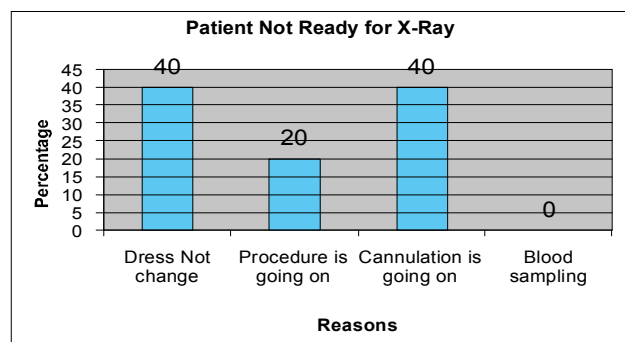


Figure 1: Patient not ready for X-Ray in percentage.

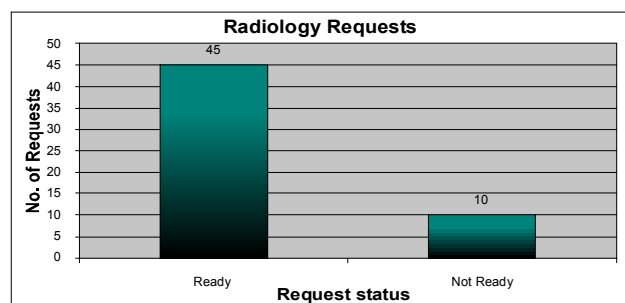


Figure 2: Radiology request ready or not ready.



Figure 3: ER support staffs were available or not available.

Discussion

Customer satisfaction and quality improvements have been amongst the few main concern in the recent years and number of measures have been practiced and evaluated, to find out the best possible systems

and processes which could provide higher customer satisfaction, maximum through put and minimum waiting time. Leaving aside the quality in other service industries, quality in health care focuses more on low cost, minimum time and zero defect rate. Which means that all efforts are to be made to ensure the better quality service to patients to increase the possibility of minimum error and minimum delay, Time is a fundamental factor in health care, where every second counts, and each seconds beats like heart and should be valued. Many studies are conducted to evaluate the causes of delay,² evaluated the delay involved in operating on emergency general surgical patients is often excessive.³

Patients coming to emergency center require correct and timely diagnosis, to enable right and timely measures to handle or address the problem and save the patients. In number of situation this timely diagnosis is dependent upon the base line investigations necessary to develop the base for treatment and course of action required to be adopted for the patient, Radiography is also amongst those base line investigations which provides the physician to decide the course of action required for the particular patient presented in ER. People have tried digital imaging with significant good results in reducing time.⁴

The plain film is one of the most common diagnostic procedures employed in a hospital with chest x-ray being the most commonly performed diagnostic x-ray examination. A chest x-ray is typically the first imaging test used to help diagnose symptoms such as shortness of breath, bad or persistent cough, fever, chest pain or injury. Chest radiographs are used to screen for diagnosing the abnormality.

Postoperative portable chest films are routinely performed after fluoroscopic placement of central venous catheters to evaluate positioning and to rule out significant complications.⁵

The portable X-ray is of particular use in the Emergency Department (ED), since often patients are too sick to be transported or the examination needs to be performed as quickly as possible.⁶ Many critically ill patients are brought to the accident and emergency (A & E) department, not only as a result of trauma, but also due to acute or chronic illness.⁷ Centers have tried reducing delay in examination by allowing the nurse to request for x-ray examination however in our center these are always done by the physician.⁸

After the physician's identification for emergency radiography, call is given to Radiographer through

paging system. Radiographers upon receiving the page from Emergency, they immediately respond and ensure that required radiography procedures are done and results of same are delivered instantaneously. This study was carried out after sensing that Radiographers had to wait for a considerable time leaving aside other calls for portable radiography in other wards. The common reason identified included, no formal order to perform radiograph, patient not ready either because of other tests or investigations were going on, or patient's dresses were not changed with hospital dresses to avoid any artifacts. Presently in our current setup we have dedicated radiographers to perform portable radiography in the hospital where required during day time in weekdays a team of two radiographers and other than day time and weekends one radiographer usually covers up the portable radiography. This number in a 600 bed hospital where around 700 radiological procedures are performed in a day out of which 350 to 400 are general radiography and 80 to 90 are portable or OR x-rays.

Conclusion

In our limited experience we observed that there was insufficient support from emergency staff in facilitation of performance of portable x-ray; Also patient's radiology order request forms were not made by requesting physicians in advance as well as patients are not ready for x-rays because of the other procedures going on same time.

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