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AUDIT OF COMPLETION OF RADIOLOGY REQUEST FORM IN A NIGERIAN SPECIALIST HOSPITAL

O.A. Afolabi[1], J.O. Fadare[2] and E.M. Essien[3]

1. Department of Surgery, Kogi State Specialist Hospital, Lokoja, Kogi State
2. Department of Internal Medicine, Kogi State Specialist Hospital, Lokoja, Kogi State
3. Department of Radiology, Kogi State Specialist Hospital, Lokoja, Kogi State

Correspondence:
Dr. O.A. Afolabi
Kogi State Specialist Hospital,
Lokoja, Kogi State.
Nigeria.
Telephone: +2348035727069
Email: droaafolabi@yahoo.com

ABSTRACT

Background: **Clinical audit is one approach to improve the quality of patient care, completion of request form inclusive. Radiology request forms are essential communication tools between the clinician and the radiologist. The aim of this study is to audit the adequacy of completion of X-ray request forms.**

Methodology: **A review of all consecutive request form received at the X-ray unit of the over a period of six weeks to assess the completeness of filling of the forms, details of biodata/clinical information, previous exposure and information about the requesting officer. The data was entered into a SPSS statistical software and analysed descriptively and results presented in tables/figures.**

Result: **Two hundred and two request forms were analysed. All the request had names on it however 89.1% had complete and adequate information while 10.9% have incomplete and inadequate information on names, one hundred and ninety-six (97%) had dates while, 6(3%) did not have information regarding date of request, space for the addresses were filled in 80 (39.6%) out of which only 24 (11.9%) had adequate and complete information. Clinical information were adequate and complete in 34.4%, only 6(8.3%) of those with previous x-rays submitted their previous film with the new request.**

Conclusion: **We concluded that radiological investigation forms are still incompletely and inadequately filled. This will have effect on the quality and the overall service provided by both the radiographer and the radiologist and may have effect sometimes on the clinical decision and outcome.**

Keywords: audit, radiology, request form, medical education

INTRODUCTION

Clinical audit is seen as one approach to improving the quality of all aspect of patient care completion of request form inclusive. Its development in the UK was linked to clinicians' desire to improve medical care. It was thought that, by drawing attention to deficiencies of care, this would curb inefficient and ineffective practice[1,2]. Radiology request forms are essential communication tools between the clinician and the radiologist/radiographer it is a tool used in referring patients for radiological investigations. Its importance should not be underestimated. The Royal College of Radiologists clearly suggests that all request forms should be adequately and legibly completed to avoid any misunderstanding of the request[3]. According to the relevant articles of the Radiation Protection Regulations of European Union Nations[4,5], the referring doctor has the responsibility for the collection of all diagnostic information that justifies the requested radiological examinations as well as information about previous exposures. The clinician is required to state the reason for referral as this helps radiologists to better understand the patient's condition; so that the required expertise may be utilized to proffer the necessary information to aid proper patient management according to the relevant articles of the Radiation Protection Regulations of European Union Nations. However, no standardized format for radiology request forms is available. Different organizations adopt personalized versions. The standard is that all request forms received should contain the patient's name, age, address, telephone number, ward, clinical background, the specific question to be answered, the

name and signature of referring clinician and the name of the consultant responsible for patient's care[3].

Previous reports have shown that up to 20% of radiographic examinations are clinically unhelpful either due to inappropriate or wrong request[6]. Thus to improve the radiological support and utilization there is need for adequately and relevant details of the radiological request[6].

The aim of this study is to audit X-ray request forms received at the radiology department of a Nigerian specialist hospital.

METHODOLOGY

This is a review of all consecutive request form received at the X-ray unit of the radiology department of Kogi State Specialist Hospital, Lokoja over a period of six weeks to assess the completeness of the forms, details of biodata, use of abbreviations and the usefulness of clinical information given to the radiologist, previous exposure and information about the requesting officer. The forms came from different departments, wards, outpatient clinics and specialists' clinics as well as request from other health facility in the locality. A copy of the X-ray request form from which the data was extracted is attached as appendix A. The data was entered using SPSS version 13 statistical software and analyzed descriptively and results presented in tables and figures.

RESULTS

A total of 218 request forms were received during the study period, however 16 were excluded because they were not made on the request form of the hospital as some were from peripheral hospital which were on plain paper, continuation sheets, and prescription sheets. Only 202 request forms satisfied the inclusion criteria.

All the request forms had surname and other name(s) except one, however 180 (89%) of the total request form analyzed had complete and adequate information on it while 22/202 did have incomplete and inadequate information. One hundred and ninety-six (97%) had dates of request while six (3%) did not have date of request on it, address were written on 80 (39.6%) out of which only 24 (11.9%) of the total request form analyzed had complete and adequate information while the remaining 56 (27.7%) were incomplete/inadequate the rest had no information, however 139 (68.8%) had the clinic or ward filled on the request form, One hundred and thirteen (55.9%) of the request form did not have the age of the patient filled properly. Majority of the request form had the inscription of adult in 46% and children in 4% while 12% of this request form did not have any information on age on it. Out of the 89 (44.1%) that had the age filled properly on the request form which ranged from <1-80 years with a mean age of 27.6 years (S.D of 15.1±1.6). There were 104 males and 90 females with male to female ratio of 1.2:1 while 8 of the request form did not have any information regarding sex on the request form, (Table 1). One hundred and thirty-nine (68.8%) had specific part of the body to be investigated written on the request form while sixty-three (31.2%) did not have the specific part of the body to be investigated written on the request form, clinical information were absent in 10.4% of the request forms (Table 2.0). On the filling of the space allotted to past surgical and radiological history on the request form, only 97 (48%) had complete and adequate information of past history of surgery (Table 3a). Adequate and complete information on history of previous X-rays was volunteered in 72(35.6%) of the request form, and only 6 (3.0%) indicated that the film was sent along with the request form to the radiology department while 66 (91.7%) did not have any information on whether it was sent along or not. Only 12 (5.9%) had previous X-rays number filled on it (Table 3.0b).

One hundred and ninety-five (96.5%) all the request forms that had personal information filled had the personnel signature on the request and 188 (93.1%)

Biodata information	Complete/Adequate Frequency (%)	Incomplete/Inadequate Frequency (%)	No Information Frequency (%)	Total Frequency (%)
Name	180(89.1)	22(10.9)	-	202(100)
Age	89(44.1)	101(50)	12(5.9)	202(100)
Sex	194(96)	-	08(4)	202(100)
Unit Number	176(87.1)	-	26(12.9)	202(100)
Ward	179(88.6)	-	23(11.4)	202(100)
Address	24(11.9)	56(27.7)	122(60.3)	202(100)
Total	842(69.5)	179(14.8)	191(15.7)	1212(100)

Table 1: Biodata Information

Clinical information	Complete/Adequate frequency (%)	Incomplete/Inadequate frequency (%)	No Information Frequency (%)	Total Frequency (%)
Part of body requested for	120(59.4)	19(9.4)	63(31.2)	202(100)
Clinical information given	131(64.9)	50(24.7)	21(10.4)	202(100)
Clinical Assessment	130(64.4)	54(26.7)	18(8.9)	202(100)
Total	381(62.9)	123(20.3)	102(16.8)	606

Table 2: Clinical information

Past Surgical information	Complete/Adequate Frequency (%)	Incomplete/Inadequate Frequency (%)	No Information Frequency (%)	Total Frequency (%)
Information about previous surgery	58(59.8)	39(40.4)	-	97(100)

Table 3a: Past Surgical information n=97

Past history of x-rays	Complete/Adequate Frequency (%)	Incomplete/Adequate Frequency (%)	No Information Frequency (%)	Total (%)
Previous X-ray examination n=72	72(35.6)	-	-	72 (100)
Previous film to be sent with wallet	6(8.3)	-	66(91.7)	72(100)
Previous X-ray number	12 (16.7)	-	60(83.3)	72(100)

Table 3b: Past history of exposure to x-rays

had name of the consultant in charge of the patient filled on the request form. Majority (180 - 89.1%) had names and signature while 7 (3.5%) had only names without signature and 14 (6.9%) had only signature without names

DISCUSSION

Deficiency in the filling of radiology request form is a worldwide problem[3]. Patient generally can get the best possible services if a multidisciplinary approach is adopted by all the various team involved in their management[3]. The radiology request cards are usually the only means of communication between a clinician and the radiologist; since there is little opportunity to discuss clinical cases and their management by both parties every time. However, additional information can be obtained by the radiologist or radiographer directly from the patient before the procedure or by contacting the managing clinician.

There are only a few articles in the literature concerning the radiology request forms in conjunction with the proper transmission of clinical information. Scally[7], considered the proper design of a radiology request/ referral form while Cook *et al*[8] reported in a pilot study that one of the items which reflect the quality in a radiology department is the level of information given on the request cards. Jumah *et al* reviewed 4122 request forms and the commonest fault observed was the omission of the age of patients, while absence of clinical information, illegible entries, conventional and unconventional abbreviation such as Ad, A,OA, Ch,C

were used to represent various age group like adult (Ad, A) and Child (Ch, C) were also noticed in our study similar to previous studies[9, 11] which considered computerized tomography (CT) and magnetic resonance imaging (MRI). This if specific will assist in dosing regulation[3-6]. Date of referral was missing in 6 (3%) forms. This may not appear very relevant to the examination and the reporting. However, in case of complaints by patients or the referral about the delay performing the tests, this date becomes important. It is also useful for internal audits for analyzing waiting times and for making business cases for expansion of services although some other study have found a higher percentage[6]. In this study, filling the segment for patients' age was found to have the largest percentage of inadequate and incomplete information similar to findings in Jumah *et al*[9].

In our study the biodata and clinical information that is supposed to guide the radiologist on some disease condition regarding reporting of the radiological investigation are defective and this will pose difficulties for radiologists while trying to report the films. It would also make it almost impossible for them to address the question/s posed by the referring doctor, an important suggestion that has been raised by the Royal College of Radiologists[3,10]. These biodata tends to serve as a guide for radiologists to decide the appropriate radiological investigations and to limit patient exposure to unnecessary radiation which may be harmful[3,6,10] in our study only surname and other names were almost completely filled as against findings by Depasquale and Crockford,[3] who claimed that only 4% of forms were fully filled while in our study about 89.1% have adequate and complete information regarding names of patient. Less than 30% of the request forms have complete and adequate information regarding the address of patients. This is an important biodata that can be used in identifying the patient, patient's location in the survey of a disease condition, sometimes needed for a patient's recall or if there is an unexpected medical emergency, may also apply when the referring clinician cannot be contacted for further discussions about the patient. The ward or clinic where the patient is coming from can also serve as a guide to the radiologist in his differential diagnosis and appropriate radiological exposure or dosing. However, about 31.2% of the request forms did not have part of the body requested for, while most have clinical information and clinical assessment similar to Cohen *et al,*[12] more than the part of the body requested for as against Depasquale and Crockford's report[3]. These are vital information that will guide the radiologist in deciding the appropriate investigation and limit the exposure to unnecessary radiation which may be harmful[3,5,10] as the increasing exposure to radiation in the population may be a public health issue in future[4]. Previous study have shown that inadequate clinical information is associated with increased level of inaccurate report; however if it is adequate and accurate the radiologist report are better which indirectly affects positively patient's management[13] and the need to ask specific questions and to provide full clinical details to aid radiological diagnosis. Subsequently, the final differential diagnosis is reached by combining the radiological findings with the clinical picture.

Majority of the request forms were for plain radiographs with very few for contrast studies which is similar to other reports[14, 15]. This shows that the most simple and affordable radiological investigation in our environment is still plain x-rays and has been found to have limited specificity and sensitivity compared to radiological investigations like computerized tomography, magnetic resonance imaging[15, 16].

Past information about previous surgery, previous x-rays and its itinerary were also not filled in the request form thus access and the possibility to review previous radiographs and reports that will influence radiologic decision were defective and these are the information required to avoid unnecessary exposures that increase the collective radiation dose to the population[4] although our study did not take into account those patient with such risks.

We conclude that radiological investigation forms are still incompletely and inadequately filled. This will have effect on the quality and the overall service provided by both the radiographer and the radiologist and may have effect sometimes on clinical decisions and outcomes. There is need to encourage the managing clinician to complete and adequately fill all the required information into the request form and appreciate its importance to patient's management. This can be achieved by increasing the awareness of referring clinicians through repeated continue medical education in conjunction with the radiologists and the need for a regular clinical-radiological meetings.

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