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ORIGINAL ARTICLE

ADEQUACY OF COMPLETION OF RADIOLOGY REQUEST FORM IN A TERTIARY CARE HOSPITAL PESHAWAR

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ABSTRACT

Background: Radiation is one of big hazards in diagnostic imaging. Every imaging scan needs to be justified. For this reason, complete clinical information should be provided to radiology department in form of request form. The objective of our study was to assess the completion of radiology request form (RRF) referred to Radiology Department.

Material & Methods: This descriptive cross-sectional study was conducted at Radiology department of Rehman Medical Institute (RMI), Peshawar over a period of 6 months (from June 2021 to Dec 2021). We checked a data of 300 radiology request forms based on random consecutive nonprobability sampling. Each category of the blank to be filled was given one score. Several fields in the form were evaluated for completeness, if filled, given 1 mark and if not then given 0 marks. The categories to be analyzed included patient's name, age, date, contact number, hospital registration number, address, clinical question, examination requested, treating doctor's name and previous imaging / labs. Data was analyzed using Microsoft Excel and SPSS version 22.

Results: A total of 300 forms were evaluated. Name, age, gender of patient was mentioned in 298 (99%) forms, 56 (18%) forms did not mention contact number of patients, relevant clinical history was missing in 104 (34%) forms, 252 (84%) forms had not mentioned clinical question for the examination and 22 (7.3%) forms did not have examination requested. 156 (52%) did not have doctor's name, 160 (53%) did not mention relevant labs and 127 (42%) did not provide any info on previous imaging. The most common missing was of clinical question.

Conclusion: Based on our results we concluded that there was overall a good score of 98% in filling the radiology request form data in demographics, however unsatisfactory performance of 16% by our referrers was seen in mentioning the clinical question to be answered. Comparison made with similar studies has shown that this problem is worldwide.

Keywords: Radiology request form (RRF), Radiology, Clinical history, Radiation.

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INTRODUCTION

Background: Radiation dose is the biggest hazard in minimally invasive diagnostic techniques like CT scan, Radiographs and Fluoroscopic procedures.[1] The largest source of radiation worldwide is medical source, [2] being three times of nuclear power radiation exposure.[3] Thus, the selection of ideal imaging is necessary. To avoid unnecessary radiation, its utmost important that every scan should be justified according to International Atomic Energy Agency (IAEA).[4] Justification for MR imaging is also necessary, although it is not associated with radiation exposure, yet it is associated with long scan time, pricey technique having burden on imaging, claustrophobia related stress etc. Similarly, ultrasound also being radiation free imaging method, has its own pitfalls, like low sensitivity and specificity for major diseases and cannot be relied upon. The number of unnecessary imaging can be reduced if the clinicians justify the need for the scan, for this reason the Royal College of Radiologists (RCR) recommends complete fill up of request forms. [5] The advisory body of the International Commission on Radiological Protection (ICRP) has defined justification as 'any decision that alters the radiation exposure situation should do more

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good than harm.[6]

RRF is the communication channel between a clinician and radiologist. It is an important tool to give all the relevant details to the radiologist, which can help in justification of the investigation and in reporting.[7] It should contain at least all the following data:

The clinical data: clinical problem, clinical diagnosis, previous radiology test, and relevant past history.

The clinical question to be answered.

The patient's complete name, Record number, age, gender, LMP/Pregnancy, address and contact number.

The patient's location (ward/OPD).

Requested Radiological investigation, date of request.

The name, signature and contact number of the requesting clinician, which is helpful in contacting the clinician for clinical discussion and identification of patient.[8]

The clinicians should also give complete clinical information so that the radiologist can answer the clinical problem in the light of imaging findings, the importance is clearly mentioned in UK's Department of Health's Ionizing Radiation (Medical Exposure) Regulations (IRMER) 2000.[1]

Our study was based on importance of radiology request form, which is the most important channel of communication between the clinician and radiology department. It has been observed that most of the radiology request forms are inadequately filled and it is also a global problem as mentioned by Rajanikanth.[7] Other studies have also shown that incomplete clinical information for a radiology request is a universal problem.[9] There are a lot of problems in the quality of request form[10].The present study will give us local magnitude of the problem and based upon the findings of this study, we may be able to suggest future research and preventive recommendations. Objective of our study was to assess the completion of RRF sent by the clinician to our radiology department at Rehman Medical Institute Peshawar.

MATERIAL AND METHODS

This was a descriptive cross-sectional study conducted at department of Radiology, RMI over a period of 6 months (from June 2021 to Dec 2021). We checked a data of 300 radiology request forms during the above-mentioned duration using random consecutive nonprobability technique. Each category of the blank to be filled was given one score. Several fields in the form were evaluated for completeness, if filled, given 1 mark and if not then given 0 marks. The categories to be filled included patient's name, age, date, contact number, hospital registration number, address, clinical question, examination requested, treating doctor's name and previous imaging / labs. Data was analyzed using Microsoft Excel and SPSS version 22 (Armonk, NY: IBM Corp.). Qualitative variables were given as a numbers (n) and percentages (%).

RESULTS

Total 300 request forms were evaluated. Name, age, gender of patient was not mentioned in 2 forms, 56 forms did not mention contact number of patients, relevant clinical history was missing in 104 forms, 252 forms had not mentioned clinical question for the examination and 22 forms did not have examination requested. 156 did not have doctor's name, 160 did not mention relevant labs and 127 did not provide any info on previous imaging. The most common missing categary was of clinical question.

The most frequently blank fields were as follows: clinical question-84%, relevant labs-53%, doctor's name- 52%, relevant clinical history – 34% (Table 1). Most of the patients were referred for X-rays and then CT scan (Table 2).

Table 1: Statistics for filling radiology request forms by referring consultants (n=300)

Information component	Filled	Not filled
Demographics (Name, age, gender)	298(99.3%)	2(0.6%)
Patient contact number	244(81.3%)	56(18.6%)
Relevant clinical history	196(65.3%)	104(34.6%)
Clinical question	48(16%)	252(84%)
Requested examination	278(92.6%)	22(7.3%)
Referring doctor name	144(48%)	156(52%)
Relevant labs	140(46.6%)	160(53%)
Previous imaging information	173(57.6%)	127(42.3%)

Table 2: Percentage of request forms based on imaging modality.

Modality	No. & Percentages.
X-ray	139 (46%)
CT scan	86 (28%)
MRI Scan	41 (13%)
Fluoroscopy	25 (8%)
Mammography	9 (3%)

Table: 3 shows one-sample-test and 95% confidence interval.

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
name, age, gender	211.071	299	.000	.993	.98	1.00
contact number	36.094	299	.000	.813	.77	.86
relevant clinical history	23.738	299	.000	.653	.60	.71
clinical question	7.547	299	.000	.160	.12	.20
requested examination	61.468	299	.000	.927	.90	.96
doctor name	16.613	299	.000	.480	.42	.54
relevant lab	16.175	299	.000	.467	.41	.52
previous imaging record	20.044	299	.000	.573	.52	.63

DISCUSSION

Radiology request forms (RRFs) are essential as a communication tool for radiological tests by referring physicians /doctors. RRF is a clinical document completed by a licensed physician to request a desired radiological examination. As our results suggest, its importance is very much underestimated.

Previous studies have also showed deficiency in filling radiology request forms appropriately.[13,14] Previous studies and audits published on same area show different important categories in the request form e.g. some were concerned about patient's personal information like gender, age, address, some gave importance to referring ward and some to the area needed to be examined. [7,11,14,15] Few were interested more in clinical information provided to aid radiology reporting and interpretation.[14, 15]

In our study, the contact number was provided in only 81%, so the rest of the patient's would be contacted with difficultly, if needed. Sixty five (65)% of the forms contained clinical details whereas only 16% had clinical question for the examination being ordered. The results reflect poor practice by the referring physicians / surgeons. Our results were like the usual figures of previous similar audits. [13,14, 15, 16] The demographics of patients mentioned in our 98% patients, while mentioned in 99.6, 99.2 and 100% in other studies. [7. 15, 16.] The relevant clinical history correctly stated in our 65% request forms, while mentioned in 50% and 92.2% from other audits.[7, 15.]

The provisional diagnosis or clinical question is our last mentioned variable on request form, was missed from 84% forms, which is also not mentioned in 50% and 59.6% of other studies. [7, 16] They have also emphasized the lack of interest of clinicians to provide clinical details and clinical question [8, 9], which would help in excellent quality reporting and in turn improve patient's management. [12, 15] Radiology request form adequacy is especially important but is underestimated. Doctor's attitude into filling the RRF varies. [6, 9] Our results also showed that the referring clinicians provided less information on X-Ray radiographs request form as compared to CT, and MRI. However, providing clinical details, possible diagnosis, and clinical query to be answered, was deficient in most of the forms overall.

CONCLUSION

Our results suggest that there was overall a good score (98%) in filling the radiology request form data in demographics, however unsatisfactory performance (16%) by our referrers was seen in mentioning the clinical question to be answered. Comparison made with similar studies has shown that this problem is worldwide.

Recommendation: After completion of this study, we arranged meeting among the radiology staff and referring doctors. A re-audit is planned.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	MA, ZS, SY
Acquisition, Analysis or Interpretation of Data:	MA, ZS, SY, MD, MP, MN
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All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.