Original Article

Audit of Laboratory Request Forms at a Tertiary Care Hospital of Islamabad, Pakistan

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Abstract

Objective: The aim of the study was to find out the frequency of incomplete/inadequate laboratory request forms prescribed at a tertiary care hospital of Islamabad, Pakistan.

Study Design: Cross-sectional descriptive study.

Place and Duration: The study was conducted to carry an audit of completion of the laboratory request forms submitted to Chemical Pathology and Haematology sections of the Pathology Department, Shaheed Zulfiqar Ali Bhutto Medical University from February – March 2016.

Methodology: Four thousand one hundred and twenty two request forms were reviewed and information was recorded in a spread sheet and analyzed. Demographic data (full name, age, gender) investigations required, location of patient, date of specimen collection, time of specimen collection, type of specimen collection, clinical history/diagnosis, name and department of clinician.

Results: Out of 4,122 request forms studied, none was completely filled. It was observed that only the patient hospital number and investigation required was complete in 100% request forms, patient name, age, sex and location was complete in41.46%, 9%, 9.75% and 44.56%forms respectively. The clinical history or diagnosis was present in only 2.57% of request forms. The date and time of sample collection was available 20.18% and 19% forms respectively.

Conclusion: The standard of completion of laboratory request forms was poor and thus the laboratory services were inadequately utilized. There is a need for continuous sensitization of physicians for regarding the significance if properly filled laboratory request forms.

Key words: Clinical audit, Errors, Evaluation, Total testing process.

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Introduction

Clinical audit is seen as an important intervention to improve the quality of patient management. This leads to continuous quality improvement and better clinical management of patients. Laboratory-based audits evaluate components of laboratory services; providing feedback to staff and users of the laboratory.[1]In recent years, there has been an increasing interest in quality improvement and patient safety activities in healthcare. Evidence-based medicine is a continuous quality improvement programme and audits or evaluation are regarded essential segment of the continuous process to implement and sustain best

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practice in the clinical laboratory.

The modern medical practice is increasingly dependent on laboratory results which play a significant role in the patient diagnosis and management. The interpretation of the laboratory results rely heavily on patient information provided by the treating physician.[2]The clinical history and diagnosis must be indicated on laboratory request form. In hospitals and clinics, the laboratory request forms are filled by doctors and presented to the laboratory. An inadequately or incorrectly filled laboratory request form leads to increased rate of errors and adversely influence quality of reporting and outcome of patient treatment.[3] Incomplete request forms can also influence other sections of Pathology, e.g. Microbiology, where they may adversely affect not only the diagnostic processing, but also infection control surveillance.[3]

Laboratory request forms provide information about the investigations required, demographic data such as name, unique hospital number, age, and sex. Other details include the laboratory number, clinical history/diagnosis, ward, doctor's name, type, date and time of sample collection, signature of the doctor, telephone or fax number of the doctor facilitate in all contacting the physician and even to locate the patient.[5]

The laboratory errors encountered are divided into pre analytical, analytical and post analytical errors. Pre analytical phase errors are outside the domain of laboratory and their incidence is as high as 68.2% [6,7] which includes the completion of laboratory request forms.[8] These errors affect the diagnosis and subsequently treatment due to incorrect interpretation of the results.[9,10]

The subject study was designed to analyse the current practice of completion of laboratory request forms at a tertiary care hospital in Islamabad, Pakistan.

Methodology

This cross-sectional descriptive study was conducted at the Department of Pathology, Shaheed Zulfiqar Ali Bhutto Medical University Hospital, which is an academic, tertiary care hospital in the federal capital Islamabad. 4,122 request forms submitted to the Chemical Pathology and Haematology laboratories from Feb – Mar 2016, were assessed.

The information on request form was entered in MS excel sheet and each form was scrutinized for the completeness of the information. Demographic data (full name, age, gender) investigations required, location of patient, date of specimen collection, time of specimen collection, type of specimen collection, clinical history/diagnosis, name and department of clinician. Each request form was given a separate unique study ID to maintain the confidentiality of the patient. Basic statistics on the Microsoft Excel software programme were used for data analysis. A frequency distribution table was made to summarize the study findings. The physicians were asked during a focus group discussion about the importance of request form completion and reasons for not following this practice.

Results

A total of 4,122 laboratory request forms submitted to the Chemical Pathology and Haematology sections were studied. The information related to the unique hospital ID and laboratory investigations required was found on all request forms prescribed by the physicians. Presence of rest of the information varied from 2.57% (clinical history and diagnosis) to 44.56%(patient location) (Table I). During the focus group discussion, the physicians were inquired about the absence of clinical history and diagnosis on laboratory request forms. More than 80%attributed this practice due to increased workload while remaining did not consider it important. When asked about the impact of patient and doctor information on laboratory request form, 65% of them consider it a priority.

Table I: Level of completion of laboratory request forms

Category	%age
Investigation required	4122 (100%)
Hospital unique number	4122 (100%)
Name	1709 (41.46%)
Age	371 (9%)
Sex	402 (9.75%)
Patient location	1837 (44.56%)
Doctor location or contact department	481 (11.66%)
Clinical history and diagnosis	106 (2.57%)
Date of specimen collection	832 (20.18%)
Time of specimen collection	784 (19%)
Type of specimen collection	138 (3.34%)

Discussion

The healthcare system is increasingly dependent on reliable clinical laboratory services, which requires planned regular audits of laboratory operations, matched to the laboratory workflow phases. There is dearth of evidence on the incidence and effect of incomplete laboratory request forms on patient

diagnosis. These request forms are an indispensable tool for the laboratory due to their impact on the clinical decisions. Up to 70% of the medical diagnoses are dependent on laboratory results and can greatly influence the success and cost of treating patient.[11]

In the study, we evaluated the level of completion of laboratory request forms. The incomplete and inappropriate request forms for laboratory investigation are a waste of precious resources and enhance the risk of errors.

Currently the hospital is not equipped with the facility of electronic laboratory requests from the wards and hence practices manual processing of request forms, following web based sample entry on arrival at the laboratory. However, there are reports that manual processing of laboratory requests may result in inadequate, incorrect or unreadable data on request forms.[12] The study noticed the use of abbreviated diagnoses which affected the data entry process. The physicians must be aware of the fact that the data entry staff at the laboratory reception may not be conversant with the meaning of the abbreviations used by the physician.

Our study revealed that the standard of completion of laboratory request form was very poor as no fully completed request form was found during evaluation of request forms. Different studies from various part of the world have shown deficiencies in completion of laboratory request form.[5,13] Our audit revealed that only the investigation required and hospital number written on all the forms evaluated, this is analogous to similar studies in UK and Nigeria.[13,14] The patient demographic data are relevant because it helps in specimen identification and proper interpretation of results. Age and gender are extremely important considering that the reference ranges for different tests are not the same and are according age and sex dependent.[15]All these pose difficulties to the pathologist when clinically correlating the finding of the patient.

Our evaluation revealed that the patient name was written on 41.46% request forms which is a very risky practice and when compared with the findings obtained by other studies where laboratory request form completion was evaluated, it was on the lower side.[13,14,16] The demographic features, age and sex were missing on 91% and 90.25% forms respectively. This is contrary to earlier studies.[13,16,17] The request for investigation comes from different physicians and hence different departments/wards, the location of the patient was not provided on nearly 55%of request forms which is similar to a study from Ghana.[5] In cases where samples from different patients have the similar names, the information including the location of the patient, age and gender are vital in identifying and arranging both the patients and samples. Also reference ranges for some tests like the haemoglobin concentration vary with age and gender. The location/ward of the patient enables urgent results to be immediately communicated to the clinician.

The referring clinician name, contact number and department was missing on 88.34% of the forms which is in contrast of the results reported in studies from Ghana and Malta.[5,18] Urgent results can be swiftly conveyed back to the requesting physician if the contact details are present on the request forms. No clinical details were provided on 97.43% of the request forms scrutinized and is comparable with the study from USA.[19] This is very low when compared with a study from South Africa.[12] However, this finding is less when compared with another study reported from Pakistan[17] and other countries.[5,13] Provision of advocate clinical information prevents inappropriate investigation. Absence of clinical information misleads to potentially harmful outcomes.

Conclusion

The standard of completion of laboratory request forms was poor as the study shows that the 100% forms for investigation were incompletely filled. Thus the laboratory services were inadequately utilized and will have an effect on quality of service and interpretation of obtained results.

Recommendations

We strongly recommend that there should be communication between laboratory staff and physicians. There is a need for continuous sensitization of physicians for regarding the significance of properly filled laboratory request forms. Medical students should be exposed to laboratory to understand the complimentary role played by laboratory practice and how laboratory functions. The house officers should be trained by orientation programmes to educate them on the importance of providing all information to laboratory for the right diagnosis. As a strict check, the patient samples accompanied by incomplete filled forms should be returned by laboratory staff.

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