

# Incomplete Patient Data on Chemical Pathology Laboratory Forms in a Tertiary Hospital in Nigeria

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## Abstract

**Background:** Correct and complete filling of information on the laboratory request forms is necessary if preanalytical errors are to be minimized. It also gives the laboratory opportunity to compare results with the clinical details of the patient, which can point out the possibility of errors in either laboratory test or clinical diagnosis. Appropriately, filled laboratory forms allow for timely communication of critical results to physicians providing early intervention and improved patient care. We, therefore, evaluated the extent of incomplete laboratory forms in our center. **Methodology:** The study was a cross-sectional where assessment of forms received over 3 months from February 17, 2014, to May 28, 2014, in the Chemical Pathology Department of Federal Teaching Hospital, Gombe, during working hours were analyzed for the frequency of incomplete data. The forms were scrutinized for the presence of name, gender, age, clinical details, ward/clinic, consultant, hospital number, and doctor's signature. **Results:** Only 8% of a total of 4638 forms provided all the required data. Only patient's name appeared in all the forms. Time of sample collection (58%) was the most omitted parameter. Age and gender did not appear in 39% and 38%, respectively. No clinical details or location of the patient was provided in 25% and 24% of the cases. Consultant in charge was missing in 38% of forms. Date of request, doctor's signature, and hospital number were missing on 18%, 18%, and 13%, respectively. **Conclusion:** The study has demonstrated high frequency of incomplete information needed on the laboratory request forms. This may be responsible for many preanalytical errors. Increased interaction between clinicians and pathologist with a view to reducing the frequency of preanalytical errors should be encouraged.

**Keywords:** Gombe, incomplete laboratory forms, laboratory errors

## INTRODUCTION

Reliable clinical laboratory services are the backbone of modern medical practice. Up to 70% of medical diagnoses may be based on laboratory results.<sup>[1,2]</sup> Although laboratory automation has brought a significant reduction in laboratory errors, especially in the analytical phase, the reduction in preanalytical and postanalytical errors is not as significant. The preanalytical phase is responsible for 65%–70% of laboratory errors.<sup>[3]</sup> Provision of complete demographic and clinical information needed on the request form is an important aspect of the preanalytical phase of the laboratory testing.<sup>[2]</sup> Therefore, providing complete demographic and clinical information of the patient, needed by the laboratory, may reduce the preanalytical error and improve patient care in the hospital.

The demographic and clinical information needed include names of the patient, age, gender hospital number, and clinical

details. Others are ward/clinic, consultant incharge, and date and time of sample collection.<sup>[2]</sup> These, when provided may prevent errors arising from patient identification/mix-ups, duplication of investigations, nonseparated samples, wrong sample bottles, and delay of analysis.<sup>[4]</sup> It also gives guidance to the laboratory on the results expected of the patient and to the possibility of error in either the laboratory or the clinical diagnosis. Clinicopathological correlations are better done and suggestions offered on the need for further evaluation and management of the patient.<sup>[5,6]</sup> It also provides avenue for communicating critical values to the care providers for appropriate measures to be taken.<sup>[2,7]</sup>

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There is a paucity of information about the extent of incompletely filled laboratory forms in our hospitals. Providing such information will generate valuable information for clinicians to improve their filling of laboratory forms, which will reduce the associated preanalytical errors and improve the quality of results and patient outcomes. This study, therefore, sets out to evaluate the frequency of incomplete information regarding the patient on the request forms sent to the Chemical Pathology Department.

## METHODOLOGY

This was a cross-sectional study conducted on all request forms submitted to the Department of Chemical Pathology of Federal Teaching Hospital, Gombe, over a period of 3 months from February 17, 2014, to May 28, 2014. The hospital is located in Gombe town, the capital of Gombe state, Nigeria. The laboratory is a part of a complex that contains four clinical laboratory departments. It receives samples from both clinical chemistry and immunochemistry analytes from within and outside the hospital. It operates 24 h services every day with routine work taking place between 8 am and 4 pm of working days while staff on-call duty covers the remaining hours. Samples from wards are collected at the reception by laboratory technicians while outpatients come to the department for sample collection. Samples are processed at the reception and passed for analysis by the medical laboratory scientist using automated analyzers. Results are copied on the request forms and are recorded on spreadsheets. Interpretation of results and clinical correlation are done by the consultant pathologist. Results are then collected by patients or their representatives at a collection center in the laboratory. Critical results are communicated to the people responsible.

The patient data provided on each request form were recorded in a spreadsheet as yes or no for the presence or absence of the particular information. Patient's confidentiality was maintained using study number only. No identifying information (name, hospital identification number) was included on the data record sheet. The request forms from all clinical departments were analyzed using frequency. The proportion of forms with missing demographic and clinical information was analyzed using percentages.

## RESULTS

A total of 4638 forms were analyzed. The departmental distribution of the request forms ranges from 55 to 1000 requests in 3 months. Three hundred and seventy-one (8%) forms provided all the needed data. Patient's name was the only parameter that appeared in 100% of the forms. 2690 (58%) of the laboratory forms omitted time of sample collection and it was the most omitted patient data. Age and gender did not appear in 1809 (39%) and 1762 (38%) of the forms, respectively. No clinical details or location of the patient was provided in 1169 (25%) and 1113 (24%) of the cases. Incomplete information about the consultant incharge was found in 1762 (38%) of forms. Date of request, doctor's

signature, and hospital number were missing on 849 (18%), 816 (18%), and 603 (13%), respectively. The above results are summarized in Table 1.

## DISCUSSION

Clinical diagnoses are increasingly dependent on laboratory investigations; however, few studies are available in our environment on laboratory errors, especially the preanalytical phase. Up to 70% of laboratory errors occur in the preanalytical phase.<sup>[8]</sup>

The findings in this study where only 8% of request forms had all the needed information and name of the patient was the only parameter that appeared in all of the request forms is similar to findings of other studies.<sup>[9,10]</sup> The departmental distribution of request forms ranging from 55 to 1000 in 3 months indicated that a major clinical department sent only 55 request forms during the period of the study. Possible explanations of getting such a small number of requests from a major clinical Department are no investigations from that department, requests were sent only during call hours since our study was restricted to routine working hours or the forms coming from that department were not properly filled especially the ward/clinic parameter.

The clinical detail which is important in result interpretation and may serve as a pointer to an error in the laboratory was not present in about 25% of cases. This is similar to findings by other authors.<sup>[2,10]</sup> Information regarding the location of the patient (ward/clinic, consultant incharge, and hospital number) which is necessary for locating the patient who may need repeat of sample collection or report of critical results was missing in 24%, 38%, and 13%, respectively. This information also helps in avoiding unnecessary duplication of investigations. Various studies found values ranging from those that are higher and those that are lower than the findings of this study.<sup>[2,10]</sup>

The age was missing in about 39% of cases. These forms included those who wrote adults instead of the age in years and those who wrote nothing on the space for the age. The benefits of writing age on the forms, among others, include patient identification, results interpretation, error detection, and so on.

**Table 1: Three-month analysis of chemical pathology request forms for the frequency of omission of the needed demographic and clinical data**

| Item                      | Percentage of omission |
|---------------------------|------------------------|
| Name                      | 0                      |
| Age                       | 39.0                   |
| Sex                       | 2.3                    |
| Ward/clinic               | 24.0                   |
| Clinical details          | 25.2                   |
| Date                      | 18.3                   |
| Hospital number           | 13.0                   |
| Doctor's signature        | 17.6                   |
| Consultant in charge      | 38.2                   |
| Time of sample collection | 58.0                   |

Apart from the name that appeared in 100% of the forms, gender was the most available parameter that appeared in up to 98% of the forms. Some studies have reported similar findings for the name (as the only parameter appearing in all request forms), and this may be due to rejection at the reception of any request form that has no name.<sup>[2]</sup> The reported omissions for gender are higher than what is found in this study.<sup>[2,10]</sup> Sample collection time was the most omitted parameter (58%). This may prevent detection of nonseparated samples and problems in interpretation of results with diurnal variations.

## CONCLUSION

The study has demonstrated a high frequency of incompletely filled patient information needed on the laboratory request forms. This may be responsible for many preanalytical errors. Increased interaction between clinicians and pathologist with a view to reducing the frequency of preanalytical errors should be encouraged. We also recommend that house officers should take orientation in the laboratory at the beginning of their internship to expose them to preanalytical variables and there should also be more laboratory exposure for medical students. Electronic Laboratory Information System may also reduce preanalytical errors and improve patient care.

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## Conflicts of interest

There are no conflicts of interest.

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