Evaluation of laboratory request forms for incomplete data at a rural tertiary hospital in Nigeria

Bankole Henry Oladeinde, Richard Omorogie, Eguagie Osareniro Osakue and Adekunle Abdufattai Onifade

Abstract

Objective: To determine type and frequency of omission of relevant data on laboratory request forms at a rural tertiary Hospital in Nigeria.

Methods: A total of 2,362 laboratory request forms sent to the Pathology Department of Igbinedion University Teaching Hospital Okada within a 10 month period were scrutinized for specific parameters. The forms were evaluated to determine what section was incorrect and/or incomplete and the frequency of such errors.

Results: Data mostly omitted was patient’s age, observed in 48.3% of request forms reviewed. Complete documentation was only observed in respect to patients name and signature of attending physician. The name of the attending physician, however, was missing in 19.8% of forms audited. Information regarding patient’s gender and location (ward) in the hospital was absent in 1.1%, and 20.1% cases respectively. 151(6.4%) of audited forms were void of working diagnosis, while type of clinical sample was not documented in 2.7% of laboratory request forms evaluated.

Conclusions: Data mostly omitted in laboratory forms audited was patient’s age, (48.3%) followed by location of patient (20.1%). Incomplete data on laboratory request forms can lead to misdiagnosis and mismanagement of patients. Renewed emphasis on relevance of completeness of data on laboratory request test forms is strongly advocated.

Key words: laboratory request forms, incomplete data, tertiary hospital, Nigeria


Introduction

In the face of currently emerging and re-emerging diseases observed in medicine today, the need for improved health care services and assessment of quality indicators of same cannot be overemphasized. The pivotal role of laboratory medicine in effective management of diseases is not questionable, as reports shows that laboratory services play a role in as much as 60-70% of decisions related to hospital admission, prescribed medication and discharges (1). This dependence of patients’ management on laboratory data underlines the need for regular assessment of quality indicators that may have a profound effect on accuracy, reliability and usefulness of test results.

Following the development of high quality analytical techniques, and observed increased emphasis on analytical portion of testing process, analytical mistakes now account for a minimal percentage of error in clinical laboratory testing processes (2,3). Data shows that laboratory errors primarily occur in the pre-analytical phase, severely affecting quality of patient management (2,4). The pre-analytical phase refers to procedures performed neither in the clinical laboratory nor under the control of laboratory personnel (1), e.g. specimen identification, phlebotomy, sample handling, transportation and completion of laboratory request forms. Several studies have shown that most laboratory request forms sent to the laboratory are void of detailed information (5,6), which is key to proper processing of samples. This trend has led to misidentification of clinical samples, difficulty in choice of antibiotics to use on clinical isolates, and interpretation of test results among many others. Valuable work time is often lost seeking for essential patient information by laboratory personnel leading to lack of productivity. This no doubt negatively impacts on general management of the patient. Pre-analytical error rates are reduced by automation (7). While this may be readily available in most developed countries, many clinical laboratories in resource poor settings still carry out most pre-analytical procedures manually giving room for high error rates. Laboratory errors made during the pre-analytical phase can have profound effect on clinical care (7). Against this background, and the paucity of reports on rates of pre-analytical errors in Nigerian hospitals, this study focused on determining the type and frequency of omission of relevant data in laboratory request forms at a rural tertiary hospital in Nigeria.

Materials and methods

This study was conducted at the Igbinedion University Teaching Hospital Okada, Okada, Nigeria. Igbinedion University Teaching Hospital is the only tertiary health care provider in Okada Edo State. Nigeria. Okada a rural community in Edo State, Nigeria.

A total of 2362 laboratory request forms sent to the Pathology Department of Igbinedion University Teaching Hospital Okada within a 10 month period were scrutinized for completeness of patient, clinician and sample information. Patients and clinicians confidentiality were maintained. The study was approved by the Ethical Committee of the Igbinedion University, Teaching Hospital, Okada. Nigeria.

Results

The results are summarized in Table 1. Of all parameters examined only the patient's name and signature of attending clinician was observed on all the laboratory forms audited. Information regarding patient's age, gender and location (ward) was missing in 48.3%, 1.1% and 20.1% respectively of all forms evaluated. There was no provision on the laboratory form for a telephone number of the attending clinician. The name of attending clinician was not documented in 19.8% of laboratory request forms.

With respect to information on the clinical sample, the type of sample was not documented in 2.7% of forms audited. Sample collection date and type of test required were not supplied in 5.6% and 1.5% respectively of all forms evaluated. A total of 151 (6.4%) of forms did not carry information on the working diagnosis.
Table 1. Absence of parameters on laboratory request forms (n=2,362).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number</th>
<th>%</th>
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<tbody>
<tr>
<td>Patient information</td>
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<td></td>
</tr>
<tr>
<td>Patient’s name</td>
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<td>0</td>
</tr>
<tr>
<td>Patient’s gender</td>
<td>26</td>
<td>1.1</td>
</tr>
<tr>
<td>Patient’s age</td>
<td>1140</td>
<td>48.3</td>
</tr>
<tr>
<td>Location/ward of patient</td>
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<td>20.1</td>
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<tr>
<td>Clinical information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working diagnosis</td>
<td>151</td>
<td>6.4</td>
</tr>
<tr>
<td>Specimen information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature of clinical sample</td>
<td>64</td>
<td>2.7</td>
</tr>
<tr>
<td>Date of collection</td>
<td>133</td>
<td>5.6</td>
</tr>
<tr>
<td>Investigation required</td>
<td>37</td>
<td>1.5</td>
</tr>
<tr>
<td>Clinician information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of clinician in charge</td>
<td>468</td>
<td>19.8</td>
</tr>
<tr>
<td>Signature of doctor</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Number = laboratory request forms reviewed

Discussion

Incorrectly completed laboratory request forms are a common problem that compromises patient’s management and safety, and often lead to increased workload for laboratory staff. Against this background, this study focused on determining the frequency of omission of relevant data in laboratory request forms at a rural tertiary hospital in Nigeria.

The patients’ name was observed in all 2,362 laboratory forms audited. This is consistent with previous findings (8,6). However, the name of the attending clinician was observed to be missing in 19.8% of laboratory forms examined. This figure is higher than an earlier Nigerian report (6). Efforts at getting additional information about the patient, that may prove vital to the quality of test result, may suffer serious drawbacks by the omission of the name of attending clinician. Telephone numbers of attending physicians could aid communication between laboratory personnel and the clinician (9). Sadly, all laboratory request forms studied had no provision for this data. There is therefore need for a revision of the content of the laboratory forms to make them more informative and user friendly.

All laboratory request forms were duly signed by the attending clinician. The location of the patient at time of request of test was not indicated in 20.1% of laboratory forms audited. Dispatch of patients result from the laboratory to various wards in the hospital may experience some delays by the omission of this important information on request forms. The gender of patients was not reported in 1.1% of studied forms. Reference values for some tests, such as haemoglobin concentration, vary with gender and age, underlining the need for their inclusion in request forms. Request forms with no and/or inaccurate data on age of patients was observed in 48.3% of all forms scrutinized. This is far higher than reported errors rates in other African studies (8,6). Igbinedion University Teaching Hospital is situated in rural Nigeria. Most of the people that patronize the hospital are from Okada and neighboring communities who, due to their low educational status, may not be well placed to furnish the clinician with information on their age. This missing data often makes selection of appropriate antibiotics for use in susceptibility testing of bacteria and effective interpretation of test results difficult. Again, the availability of age, gender, in-patient and out-patient distribution of diseases in a rural tertiary healthcare facility like the Igbinedion University Teaching Hospital can greatly influence government diseases intervention efforts and infection control policies within the hospital.

No working diagnosis was provided on 151 (6.4%) of laboratory forms evaluated. This error rate is similar to previously reported in a Nigerian study (6) but different from a Ghanaian study (8). Information regarding specimen type and date of collection of specimens was absent in 2.7% and 5.6% respectively of all forms examined. Absence of working diagnosis often leads to extraneous and unnecessary additional tests which has definite resource management and demand implications (10). In the absence of information regarding type of sample collected, bloody pleural aspirate or cerebrospinal fluid can easily be taken for blood by the laboratory staff, resulting in the use of inappropriate diagnostic technique, reference ranges and ultimately misleading results.

In conclusion, only patient’s names and signatures of attending clinicians was observed on all forms screened. Patient’s age and location at time of test request were mostly omitted in forms audited. Quality assurance in the laboratory is multifaceted and requires the detection of poor performance in the action of each process. Incomplete data on laboratory request forms can lead to misdiagnosis and mismanagement of patient. Renewed emphasis on the relevance of completeness of data on laboratory request test forms is strongly advocated.

Acknowledgement

We acknowledge with thanks the Ethical Committee of Igbinedion University Teaching Hospital, Okada, for permission to carry out this work.

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Author contributions

BHO took part in study design, generated and analysed data, and substantively drafted the article. RO, EOO and AAO took part in study design, analysed the data and substantively drafted the article. The authors declare no conflicts of interest.
References


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