A Study on Effectiveness of Diagnostics Practices to Reduce Specimen Labeling Error with Respect to Radiology, Cardiology and Laboratory, in One of the Leading Hospitals in Coimbatore

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ABSTRACT

Patient safety is an increasingly visible and important mission for attention to improving process related to patient identification and specimen labelling is a paid by accreditation and regulatory organizations because errors in Radiology, Cardiology, Laboratory arise is patient safety are common and avoidable through improvement in total testing process. It helps to described things in short phase. The pre-analytical phase of laboratory, radiology, cardiology, testing important process such as Radiology Requisition Forms (RRF), Cardiology Requisition Forms (CRF), and Laboratory Requisition Forms (LRF) followed a non-compliance identification of during NABL and NABH, surveillance audit. Wrong patient s error can occurs in every aspect of patient diagnostics and treatment. The finding s are also expected to pave way for future research work.

KEYWORDS: Requisition forms, labelling machine, laboratory, radiology, and cardiology, quality indicator, labelling error

1. INTRODUCTION

1.1. Definition:
Definition of labelling error is a process to identify the errors such as
- Mislabelled forms
- Partially labelled forms
- In completed labelled forms
- Illegible labelled forms
- Unlabelled forms

Labelling errors is a pre analytical phase, with approximately two - thirds of error was identified as the key focus area for improvement. To address specimens that could arrive in mislabelled or unlabelled. It can be related and treated in laboratory, radiology, and cardiology.

1.2. REQUEST FORMS

Requisition as the actual paper work, such as a form, which is provided to a clinical diagnostics laboratory, cardiology, and radiology and extra that identifies the test or tests to be performed for patient treatment.

1.3. LABELING SYSTEM:

Labelling systems on the World Wide Web present the chunks of information environments. Labelling systems are one of the major component in information architecture, and one of the first steps of an information architecture project to identify, organize and label relevant chunks of information. It includes
A. Name of the patients
B. Gender/ age
C. Registration number/ UHID number
D. Name of the doctor/ physician
E. Date and Time

1.4. CHARACTERISE OF LABELING ERROR

Labelling system main goal is to communicate efficiently, without talking up too much space, it can be described in a short space. That is called pre-analytical phase.

Computer labelled forms
It is process which creating labelled and paste in to the requisition forms in a proper ways. It easy to access any one

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and also it avoid manipulating the patient identification details.

**Manual labelled forms**
Definition of manual labelled forms the process of written statement of the patient detail, sometimes it can caused error because employee carelessness or crucial work

**Non labelled forms**
Without any details for forms or unfilled statement called as non-labelled forms, it causes labelling error.

**Coded forms**
It is used only in laboratory diagnosis process, some special test have code number for smart identification. Doctor or physician will order for this test.

**Un coded forms:**
They suggestion for laboratory special the forgott to written the code number, only diagnostic name will enter. That is called as a un coded forms.

**The objectives of the study includes,**
- To study the labeling errors occurred in Radiology, Cardiology, Laboratory
- To find out the reason for the labeling error
- To suggest ways to reduce the labeling error and to improve the effectiveness of diagnostic practices

2. **Literature review**
According to done Judy E, Brown (2011). The study provides information on the Decreasing mislabelled laboratory specimens using barcode technology and bedside printers: Mislabeling of laboratory samples has been found to be a high-risk issue in acute care hospitals. The goal of this study was to decrease mislabelled blood specimens. In this first year after the implementation of positive patient identification system using barcode and computer technology.

Elizabeth A. Wagar, D (2008) has revealed in his study that the accurate specimen identification is critical for quality patient care improperly identified specimens can result in delayed diagnosis, additional laboratory testing, and treatment of the wrong patient for the wrong disease and sever transfusion reaction, specimen identification error has been reported to occurs.

According to Bobbi Doc k (2005), the study conducted for improving the accuracy of identification is a challenge in all hospitals. A mislabelled specimen can lead to divesting consequences for a patient. In an effort to decrease the risk of potential harm caused by laddling errors, children’s hospitals and clinics of Minnesota successfully implemented a zero tolerance laboratory specimen laboratory process. After months of study, charting networking, and communicating, which all stakeholders the new process to a 75% reduction in laboratory specimen labelling.

3. **Methodology**
The researcher has taken secondary data for the study during the period of January to February 2020. The labelling data were collected from the Laboratory, Radiology (ultrasound, CT, MRI, X-RAY), and Cardiology (ECG/TMT, ECHO) and analysed for the present study. In laboratory, total number of samples taken is 14596 and in Radiology samples taken is 1014, cardiology 574 samples. Simple random sampling technique is used to analyse the data by using a spread sheet to find the labelling error.

4. **Analysis**

**Chart -1 Chart showing the demographic data of the respondents**

<table>
<thead>
<tr>
<th>LABORATORY</th>
<th>RADIOLGY</th>
<th>CARDIOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>89%</td>
<td>72%</td>
<td>84%</td>
</tr>
<tr>
<td>8%</td>
<td>19%</td>
<td>16%</td>
</tr>
<tr>
<td>3%</td>
<td>9%</td>
<td>1%</td>
</tr>
</tbody>
</table>

The above chart shows that three departments that include laboratory, cardiology and radiology have been included in the study. It shows the percentage details of computer labelled forms, manual labelled forms and non-labelled forms. Majority of the samples are computer labelled, few are not labelled.
There is repetition of amount paid by the patients, due to entry of wrong test code. The recommendations include,

- Proper training can be given to the billing staff, with respect to coding.

David A, Alcorn; Rhona j Barbarablond, (2017) blood bank specimen mislabelling a college of American pathologists q-probes. Study of blood bank specimen in 30 institute, arch pathal lab med;141;255-259

The above table shows the four week analysis of laboratory labelling errors, in which it can be interpreted that, after continuous monitoring, there is decrease in the percentage of number of non-labelled forms.

**Table-2 Showing the Radiology various department (Ultrasound, CT,MRI, X-Ray) labelling error in simple percentage method**

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>COMPUTER LABELLED FORMS</th>
<th>MANUAL LABELLED FORMS</th>
<th>NON LABELED FORMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULTRASOUND</td>
<td>81%</td>
<td>16%</td>
<td>3%</td>
</tr>
<tr>
<td>CT</td>
<td>57%</td>
<td>22%</td>
<td>21%</td>
</tr>
<tr>
<td>MRI</td>
<td>56%</td>
<td>19%</td>
<td>25%</td>
</tr>
<tr>
<td>X RAY</td>
<td>77%</td>
<td>20%</td>
<td>3%</td>
</tr>
</tbody>
</table>

The above table depicts that the number of non-labelled forms are very less with respect to the cardiology department.

**5. Major findings & recommendations**

- The staffs are not able to label properly, due to lack of labelling machine.
- The staff are not aware of the codes of various tests
- There is repetition of amount paid by the patients, due to entry of wrong test code.

The recommendations include,

- Decentralisation of labelling machines for easy access can be done.
- Proper training can be given to the billing staff, with respect to coding.
- Continuous monitoring can be done to reduce the number of non-labelled forms.

**6. Conclusion:**

This study helps to reduce the diagnostic labelling error and it improves the quality of diagnostic procedure for the right patient, right time, right resource, and right treatment. It also helps to reduce the labelling error as an individual and also for the development of the hospital.

**7. Reference**

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