A study to assess the critical result reporting at B & C Medical College and teaching hospital

Sujan Sharma¹, Barsha Koirala², Niraj Keyal³

¹Department of Pathology, B&C Medical College and Teaching Hospital, Jhapa, Nepal
²Department of Hospital Administration, B&C Medical College and Teaching Hospital, Jhapa, Nepal
³Department of Critical Care Medicine, B&C Medical College and Teaching Hospital, Jhapa, Nepal.

ABSTRACT

Background: The critical value can occur while performing panels of tests at laboratory by different chemistry or blood analysers with varieties of principles. The main objective of the study was to study the process of critical result reporting and to know the way of communication and documentation done for critical value in the laboratory, ICUs and the wards.

Materials and Methods: This study was prospective and non-experimental was conducted at B&C Medical College and Teaching Hospital from 14.04.2018 to 14.05.2018. Total 60 critical values samples were included. The data was collected by means of observing the critical values of inpatient and the process of reporting from the laboratory to the respective wards and ICUs.

Results: Out of 60 samples included in our study, there was 100% communication to concerned treating units. For the confirmation of critical value repeat test was done in 68% of cases. In 75% of cases clinicians did follow up. Recording of a critical report in lab was done in 96% of cases and almost all of the critical values 98% were immediately reported to the respective wards by technical staffs. There was no communication in 1.6% of cases to treating units by technical staff. Majority 78% of critical values were communicated by respective wards and ICUs nurses to concerned doctors.

Conclusion: Critical value can occur while performing panels of tests at laboratory and reporting such values to treating clinicians or respective wards or ICUs could help health care providers for effective treatment of the patients and their adequate care.

INTRODUCTION

A critical lab result is defined as a value that represents a path physiologic state at such variance with normal that prompt medical intervention is required to avert imminent danger for the patient concerned and for which effective action is possible, which was highlighted by Lundberg. Reporting of critical values has become mandatory in many countries. Since Lundberg’s observations of 30 years, the concept of critical value have been adopted widely by laboratories throughout the world.¹

This critical value can occur while performing panels of tests at laboratory by different chemistry or blood analysers with varieties of principles. Depending on these analyzers
the entire panel of results may be visible to laboratory staff 
some of the results may be life threatening to patients.2,3 

The recent national focus on patient safety has increased 
attention to the issue of laboratory critical value reporting 
and has become interest across the health care organization 
of many countries. Nowadays Critical value parameters are 
even considered an important outcome measurement for 
reflecting clinical effectiveness, patient safety, and 
operational efficiency.4 

The most important functions of a laboratory is to provide 
accurate and rapid communication of critical test results to 
patient care providers. Laboratory professionals often find 
many obstacles while reporting such values, so establishing 
clinically relevant criteria for critical values, resolving 
difficulties in locating an ordering provider understands 
have become big challenge.5 

Total of 10% to 55% of laboratory error occurs during post 
analytic phase. Failure to communicate the right laboratory 
result to the right person at the right time in the right context 
is one of the errors. An unusually high number of critical 
results have been shown to be an early predictor of adverse 
patient events.6 

The reporting of the critical values could improve total 
health care system by encouraging health care providers for 
effective treatment of the patients their adequate care and 
finally safety of patients. 

The main objective of the study was: 
• To study the process of critical result reporting. 
• To know the way of communication and documentation 
done for critical value in the laboratory, ICUs and the wards. 

MATERIALS AND METHODS 

This study was designed to assess the critical result reporting 
of the inpatient in B&C Medical College and Teaching 
Hospital. Critical test value was defined as test value that are so abnormal that they can indicate a potentially life –threatening situation in a patient or a diseases state that requires immediate medical attention. Study was prospective and non-experimental was conducted at B&C Medical College and Teaching Hospital. Permission was obtained from the ethical committee. Total sample consist of 60 critical values those fulfill the selection criteria. 

SELECTION OF THE SAMPLE: 

Inclusion criteria: Critical value of the laboratory of inpatient. 

Exclusion criteria: Critical values of the laboratory of outpatient. 

The instruments and too for data collection was observation 
check list and interview technique. Statistical analysis was 
done by Microsoft office excel 2007. 

The data was collected from 14.04.2018 to 14.05.2018. The 
data was collected by means of observing the critical values 
of inpatient and the process of reporting from the laboratory 
to the respective wards and ICUs. Observation was done on 
the respective wards and ICUs to know the reporting time 
and process of communication to Doctor. The frequency 
table was formulated all baseline information like recording 
of critical result in laboratory, reporting immediately to the 
ward including time and ICUs, communication to doctor/ 
nurse, communication through phone/direct, repeat test, 
communication by nurse to doctor, immediate action taken 
by doctor/nurse, follow up all documentation in the critical 
care chart was maintained. The subjects were marked 
according to the observation and interview: yes, no and not 
applicable (NA). Scores were expressed in the percentage. 

RESULTS 

Our study shows there was 100% communication to concerned treating unit by means of phone or direct. In 
68% of cases for the confirmation of critical value repeat 
test was done (table 1) and finally informed to concerned 
department. Clinicians did follow up for 75% of cases. 

96.6% of the critical values were recorded properly and 
almost all of the critical values (98.3%) were immediately 
reported to the respective wards. Only (1.6%) Of cases were 
not communicated to doctor or nurse by technical staffs. All 
the critical value cases (100%) were communicated. To 
confirm the critical values 68.3% of the cases were repeated 
and final report was dispatch. Majority of cases (75%) were 
followed by clinicians. (Table 1) 

DISCUSSION 

The study was conducted on 60 samples having critical 
value of inpatient of B&C Medical College and Teaching 
Hospital. All sample collected were from inpatient. Among 
the sample all the critical value of inpatient was reported 
immediately to the concerned wards and ICUs. Our study 
showed recording of critical report in the laboratory was 
found to be around 97%. Reporting and recording such 
value is a quality indicator of the lab. Study done by Dighe 
et al showed that specific critical value will have potential 
to improve patient safety.7 our study showed reporting of 
critical value to ward and ICU was done properly, which 
helped our clinicians for quality patient care. Similar 
findings by Schapkaitz et al who believes rapidly notifying 
critical value to appropriate care givers helps for quality 
patient care.8 Most of the critical value was communicated 
to nurse of the respective wards and ICUs that is 100% 
communication to respective treating units which helps 
them to take prompt care of the patients and finally patient 
safety. Whereas concluding study done by Caleb et al 
showed incidental critical values appears to have low clinical 
utility.9 Study done by Piva et al on interpretative reports 
and critical values believes that incorrect interpretation of 
tests and breakdown in the communication of critical values 
are preventable errors minimizing such errors leads to good
Table 1: Percentage of critical value reporting and follow up

<table>
<thead>
<tr>
<th>Action taken with critical value</th>
<th>Yes</th>
<th>No</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording the report</td>
<td>96.66%</td>
<td>3.33%</td>
<td>0%</td>
</tr>
<tr>
<td>Immediate reporting to the ward/unit</td>
<td>98.33%</td>
<td>1.66%</td>
<td>0%</td>
</tr>
<tr>
<td>Communication to the doctor/nurse</td>
<td>98.33%</td>
<td>0%</td>
<td>1.66%</td>
</tr>
<tr>
<td>Communication through phone/direct</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Repeat test</td>
<td>68.33%</td>
<td>0%</td>
<td>31.66%</td>
</tr>
<tr>
<td>Communication by nurse to doctor</td>
<td>78.33%</td>
<td>18.33%</td>
<td>3.33%</td>
</tr>
<tr>
<td>Follow up is done</td>
<td>75%</td>
<td>6.6%</td>
<td>18.33%</td>
</tr>
</tbody>
</table>

Whereas Kuperman et al study showed delay response in treatment by clinicians although critical values were reported promptly by laboratory but our study showed prompt action from either side. Laboratories should have their own policies and procedures to deal with incidental critical results. Proper way of reporting and documentation of such results could help clinical laboratories to solve many future challenging laboratories issues. In our study and set up documentation in the patient chart requisition order form was not proper by nursing staff. Majority of the cases was followed up by treating clinicians. Our study has several limitations. All of the analysis was of data from a B&C Medical College and Teaching Hospital Only. Data from other institutions may vary, especially those with a different patient population. Our data was from inpatient only and majority of cases was from a busy ICU. Clinical laboratories that have a low percentage of specimens from infants may find different patterns of incidental critical values.

CONCLUSION

A commonly cited problem in clinical laboratories is the breakdown in the communication process, including documentation of actions, between clinical units and the laboratories. It has its implication in quality assurance programme of a hospital. Late reporting of the critical value to the wards and ICUs can form a risk to the patient safety. These are preventable errors minimizing such errors can lead to good patient care and finally patient safety.

Conflict of interest: None

REFERENCES


DOI : 10.3126/jpn.v%vi%i.20871