IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 11, Issue 1 Ser. I (Jan. – Feb. 2022), PP 52-57
www.iosrjournals.org

Impact of Compliance to Critical Lab Value Reporting System on Patient Safety & Treatment.

Ms.Swarnalata Patro[1], Ms.D Maryline Flinsi[2]
[1(]*Clinical Instructor, Nursing, Apollo Hospitals, Bhubaneswar, India)*
[2(]*Principal, Apollo school of Nursing, Indraprastha Apollo Hospital, New Delhi, India)*

Abstract: *Patient safety is becoming a more focus & priority of every healthcare authorities and organizations, as they impact outcome of patients and healthcare effectiveness and efficiency, as evident from the emphasis on international patient safety goals. Critical lab values reporting system continues to receive a widespread attention from health care givers as it emphasizes the clinical crucial time for patient outcome. This is why the health care providers involved proactively in reporting of CLR by adhering the read back policy & timely reported which influences the compliance status of patient safety.*

The Intensive Care Unit (ICU), WARD, ER & ISOLATION at Apollo Hospitals, Bhubaneswar has a policy of documenting critical lab results (CLR) and responding to it within 15 minutes. The aim of this study was to evaluate the compliance with the Critical Lab Result (CLR) policy, and to evaluate the effect of improved CLR reporting on patient safety & treatment compliance.

Methodology*: This study was non-experimental study conducted at Apollo Hospitals, Bhubaneswar with 423 critical lab samples to evaluate the compliance of CLR reporting policy & the effect of patient safety compliance.*

Quantitative research approach used for this study as well PIP (Performance Improvement Project) tool used to collect the data to check the compliance status. With help of PIP tool, daily data collection was done for all the patients reporting CLR in WARD, ICU, and ER & ISOLATION.

Results*: During April 2021 the compliance rate was 40%, and improved gradually as a result of an awareness campaign and the introduction of a daily monitoring process through a log book, by the end of September 2021, the compliance rate was 95.1%. There were improved compliances to CLR reporting system on patient safety approaches achieved in this study by adhering the read back policy & strict to the time frame of reporting within 15minutes.*

Conclusion*: Proper documentation of CLR and timely response to critical lab results has a strong negative correlation to cardiac arrests & other state of illness due to abnormal lab findings, and has a positive impact on patients' safety.*

Key Word: *critical lab result (CLR), patient safety, Read back policy as communication of CLR, compliance*

Date of Submission: 04-01-2022 Date of Acceptance: 15-01-2022

I. Introduction

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) & NABH acknowledges the importance of patient safety by dedicating a large number of their accreditation standards and measurable elements to patient safety under section II (Patient-Cantered Standards) of their hospitals accreditation manual, specifically International Patient Safety Goals (IPSG) [1] .One of these IPSGs is to improve communication among caregivers, by improving reporting of critical lab results (CLR), [2] as they may constitute a potential life threatening condition, that require immediate intervention, and they also reflect not only on patient safety, but on clinical effectiveness and operational efficiency. [3]

Critical values are below or above the normal range which is life threatening and require immediate notification to the consultant. Timely communication of Critical Laboratory results is important which have positive implications on patient safety and treatment outcomes. [4] The present study was aimed to analyse the compliance of critical care reporting of the laboratory tests.

II. Material And Methods

- **Research approach**: Quantitative research approach.
- **Research design**: Non-experimental research design

- **Research Variable**: Critical Lab Values (Serum sodium, serum potassium, PT, APTT, PTINR, TROPONIN- Blood Glucose, urea, creatinine, TROPONIN I, Haemoglobin, NT-pro-BNP, D-dimer) & Treatment details.
- **Data collection method**: Structured check list of Performance Improvement Project (PIP) & contents of PIP are:

1. Observation the progress of patient clinical outcome
2. Review of documentation & record
3. Interaction with laboratory technicians & nurses of respective departments on standard tools.
4. Discussion with the treating consultants.

- **Settings of the study**: Apollo Hospitals, Bhubaneswar
- **Duration of the study**: 6months (April 2021 to September 2021)
- **Target population**: Apollo Hospitals, Bhubaneswar (patient care areas-ICU, WARD,ER & ISOLATION)
- **Sample**: Reports of critical lab value reporting system
- **Sample Size**: sample size is 423(expected sample size was 500)
- **Sampling Method**: Purposive sampling (Critical Lab Values & treatment of patient admitted in ICU,WARD,ER & ISOLATION units)
- **Inclusion criteria**: Critical Lab values & treatment of patient admitted in ICU, WARD, ER units.
- **Exclusion criteria**: OPD, dialysis, multiple post-operative patients
- **Tool used for data collection**: Performance Improvement Project (PIP) tool for critical lab values.
- **Data analysis**: Descriptive & inferential statistics**.**

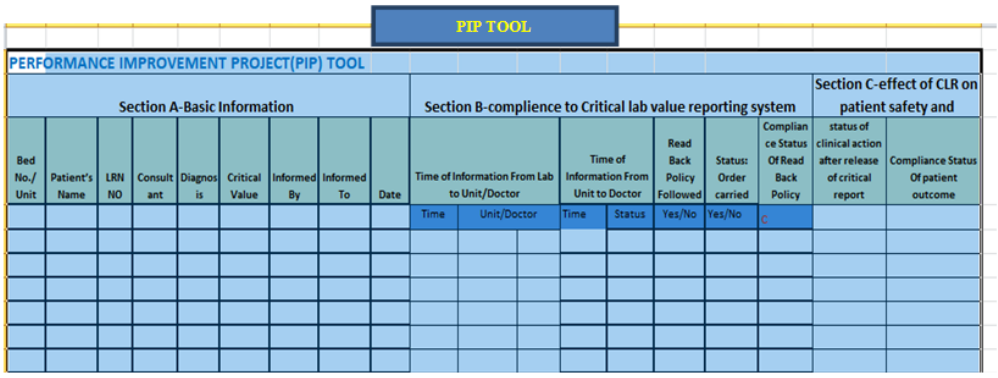
Procedure methodology: All CLR values from April 2021 till September 2021 were reported by our central lab were evaluated for appropriateness of documentation in the patients' file. Appropriate documentation was based on time and date, name of recipient, value of critical result, person to whom it was relayed, and response or action taken within not more than 15 minutes. Evaluation of appropriateness of documentation was evidence based (from the case sheet as well report); if any element was missing the whole process was considered inappropriate.

Planned intervention: There were opportunities came for improvement in regarding proper documentation of CLR report with adhering read back policy. So, an educational campaign was launched which named process improvement excellence program to reinforce the policy (i.e. Read back policy) of the organization along with implementation of the same on evidence based to ensure proper documentation.

III. Result

The data from April 2021 to September 2021 has been reviewed by using the PIP tool in the units of WARD, ICU, and ER & ISOLATION for proper documentation.

This definitely represented a vast area for improvement to us, so a Performance Improvement Project (PIP) was started to increase the percentage over the months from April 2021 to September 2021, with the aim of 100% proper documentation. Our PIP consisted of:



PIP TOOL

PERFORMANCE IMPROVEMENT PROJECT(PIP) TOOL

Section A-Basic Information									Section B-complience to Critical lab value reporting system							Section C-effect of CLR on patient safety and	
Bed No./ Unit	Patient's Name	LRN NO	Consultant	Diagnosis	Critical Value	Informed By	Informed To	Date	Time of Information From Lab to Unit/Doctor			Time of Information From Unit to Doctor		Read Back Policy Followed	Status: Order carried	Compliance Status Of Read Back Policy	status of clinical action after release of critical report	Compliance Status Of patient outcome
									Time	Unit/Doctor		Time	Status	Yes/No	Yes/No	C		

- A checklist of Performance Improvement Project (PIP) was deployed to monitor CLR reported to us around the clock that reviewed daily.
- Addressing issues of non-compliance among the nursing leaders as well the nurses involved and one – on– one talk by the quality team.

The campaign lasted for 6 months (April 2021 to September 2021), while we continued to monitor compliance.

Table-1: Monthly percentages of compliance to CLR documentation

N=423 CLR

Month	CLR Reported(n)	CLR properly documented(n)	Percentage
April	43	19	44%
May	53	33	62%
June	69	53	77%
July	104	94	90.30%
August	71	67	94.36%
September	83	81	97.59%

The data given in the table 1 describes that total 423 CLR reported, out of which the compliances rate from April 2021 to September 2021 it reaches 44% to 97.59% by adhering the process of RB policy & proper documentation.

Table-2: A.Compliance to Read back policy followed for CLR B. adherence of Standard reporting policy within 15 minutes month wise (April 2021 to September 2021).

N=423 CLR

Sl.NO.	Read Back policy followed with adherence of standard reporting policy with in 15min month wise from April 2021 to September 2021			
	Month	**CLR Reported(n)**	**Read back policy followed for CLR**	**Percentage (%)**
	April	43	17	40%
	May	53	28	53%
	June	69	49	71%
	July	104	92	88.46%
	August	71	64	90.14%
A	September	83	79	95.18%
	Month	**CLR Reported(n)**	**No.of reporting(<15min)**	**Percentage (%)**
	April	43	21	48.84%
	May	53	29	55%
	June	69	47	68.12%
	July	104	79	75.96%
	August	71	66	93%
B	**September**	83	**81**	97.59%

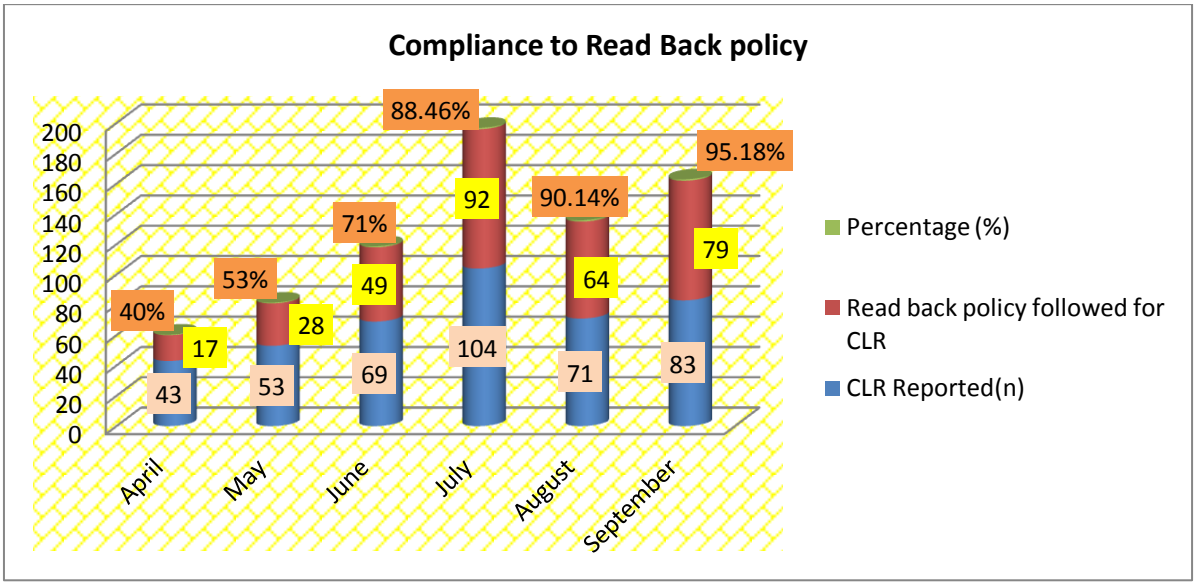


Figure-1

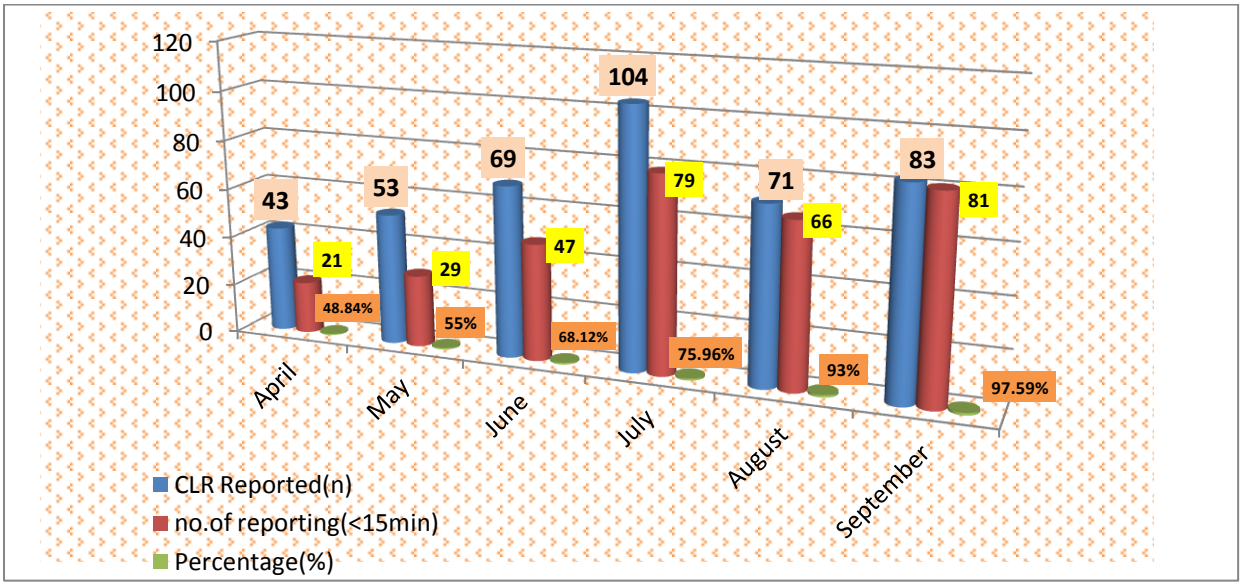


Figure-2

The data presented in Table 2 and figure-1& figure-2 describe that total 423 CLR reported, out of which the compliance rate of Read Back policy followed for CLR increased month wise which influences the reporting time strict to within 15 min & the compliance rate reaches from 48.84% to 97.59% by the end of September 2021.

Table-3: Effects of CLR on patient safety by A.Compliance of Clinical action after release of CLR report & B. Compliance status of Patient outcome month wise.

Sl.No.	**Clinical action after release of CLR report & patient outcome month wise compliance rate**			
	Month	CLR reported(n)	Compliance status of clinical action after release of critical report	Percentage (%)
	April	43	21	49%
	May	53	28	53%
	June	69	39	56.53%
	July	104	78	75%
	August	71	62	87.32%
A	September	83	74	89.15%
	Month	CLR reported(n)	Compliance Status Of patient outcome	Percentage (%)
	April	43	19	44.18%
	May	53	25	47.16%
	June	69	36	52.17%
	July	104	63	60.57%
	August	71	56	79%
B	September	83	69	83.13%

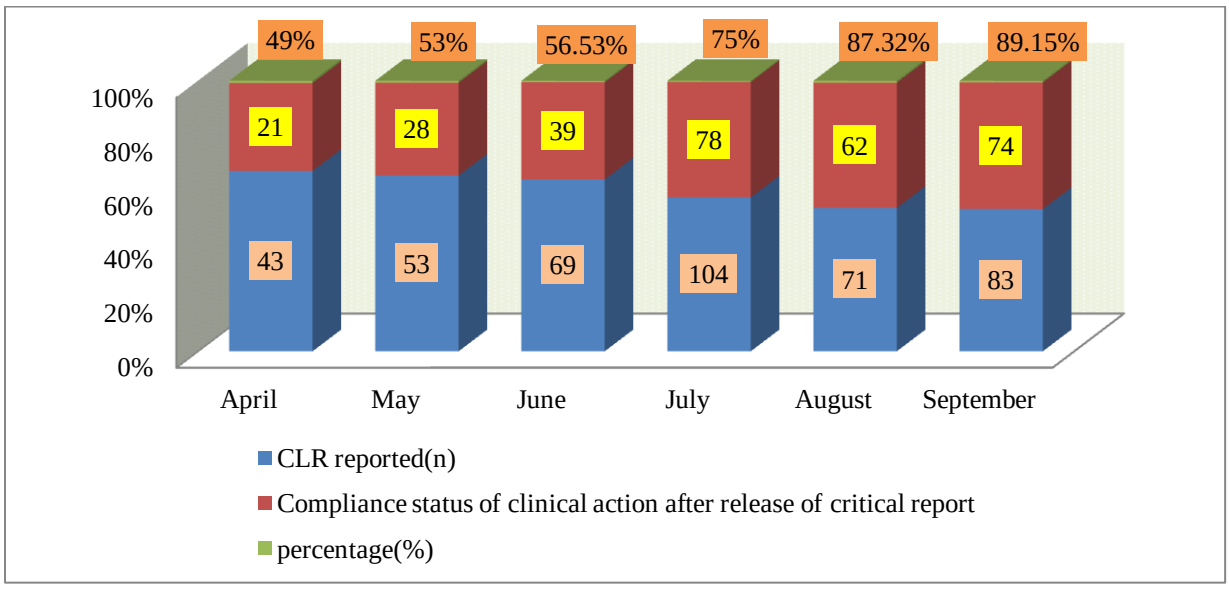


Figure-3

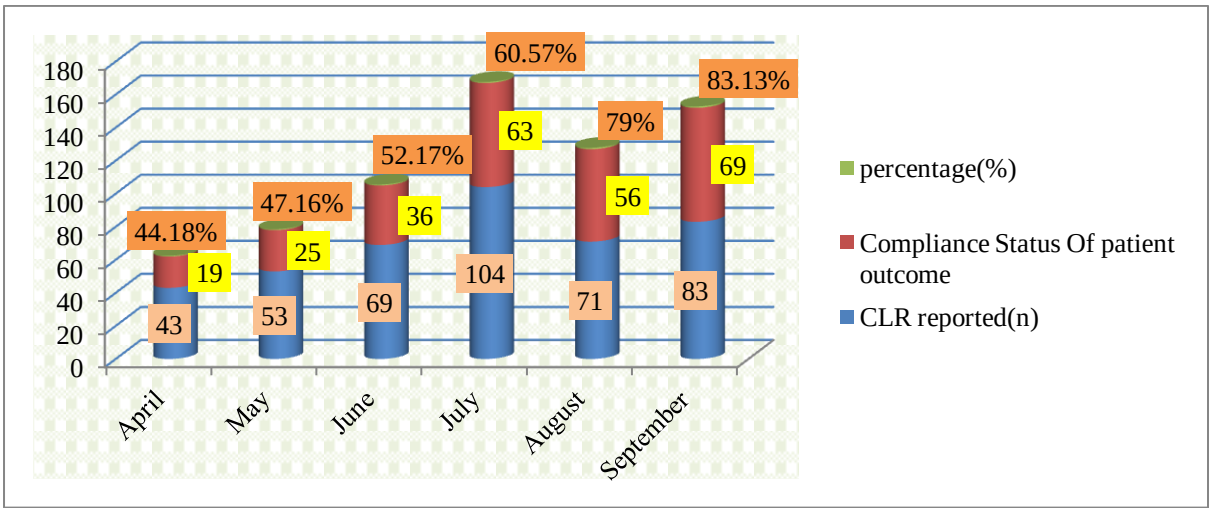


Figure-4

Table-3 and Figure-3& Figure-4 describes the effects of patient safety achieved by proper clinical action after release of CLR report & the compliance of patient outcome reached to 83.13% from 44.18%.

IV. Discussion

Compliance for CLR report system & patient safety was 44% during April 2021.However, with the implementation of a performance improvement project that percentage continued to improve over time, till it reached 97.59 % by September 2021. Our goal is to reach a 100% documentation of CLR, which is achievable with the continuation of educational efforts, and awareness campaigns, as such interventions were shown to produce measurable improvement, like in our study, as well as in other fields.

The significant improvement noted in our study in proper documentation (which includes by definition a response within not more than 15 minutes where the median time for response was 1 hour. Some of studies evaluated the impact of CLR reporting on patient's outcome and safety, and those who did, evaluated the impact from the perspective of harm, including minor and major. Many others reported that this breakdown of communication was a common problem, such as the study by Roy et.al. [5] In our study, there was a strong evidence of patient safety related to abnormal lab results and percentage of proper documentation with adhering CLR reporting policy. The study concluded that results surely indicate that proper Critical Lab Reporting (CLR) policy & documentation of CLR, have a significant impact on patient safety, that can be explained by the process itself, where an action to correct the critical result is required within 15 minutes, as a result properly documenting the reported result, becomes the prompt for action to correct it.

The compliance rate of clinical outcome also improved through this study from 44.18% to 83.13% in aspect of patient safety followed by improved CLR reporting system.

V. Conclusion

- Critical lab results reporting delay is a common problem that threatens patients' safety.
- Hospitals should have a clear process to report CLR that includes time frames of reporting, method of reporting, responsible receiver, ranges of values to be reported as critical, proper documentation should be adhere on the receiving end, failure of intervention in case of communication breakdown, and a supporting policy & protocol for that process.
- Proper documentation & reporting system of CLR and timely intervention for patient outcome has a strong evidence of reduce the rate of patients' harm, and significantly improves patient safety.
- Continuous education and awareness can result in the desired outcome of performance improvement.

References

[1]. Dighe, A., Rao, A., Coakle, A., &Lewandrowski, K. (2006). Analysis of Laboratory Critical Value Reporting at a Large Academic Medical Center. Am J ClinPathol, (158), 758-764.
[2]. Joint Commission International. (2014). Joint Commission International Accreditation Standards for Hospitals (5th ed.). Joint Commission Resources.
[3]. Kuperman GJ, Boyle D, Jha A, & Et al. (1998). How promptly are inpatients treated for critical laboratory results? J Am Med Inform Assoc, 5, 112-119.
[4]. www.ijhsr.org
[5]. Roy CL, Poon EG, Karson AS, et al. (2005).Improving patient care. Patient safety concerns arising from test results that return after hospital discharge. Ann Intern Med,(143),121e8.

Ms.Swarnalata Patro, et. al. "Impact of Compliance to Critical Lab Value Reporting System on Patient Safety & Treatment." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 11(01), 2022, pp. 52-57.