Original Research Article

Study on the biochemistry laboratory performance in notifying critical alerts

J Sowndharya[1*], S Aruna[2], G Jeyachandran[3]

[1]Tutor, [2]Assistant Professor, Department of Biochemistry, Government Karur Medical College and Hospital, Karur.
[3]Professor and HOD, Department of Biochemistry, PSG Institute of Medical Sciences and Research, Coimbatore.
Email: sowndaryaj27@gmail.com

Abstract

Background: Critical alert interval is the interval of examination (test) results that indicates an immediate risk to the patient of injury or death. **Materials and Methods:** All consecutive critical data of the month January 2019 are taken from the critical alert register from a tertiary care hospital/DC/BC/Reg/RR/09-Critical. From LIS, we generated the list of data satisfying the critical alert conditions in the same period January 2019. **Results:** The distribution had two peaks. The first peak is the tallest i.e.171 alerts are given within 25minutes. ABG and electrolyte samples processed immediately, contribute to this. This peak is superimposed on a normal distribution with a peak at 50 to 75 minutes interval and a long tail on the right side. **Conclusion:** Critical alert recording is missed in 26.3% of total alerts triggered. After correction, 50% of beta HCG is not recorded in the register. In 171 instances only we have given the alert within 25minutes.
Key Words: Critical alert, Parameters, Samples, Notification and authorized personnel.

[*]**Address for Correspondence:**
Dr. Sowndharya J, Tutor, Department of Biochemistry, Government Karur Medical College and Hospital, Karur
Email: sowndaryaj27@gmail.com
Received Date: 19/10/2019 Revised Date: 10/11/2019 Accepted Date: 24/12/2019
DOI: https://doi.org/10.26611/10021311

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 02 January 2020

INTRODUCTION

Critical alert interval is the interval of examination (test) results that indicates an immediate risk to the patient of injury or death. When examination results fall within established “alert” or “critical” intervals:
-A physician (or other authorized health professional) is notified immediately.
-Records are maintained of actions taken that document date, time, responsible laboratory staff member, person notified and examination results conveyed, and any difficulties encountered in notifications.
This study is about how effectively it is practiced in the laboratory

MATERIALS AND METHODS

Institutional human ethics committee approval was obtained. All consecutive critical data of the month January 2019 are taken from the critical alert register from a tertiary care hospital/DC/BC/Reg/RR/09-Critical. From LIS, we generated the list of data satisfying the critical alert conditions in the same period January 2019.

FOLLOW UP

- We have a LIS based system to trigger, initiate action and record critical alert in 100% instances after this study.
- We have been working to reduce the time taken for issuing alert and efficiency of tracking the authorized personnel to issue the alert.

How to cite this article: J Sowndharya, S Aruna, G Jeyachandran. Study on the biochemistry laboratory performance in notifying critical alerts. *MedPulse International Journal of Biochemistry.* January 2020; 13(1): 01-03. https://www.medpulse.in/Biochemistry/

Following are the parameters and their critical alert levels:

PARAMETERS	CRITICAL ALERT LEVELS
Serum amylase	>200 U/L
Serum ionized calcium	<0.75 or >1.625 mmol/L
Serum total calcium	<6.0 or>13.0 mg/dL
Plasma glucose	<70 or >450 mg/dL
Serum Osmolality	<240 or >320 mOsm/Kg
Blood pH (arterial)	<7.20 or >7.60
Blood pO_2 (arterial)	<40 mm Hg
Serum/Plasma sodium	<120 or >160 mEq/L
Serum/ plasma potassium	<3.0 or >6.0 mEq/L
Serum β HCG	>1000 mIU/mL
Plasma Troponin T hs	>15 pg/mL

OBSERVATION AND RESULTS

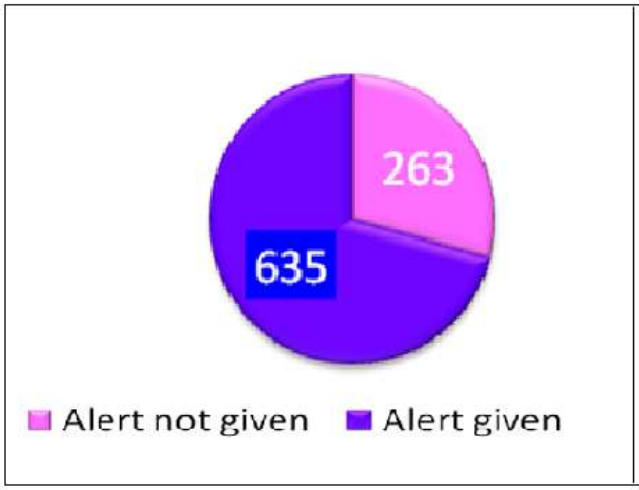


Figure A: Alerts recorded and not recorded

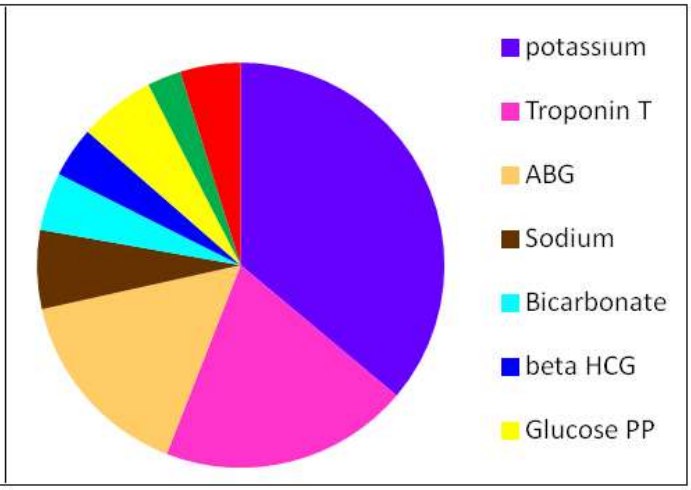
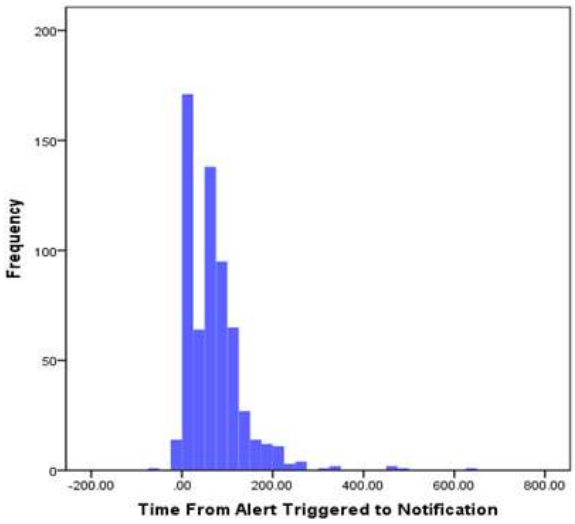


Figure B: Parameter wise alert

Missed alerts compared with total alerts

	TOTAL ALERTS	NOT RECORDED	%NOT RECORDED
Bilirubin	3	3	100
Osmolality	4	3	75
Glucose Fasting	7	1	14
Calcium	12	9	75
Glucose Random	17	4	24
Ionised calcium	24	7	29
Amylase	26	2	8
Glucose PP	28	9	32
beta HCG	36	29	81
revised	13	6	50
Bicarbonate	41	15	37
Sodium	56	19	34
ABG	139	43	31
Troponin T	177	42	24
revised	164	29	18
Potassium	322	56	17



Time duration from alert triggered to alert notification

RESULTS

The distribution had two peaks. The first peak is the tallest i.e.171 alerts are given within 25minutes. ABG and electrolyte samples processed immediately, contribute to this. This peak is superimposed on a normal distribution with a peak at 50 to 75 minutes interval and a long tail on the right side.

CONCLUSION

Critical alert recording is missed in 26.3% of total alerts triggered.

After correction, 50% of beta HCG is not recorded in the register. In 171 instances only we have given the alert within 25minutes. In 442 instances it took 26mts to 4hrs. In 12 samples, it took more than 4 hours.

REFERENCES

1. ISO/IEC 17000, ISO/IEC Guide 2 and ISO/IEC Guide 99
2. ISO 15189- 2012
3. Quality System Procedure Manual - DC/BC/QSP/SOP/RR/11

Source of Support: None Declared
Conflict of Interest: None Declared