International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2019): 7.583

Safety Measures Adopted for the Technicians Working in Laboratory during COVID-19 at Chennai

Mathura K[1], John Britto M[2]

[1]Student, Sathyabama Institute of Science and Technology, Chennai, India

[2]Assistant Professor, Sathyabama Institute of Science and Technology, Chennai, India

Abstract: ***The ongoing coronavirus sickness 2019 (COVID-19) pandemic has given major challenges to health care employees together with laboratory professionals. Clinical laboratories play a crucial role during this difficult surrounding by providing info to clinicians concerning prognosis, sickness severity, and response to medical care except for the diagnosing of COVID-19. Clinical chemistry laboratories inhabit central role within the management of COVID-19 through assessing the organic chemistry and inflammatory profile. The workplace professionals at one finish area unit at exaggerated risk of catching the infection whereas on the opposite finish ought to take care of the varied challenges throughout the Coronavirus sickness 2019 (COVID-19) occurrence. This survey was undertaken to investigate the workplace professionals' views, in terms of the challenges, monetary implications, fears, motivation and satisfaction from structure processes and policies adopted, amid the COVID-19 crisis. This alarming figure prompted U.S. to form tips for bio safety procedures to guard health care employees together with laboratory personnel. Infection and quarantine of health care employees cause further burden to health care services thanks to shortage of men.***

Keywords: COVID-19, laboratory

1. Introduction

It is to deal with the overall work flow safety issues of laboratory personnel throughout the COVID-19 pandemic. All laboratories ought to perform site-and activity-specific risk assessments to see the foremost acceptable safety measures to implement for specific circumstances. Risk assessments ought to embody the subsequent considerations: Analyse the quantity of individuals that the laboratory house will realistically and safely accommodate whereas maintaining social distancing. Assess the flow of personnel traffic. wherever doable, style unidirectional ways for workers to steer through the laboratory house. Assess procedures for cleansing and sanitizing normally instrumentation and areas-for example, counters, desks-to guarantee clean surfaces and instrumentation for all users.Review emergency communication and operational plans, together with a way to defend employees at higher risk for severe sickness from COVID-19. Every establishment ought to have a COVID-19 health and safety arrange to defend workers. This arrange ought to be shared with all staffs. Ideally, this arrange would: Describe steps to assist stop the unfold of COVID-19 if associate worker is sick. Provide info on whom workers ought to contact if they become sick. Provide workers with correct info concerning COVID-19, however it spreads, and also the risk of exposure.Reinforce coaching on correct handwashing practices and alternative routine infection management precautions to assist stop the unfold of the many diseases, together with COVID-19. make sure that workers have access to private protecting instrumentation (PPE), disinfectant and soap, clean running water, and drying materials for handwashing, or alcohol-based hand sanitizers that contain a minimum of hour plant product or seventieth isopropyl alcohol.

2. Review of Literature

James H Nichols, Carol A Rauch 2020 states that the biosafety practices for clinical laboratories provide protection from infectious materials such as body fluids which may contain virus. Standard precaution includes hand hygiene and use of personal protective equipment, such as laboratory coats or gowns, gloves and eye protection. Routine laboratory practice for decontamination for laboratory waste is also recommended.

Lotta-maria A.H. Oksanen et al. 2020 States that purpose was to analyse the work-related exposure to SARS-CoV-2 and trace the source of COVID-19 infections in laboratories healthcare workers use of personal protective equipment and their ability to maintain social distances and follow governmental restrictions.

O. Kuzmina and s. Hoyle 2020 states that theLaboratories provide environment evolving work. The analysis of health and safety management in laboratory. The aim is to examine the challenges, from the perspective of the health and safety practitioner, researcher and academic. It is critical that health and safety in a research lab environment is practicable to those working in the labs and those that support the researchers.

Abhishek Dubey, Aastha Bansal ed al. 2020 states that the health care workers of laboratory handling covid patients samples are at risk and needed to take protective measures. These healthcare workers are under physical and mental stress. The lab technicians are at forefront of managing the pandemic are at risk of contracting the disease as it highly contagious in nature.

Sergio Alejandro Gomez-Ochoa, Oscar H franco ed al. 2020 states that the healthcare workers are at increased risk of SARS-Co-2 infection due to their close contact with highly infectious patients**.** This could be even more problematic, considering the poor access to personal protective equipment. Limiting the possibility of designing effective preventive measures to limit the transmission of the virus within the hospital.

Objective of the study

- To examine satisfaction level of the respondents towards health & safety measure.
- To understand the importance of safety in the laboratory.
- To study on safety of the physical facilities in the laboratory.
- To study on how laboratory interact with hazardous substances.
- To understand the satisfactory safety measures taken by the laboratory during COVID-19.

3. Data Analysis and Interpretation

Chi-square

Table showing the significant difference between how you interact with hazardous substances and age

Null hypothesis (H_0) – there is no significant difference between how you interact with hazardous substances and age

Alternate hypothesis (H_1) – there is significant difference between how you interact with hazardous substances and age

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
2. Age * 26. In your laboratory, how often do you interact with hazardous substances such as chemicals, flammable liquids and gases?	116	100.0%	0	0.0%	116	100.0%

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.079[a]	12	.066
Likelihood Ratio	17.285	12	.139
N of Valid Cases	116		
a. 16 cells (76.2%) have expected count less than 5. The minimum expected count is .03.			

Source: primary data

Interpretation

Since p value is less than 0.5, we accept the alternate hypothesis and reject the null hypothesis. Therefore, there is significant difference between how you interact with hazardous substances and age

Table showing the significant difference between safety of physical facility in the laboratory and gender.

Null hypothesis (H_0) – there is no significant difference between safety of physical facility in the laboratory and gender.

Alternate hypothesis (H_1) – there is significant difference between safety of physical facility in the laboratory and gender.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
3. Gender *25. How do you rate the safety of the physical facilities in the laboratory (machinery, equipment, etc)	116	100.0%	0	0.0%	116	100.0%

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.639[a]	2	.036
Likelihood Ratio	6.699	2	.035
N of Valid Cases	116		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.10.			

Source: primary data

Interpretation

Since p value is higher than 0.05, we accept the null hypothesis and reject the alternate hypothesis. Therefore, there is no significant difference between safety of physical facility in the laboratory and gender.

4. Suggestion

- Promote hand hygiene. offer hand laundry station throughout the research laboratory and make sure that hand sanitizer is well equipped and without delay out there.
- Clean and clean often touched surfaces, like instrumentation and cupboard handles. Wear personal protecting instrumentation whereas clean-up. Wipe down reusable PPE after.
- If somebody operating within the research laboratory contracts covid-19, follow the protocols established by the Centres for malady management and bar (CDC).
- Wash your hands often, particularly once contacting unremarkably touched surfaces. Use soap and water, and wash for a minimum of twenty seconds.

5. Conclusion

Laboratory employees, like all health care workers, unit at risk for infectious diseases thanks to in operation with infectious material. bar of unfold of the malady amongst the technicians among the laboratories is to boot necessary. Clinical laboratories unit associate purpose for infected materials. For this reason, safety got to be thought-about altogether laboratory processes. the protection measures that clinical laboratories got to take unit written in line with the danger cluster of microorganisms ostensibly to be

encountered, among the protection tips. Face masks and gloves were the foremost ordinarily used PPE to protect from infections. The pandemic has affected the routine work of the clinical laboratory and has manifested among the variability of take a glance at restriction. Temperature observation and ripping employees into teams can reduce the danger of transmission at intervals the laboratory atmosphere. each laboratories got to asses their risk category then reframe their in operation ways that and guarantee safety of their personal. Adopting commonplace precautions in conjunction with maintaining a good personal hygiene, correct physical distancing, safe handling of laboratory samples, applicable use of personal protective instrumentality and among the proper methodology, correct drugs waste disposal and each one shortcuts can reduce the danger of transmission covid-19 to the laboratory personnel.

References

[1] Abhishek Dubey, Aastha Bansal, Subash Chandra Sonkar, Binita Goswami ed al. 2020 – In-house assembled protective devices in laboratory safety against SARS-nCoV-2 in clinical biochemistry laboratory of a COVID dedicated hospital doi: https://doi.org/10.1101/2020.08.24.20155713

[2] Abrar Ahmad Chughtai, Wasiq Khan 2020 – use of personal protective equipment to protect against respiratory infections in Pakistan : a systematic review Volume 13, Issue 3, pg- 385-390

[3] James H Nichols, Carol A Rauch 2020 – A laboratory risk assessment during the coronavirus (COVID-19) pandemic Volume 5, Issue 4, pg- 808-811

[4] Lena Jafri, Sibtain Ahmed, Imran Siddiqui 2020 – Impact of COVID-19 on laboratory professionals- A descriptive cross sectional survey at a clinical chemistry laboratory in a developing country 57 pg – 70-75

[5] Lotta-maria A.H. Oksanen et al. 2020 – Healthcare workers high COVID-19 infection rate: the source of infections and potential for respirators and surgical masks to reduce occupational infections doi: https://doi.org/10.1101/2020.08.17.20176842

[6] Kuzmina, S Hoyle 2020 – Introduction to challenges for health and safety in research, in challenges for health and safety in higher education and research organisations pp. 1-18 DOI: 10.1039/9781839162497-00001 eISBN: 978-1-83916-249-7

[7] OrcunZorbozan, NergizZorbozan, Nevin Turgay – Biosafety risk assessment of a routine diagnostic laboratory during the coronavirus disease 2109 pandemic 2021 Volume 00, Number 00, 2021 DOI: 10.1089/apb.20.0064

[8] R vinayagamoorthi, Pooja Dhiman, S. Baskaran 2020 – COVID-19 and the clinical chemistry laboratory: experience from a dedicated COVID-19 laboratory Vol 7 Issue 3 pg – 302-306

[9] Sergio Alejandro Gomez-Ochoa, Oscar H franco ed al. 2020 – COVID-19 in health-care workers: a living systematic review and meta- analysis of prevalence, risk factors, clinical characteristics and outcomes Volume 190, Issue 1 pg 161-175

[10] Tze Ping Loh*, Andrea Rita Horvath, Cheng-Bin Wang, David Koch, Khosrow Adeli, Nicasio Mancini, Maurizio Ferrari, Robert Hawkins, Sunil Sethi and Giuseppe Lippi, The International Federation of Clinical Chemistry and Laboratory Medicine Taskforce on COVID-19 - Operational considerations and challenges of biochemistry laboratories during the COVID-19 outbreak: an IFCC global survey 2020 58(9): 1441–1449 https://doi.org/10.1515/cclm-2020-0710

[11] VatsalaMisra, Ranjan Agrawal ed.al. 2020 – Guidelines for various laboratory sections in view of COVID-19: recommendations from the Indian association of pathologists and microbiologists Volume 63 Issue 3 pg- 350-357