

ASSESSMENT OF PERSONAL PROTECTIVE EQUIPMENT (PPE) UTILIZATION AMONG RAPID RESPONSE TEAMS IN FEDERAL CAPITAL TERRITORY ABUJA, NIGERIA

¹Isyaku Jamilu Haladu ²Muhammad Abdullahi Sabo

^{1&5}Maryam Abacha American University Maradi, Niger Republic

¹kusada4life@gmail.com ²likitasabo@gmail.com

Abstract

This paper examined the assessment of Personal Protective Equipment (PPE) utilization among rapid response teams in Federal Capital Territory Abuja, Nigeria. The study was guided by three objectives and three corresponding research questions. This study adopted survey research design. The area of study for this research Federal Capital Territory, Abuja. The target population for this research comprised of all rapid response team in the FCT, Abuja, however, the accessible population comprised of respondents that was be purposively selected on their relevance, knowledge, long time accumulated exposure on various PPE and by implication on public health. The sample size of (400) for this study was determined using Research Advisor (2006 at 95% confidence level of 5% margin of error which determined the sample size of 400. The research adopted a multistage sampling approach to select the sample for this study. Questionnaire was used as instrument for data collection. The research instrument was subjected to validation process by showing the researcher's supervisors and two other experts in the field of Measurement and Evaluation for careful in-depth scrutiny and necessary correction. The categorical data was analyzed using descriptive statistic. The study underscored the critical necessity for focused actions to enhance the acquisition, distribution, and maintenance of PPE for Rapid Response Teams in Abuja. By tackling these difficulties, health organizations can cultivate a safer workplace for personnel, so improving their ability to respond effectively to emergencies and reducing the dangers linked to occupational hazards and infectious diseases. Future study should concentrate on creating comprehensive training programs and efficient procurement methods to enhance PPE adoption in the field of public health and avoid escalation of community transmission on locally endemic and diseases of international concern menace. The study recommended among others that there should be policy frame work on infection prevention and control to all state of federation and to ensure its implementation.

Keywords: Personal Protective Equipment (PPE), Rapid Response Teams, Utilization

Introduction

Health Care Workers (HCW) wear Personal Protective Equipment (PPE) as a physical barrier to prevent the transmission of a disease from a suspected, confirmed, or pathologic case. It has two functions: limiting disease transmission from patients to healthcare personnel and vice versa. Physical barriers include goggles, face shields, fluid-resistant medical or surgical masks, particulate respirators (e.g., powered air purifying and N95 respirators), gloves, disposable gowns, disposable coveralls, waterproof or heavy-duty aprons, waterproof boots, and hoods or head covers when combined with other Infection Prevention Control (IPC) methods (Swan & McDonald, 2020).

PPE protects healthcare personnel against dangerous diseases by restricting their contact with body fluids and breathing droplets. Proper PPE use is one of the most effective ways for protecting both patients and healthcare professionals from transmissible infections. PPE refers to any equipment, device, or substance worn or used by workers to protect themselves against exposure or contact with hazardous material that might cause harm, disease, or even death (McCarthy et al. 2020). Workers use Personal Protection Equipment (PPE) to limit their exposure to various risks. Personal protective equipment (PPE) includes gloves, foot and eye protection, hearing protection (earplugs, muffs), steel helmets, respirators, and full-body suits (Bartkowiak et al., 2021).

First, PPE design is crucial, since the production process must try to optimize user protection while still providing acceptable comfort. Research has shown that inadequate education and training significantly impact PPE compliance. The technique for donning and doffing PPE is critical to the safety of those who wear it. McCarthy et al. (2020). The Importance of Personal Protective Equipment Design, Donning, and Doffing Preventing infection-related harm to patients, health workers, and visitors in health care facilities is critical for quality care, patient safety, and health security, as well as lowering health care-associated infections (HAIs) and antimicrobial resistance (AMR). Similarly, preventing and managing the spread of infectious illnesses that represent a worldwide hazard, such as pandemic influenza, Ebola virus disease, and other viral hemorrhagic fevers, is essential. Clean, safe treatment is a patient's right, and it should be the job and pride of all health care workers: the significance of personal protection equipment design and doing practices in preventing infection and illness spread (Xia et al., 2020).

IPC is a cross-cutting issue in healthcare. Strong, successful IPC systems may enhance treatment quality, increase patient safety, and safeguard all healthcare providers. (Minimum standards for infection control, WHO, 2019) The proper use of personal protective equipment (PPE) is crucial in lowering the risk of exposure. Other dangerous illnesses, such as Ebola, need proper PPE selection, use, and doffing to limit exposure risk (Hindawi, 2021). A collection of clinically applicable policies, procedures, and guidelines supports infection prevention and control (IPC) by providing structure to the IPC process. Evidence suggests that stricter adherence to IPC rules, procedures, and guidelines by healthcare workers (HCWs) could prevent a

significant portion of HCAs. Globally, compliance is considered unsatisfactory and unlikely to improve (Awekeya, 2019).

Healthcare settings must adhere to processes and protocols known as "controls" to prevent viral transmission. We rank the efficacy of Infection Prevention and Control (IPC) as follows: administrative controls, environmental and engineering controls, and personal protective equipment (PPE). Although PPE is the most obvious control for transmission prevention, it must work in tandem with administrative and engineering measures. PPE must be properly selected and utilised in a safe way, especially while putting on and removing PPE and decontaminating PPE components. It is vital that health staff constantly apply conventional precautions when caring for all patients, regardless of diagnosis.

Policymakers, employers, managers, and health workers themselves all prioritize protecting the health and well-being of health workers in the workplace, including the provision of hand hygiene and adequate personal protective equipment. We expect employers to make the most significant provisions to safeguard their employees' health and safety. An adequate risk assessment, based on patient interaction and the possibility of blood splash, should guide the selection of face PPE. The proper selection, usage, and maintenance of any of the aforementioned personal protective equipment is critical to its success. When doing a relevant risk assessment and applying PPE, follow the Health and Safety Executive's (1998) guidelines. Furthermore, PPE supplies should be located as close to the usage site as possible. To prevent cross infection, hand disinfection should be the final step after applying any sort of PPE.

Gloves are regarded as a conventional infection control precaution when the user is at danger of coming into contact with blood or other body fluids. However, various investigations and scholarly remarks have highlighted a lack of attention to this element of infection management. Shimokura et al. (2006) found that, despite frequent exposure to blood throughout the operation, haemodialysis professionals did not comply with the use of gloves as personal protection equipment. This study found that more staff-specific training was necessary to enhance awareness and comprehension of the potential dangers. When choosing PPE, it is important to evaluate the danger of pathogen transmission to the patient or to the career, as well as the potential of contamination of healthcare workers' (HCW) clothing and skin by patients' blood, bodily fluids, secretions, and excretions. We should educate everyone involved in delivering care on basic principles and teach them to wear personal protective equipment (PPE). Every care facility should have a sufficient supply of disposable plastic aprons, single-use gloves, and face masks available.

According to Casanova et al. (2008), they evaluated the possibility of viral transmission from personal protective equipment to healthcare workers' skin and clothes. The CDC addressed the issue of hand and garment contamination during PPE removal by providing a methodology for suggested PPE removal (Siegel et al. 2007).

Patient interaction and the potential for blood splash will establish an adequate risk assessment, which should guide the choice of face PPE. Taking adequate precautions in health

facilities can help reduce the risk of healthcare worker infection. Personal protection equipment (PPE) such as a gown, gloves, facemask, and face shield or goggles are generally required for this task. Careful donning and doffing of this equipment remains a crucial defensive measure, but it needs substantial training and supervision. (Chersich et al. 2020) Healthcare workers may be exposed to bodily fluids carrying illnesses. Diseases caused by a range of microbes, including Hepatitis B virus (HBV), Hepatitis C virus (HCV), Ebola virus, and Human Immunodeficiency Virus (HIV), can have serious consequences for life and health. Health care professionals who attend to, receive, collect samples from, or care for suspected or confirmed cases of hemorrhagic fever-related disorders must be well trained and competent in infection control and preventive techniques. PPE that completely covers the skin and clothes protects the mucous membranes from discharges and splashes, and requires the presence of a well-trained observer or supervisor at all times to verify that all processes and procedures for wearing and doffing PPE are properly followed. To comply with infection control and prevention standards, health care managers and other industry leaders have established PPE rules such as the use of masks, face shields, and gowns (Lynch, 2009).

PPE use is rational and appropriate for all health care workers, and it must be based on risk exposure assessment, such as the type of activity or task, and pathogen transmission dynamics, particularly when dealing with Hemorrhagic fever victims. At all times, we must strictly follow all necessary protocols for IPC procedures. (CDC, 2000). The Centre for Disease Control provides a list of steps for how to effectively and safely put on PPE gear; 1 Assemble, the CDC (2000) defines personal protective equipment (PPE) as "technical methods, processes, techniques, tools, and materials that prevent work-related injury, illness, and death" (CDC, 2008). The CDC issued Standard Precautions, a set of recommended infection prevention and control (IPC) procedures for the use of [PPE] (Siegel, et al., 2007). When implemented appropriately, Standard Precautions have been demonstrated to lower the number of HAIs (Gupta, et al, 2014).

In the midst of Sub-Saharan Africa's HIV pandemic, occupational risk is both real and serious, according to Prüss-vstün et al. (2008), developing nations have the greatest incidence of both HIV infection and needle stick injuries, supporting this Orji (2002), needle stick injuries were the most prevalent occupational health hazard documented in a Nigerian teaching hospital. According to the World Health Organisation (2003), around 3 million incidents of needle stick injury (NSI) occur among healthcare professionals each year, with poor nations accounting for 90% of them. Poor technique, inexperience, and insufficient use of personal protective equipment (PPE) put nursing students at increased risk of needle-stick injury (NSI) (Ofili et al., 2003). The fact that blood and other body fluids from patients are becoming more dangerous to healthcare practitioners has sparked considerable alarm among public health officials and health professionals around the world. Health professionals are increasingly using universal precautions (PPE) to protect themselves from dangerous diseases in the workplace (Bamigboye and Adesanya, 2006).

The incidence of HIV-infected individuals is higher in underdeveloped nations, as is the frequency of needlestick injuries. An average African health care worker sustains a needle injury twice to four times a year. The danger of getting these diseases is increased by the high incidence of blood-borne infections in these nations, low adherence to safety preventive measures, a badly maintained healthcare system, and unfavourable socio-cultural variables (Stam, 2007). The necessity to teach and train a significant number of health care personnel in a timely way has raised concerns. The safe and effective donning and doffing of personal protective equipment (PPE) is an essential component of healthcare professional safety. Appropriate PPE usage lowers the risk of infectious disease transmission to patients, their families, and the general public (Koh, et al., 2011).

Statement of the problem

Poor safety practices are recognized as a major issue in developing countries. As a result, Standard Precautions are frequently observed in order to ensure practitioner compliance (Gessesew & Kahsu 2009). The importance of proper infection prevention and control implementation in healthcare settings cannot be overstated, as there is always a risk of infection spread due to a failure to follow Standard Precautions. Typical example can be seen from COVID-19 pandemic experience in Nigerian Federal Capital city Abuja, the level of risk exposure and the vulnerability of front-line health care workers, in almost all the pillars in the Emergency Rapid Response [RRT] teams, about 70% of the staff have been infected with the virus and their immediate family members, which is closely related to the lack of adherence to basic principles of IPC and the proper use of PPE at the beginning of the pandemic. Later, the Incidence Action Plan [IAP] was created with the activation of Rapid Response Teams for the pandemic, and it was launched by the Hon Minister of Federal Capital Territory with the following teams of action; Coordination, Infection Prevention and Control [IPC], Laboratory Services, Social mobilization and risk communication, Research, Safe and dignified burial, Case management, Health and safety, Vaccination.. Apparently, due to the nature of Abuja as a national capital city, visitors are coming to the town every minute, from all nooks and corners of the country, and trans-border activities with neighboring countries as an African giant. As a result of the aforementioned factors, there is a high risk of infection transmission and cross-contamination via this route to Abuja. Despite the implementation of infection control programs, the correct and consistent application of Standard Precautions in developing countries remains a significant challenge (Akagbo et al., 2017).

Unfortunately, Nigerian health facilities are frequently plagued by insufficient funding, inadequate facilities, and poor environmental conditions such as a lack of regular running water for safety practices. The hardest hit are those in rural communities, where there is also a lack of staff serving a large population with some negative cultural influences (Gerbending, 2004).

Research Questions

The following research questions are drafted to guide this study:

- What is the level of awareness and knowledge regarding Personal Protective Equipment (PPE) Among Rapid Response Team members in the Federal Capital Territory, Abuja, Nigeria?
- What are the factors influencing PPE utilization among Rapid Response Teams in Abuja, including availability, accessibility, and training?
- What are the common challenges faced by Rapid Response Teams in Abuja regarding PPE procurement, distribution, and maintenance?

Literature Review

Personal protective equipment (PPE)

The use of personal protective equipment (PPE) is an important strategy to prevent occupational injuries and illnesses resulting from exposure to workplace hazards.¹(Nankongnab, et al., 2021). Employers must conduct workplace hazard assessments to identify the type of protective apparel, engineering controls, and safe work practices that are required, as well as providing training and equipment. Employees are responsible for acting safely in accordance with the equipment and training they have received. One of the most significant methods for protecting workers' health and safety in the workplace against potential risks or hazards is the use of PPE (Balkhyour, et al., 2019). In this regard, numerous institutions across a wide range of industries have begun to develop suitable workplace health and safety requirements, the most important of which is the official approval of workers' use of PPE. This had brought a tremendous impact on the performance of workers apart from its intended goal of protecting workers from potential risks (Reese, 2018).

This is evidenced by an improvement in worker efficiency as a result of increased worker confidence as a result of a sense of security in their workplaces, as well as a reduced rate of employee absenteeism and turnover among those who have adopted proper health and safety measures. PPE such as helmets, gloves, face shields, respirators, dust masks, safety shoes, and safety glasses are often very effective in preventing foreign body, chemical, hot particle, and radiation exposure or impact to various body parts and reducing the severity of exposure or impact when exposure or impact occurs when used and well fitted (Ludy, & Eyre, 2024). Recently, it has been confirmed that about 65% of workers in industries suffer from a high rate of injuries due to poor compliance to PPE use in their workplace. While employers strive to procure and provide PPE as required by legislation for employees, the equipment is not used effectively, and this is further compounded by lack of information about PPE, negative attitudes toward using them, or lack of encouragement from management. Others blame workers' ignorance for the rise in workplace injuries and illnesses (Baye, et al., 2022).

Perceptions on the use of PPEs among workers

Workers from the construction industry have been reported to bear numerous perceptions that shape their knowledge and attitude towards the use of PPEs. The perceptions of workers on PPEs have been reported as both being positive and negative influencers in the adoption and non-adoption of PPE usage among workers (Happy, 2022).

Worker's perceptions on PPE use related to the perceived ease of use of a given PPE as well as the awareness and perceived risk of possible workplace related hazard influenced among mining workers in India. However, majority of workers were reported to be with low-risk perception for hazards such as falling objects, contact with chemicals and sharp objects (Happy, 2022). Happy, (2022) also reported that the safety consciousness and safety knowledge shaped the use of PPE amongst construction workers. However, it has been observed that some of the construction workers tended to think that the use of a single PPE such as goggles or a mask was sufficient enough for their protection for potential work-related hazards (Happy, 2022).

It observed that only 43.75% of workers believed that work place hazards could be prevented by use of PPE. Perceptions on the risk factors of workplace related hazards tend to be influenced by expert knowledge, personal knowledge and their education level (Happy, 2022). For instance, PPEs such as masks and face shields are currently gaining more use in infrastructural development projects due to the perceived ability to minimize the spread of novel Corona virus (covid-19) (Francis, 2021).

Factors affecting usage of PPE

Different factors leading to the use of PPE have been discussed by various scholars. These factors are categorized as; first, organizational factors such as policies and guidelines, feedback and expectations, management measures, education and training programs. Second, individual factors such as attitude towards using PPE, knowledge, socio-demographics characteristics and perception of risks involved. Third, economic or environmental factors such as accessibility and availability. Organizational factors are mostly a responsibility of the employer in ensuring safe working environments and stimulating positive safety behavior among the workers (Harrod, et al., 2020).

According to OSHA (2016), the conduction of trainings and establishment of communication channels on PPE usage between management and their workers is important for ensuring PPE Usage among workers. Regulations on PPE usage, putting in place penalties for PPE non-usage and motivation through awards are important factors that highly influence PPE use among construction workers. Provision of good quality PPEs and clear guidelines and policies are hailed as good tools for promoting on workplace PPE usage among workers (Happy, 2022).

An individual's accident experience, attitude towards the use of PPE, safety knowledge, perceived ease of use of the PPEs and safety consciousness act as some of the reasons that influence construction workers to avoid or use PPE (Happy, 2022). Individual characteristics such as age, experience of the workers and beliefs that younger workers are often at the work place influenced the use of PPEs (Munyua, 2017).

The nature and extent of occupational safety and health regulation in different countries and organization, the level of supervision by safety officers, safety incentives and penalties influence the use of PPEs. It is the responsibility of management in every company or project to lead by

examples to their employees, communicate and promote training programs for the safety of all company employees (Ahamed & Mariappan, 2023).

Methodology

This paper examined the assessment of Personal Protective Equipment (PPE) utilization among rapid response teams in Federal Capital Territory Abuja, Nigeria. This study adopted survey research design. The area of study for this research Federal Capital Territory, Abuja. The target population for this research comprised of all rapid response team in the FCT, Abuja, however, the accessible population comprised of respondents that was be purposively selected on their relevance, knowledge, long time accumulated exposure on various PPE and by implication on public health. The sample size of (400) for this study was determined using Research Advisor (2006 at 95% confidence level of 5% margin of error which determined the sample size of 400. The research adopted a multistage sampling approach to select the sample for this study. Questionnaire was used as instrument for data collection. The research instrument was subjected to validation process by showing the researcher's supervisors and two other experts in the field of Measurement and Evaluation for careful in-depth scrutiny and necessary correction. The categorical data was analyzed using descriptive statistic.

Results and Discussion

Level of awareness and knowledge regarding Personal Protective Equipment (PPE) among Rapid Response Team members in the Federal Capital Territory, Abuja

<i>S/No</i>	level of awareness and knowledge regarding Personal Protective Equipment (PPE)	<i>Mean</i>	<i>SD</i>	<i>Decision</i>
<i>1</i>	I am fully aware of the types of PPE required for different emergency situations	3.69	0.60	Agreed
<i>2</i>	I understand the proper procedures for donning (putting on) PPE	3.41	0.88	Agreed
<i>3</i>	I know the correct methods for removing PPE to avoid contamination	3.22	0.91	Agreed
<i>4</i>	I can identify the specific PPE needed for different levels of biohazard risks	3.24	0.89	Agreed
<i>5</i>	I am confident in my ability to properly inspect PPE for damage or contamination	3.14	0.85	Agreed
<i>6</i>	I am knowledgeable about the proper storage of PPE to maintain its effectiveness	3.12	0.88	Agreed
<i>7</i>	I receive adequate training on PPE use as part of my role in the Rapid Response Team	3.87	1.05	Agreed
<i>8</i>	I am aware of the latest guidelines and regulations on PPE issued by health authorities	3.95	0.94	Agreed
<i>9</i>	I feel confident in my ability to advise others on proper	3.72	1.12	Agreed

	PPE usage during an emergency			
10	I believe that PPE plays a crucial role in protecting myself and others during emergency response situations	3.80	1.22	Agreed
	Grand Mean	3.52	0.93	Agreed

Table 1 shows the Responses on level of awareness and knowledge regarding Personal Protective Equipment (PPE) among Rapid Response Team members in the Federal Capital Territory, Abuja. It is found that the grand mean of 3.52 and SD (0.93) is greater than the cut-off points of 3, implying that the respondents generally agreed with the items assessing their level of awareness and knowledge regarding Personal Protective Equipment (PPE) among Rapid Response Team members. Item-by-item analysis indicates that they agreed with all the items. The conclusion is that majority of the respondents who are aware and knowledgeable regarding Personal Protective Equipment (PPE) among Rapid Response Team members in Federal Capital Territory, Abuja.

Factors influencing PPE utilization among Rapid Response Teams in Abuja, including availability, accessibility, and training

<i>S/No</i>	Factors influencing PPE utilization among Rapid Response Teams	<i>Mean</i>	<i>SD</i>	<i>Decision</i>
11	Availability of PPE affects my ability to consistently use it during emergency responses	3.05	1.09	Agreed
12	The comfort and fit of PPE influence how often I wear it during emergency operations	3.05	1.04	Agreed
13	Adequate training on PPE usage improves my confidence and consistency in wearing it	3.27	0.90	Agreed
14	Time constraints during emergency responses make it difficult to properly wear PPE	3.15	0.85	Agreed
15	Access to proper PPE disposal facilities affects how often I use PPE correctly	3.15	0.94	Agreed
16	Management support and enforcement of PPE protocols influence my adherence to PPE guidelines	3.09	1.01	Agreed
17	The availability of PPE in different sizes impacts how comfortable I feel using it during emergencies	3.99	1.12	Agreed
18	The perceived risk of exposure to hazards influences how strictly I follow PPE guidelines	3.06	0.98	Agreed
19	The quality and durability of PPE provided affect my willingness to wear it during prolonged emergency situations	3.05	0.88	Agreed
20	Peer behavior and compliance with PPE protocols influence my own use of PPE during emergency	2.90	1.09	Disagreed

responses			
Grand Mean	3.08	0.99	Agreed

Condensed data presented in Table 2 shows the responses on factors influencing PPE utilization among Rapid Response Teams in Abuja, including availability, accessibility, and training in Federal Capital Territory, Abuja. It is shown that the grand mean of 3.08 and SD (0.99) is greater than the cut-off points of 3, implying that the respondents generally agreed with the items assessing the factors influencing PPE utilization among Rapid Response Teams in Abuja, including availability, accessibility, and training in Federal Capital Territory, Abuja. Item-by-item analysis indicates that item No 30, each had a mean score of 2.90 and 1.09 which are all below the mean cut off 3. The conclusion is that majority on factors influencing PPE utilization among Rapid Response Teams in Abuja, including availability, accessibility, and training in Federal Capital Territory, Abuja.

Challenges faced by Rapid Response Teams in Abuja regarding PPE procurement, distribution, and maintenance in Federal Capital Territory, Abuja?

<i>S/No</i>	Common challenges faced by Rapid Response Teams in Abuja regarding PPE procurement, distribution, and maintenance	<i>Mean</i>	<i>SD</i>	<i>Decision</i>
21	There are frequent delays in the procurement of PPE for Rapid Response Teams in Abuja	2.87	1.10	Disagreed
22	The quality of PPE provided to our team is often inconsistent	2.93	1.03	Disagreed
23	Our team experiences shortages of PPE during critical emergency responses	2.84	1.01	Disagreed
24	Distribution of PPE to all members of the Rapid Response Team is often delayed	3.95	0.97	Agreed
25	The allocation of PPE is not always aligned with the level of risk faced by different team members	3.65	1.15	Agreed
26	We often face challenges in maintaining adequate stock levels of PPE in Abuja	3.78	1.14	Agreed
27	Our team lacks access to proper training on PPE maintenance and inspection.	3.83	1.23	Agreed
28	The process for replacing damaged or expired PPE is slow and inefficient	3.91	1.14	Agreed
29	There is inadequate funding to ensure timely procurement and distribution of PPE	3.93	1.05	Agreed
30	The current PPE supply chain in Abuja does not meet the emergency demands of Rapid Response Teams	3.60	1.18	Agreed
	Grand Mean	3.83	1.10	Agreed

Collected and analysed data presented in Table 6 shows the responses on common challenges faced by Rapid Response Teams in Abuja regarding PPE procurement, distribution, and maintenance in Federal Capital Territory, Abuja, Nigeria. It is shown that the computed grand mean of 3.83 and SD of 1.10 is greater than the cut-off points of 3, implying that the respondents generally agreed with the items measuring common challenges faced by Rapid Response Teams in Abuja regarding PPE procurement, distribution, and maintenance in Federal Capital Territory, Abuja, Nigeria.

Item-by-item analysis indicates that item No 41, 42, 43 all had a mean cut off less than the accepted cut-off point of 3.00. In conclusion is that majority of the respondents on common challenges faced by Rapid Response Teams in Abuja regarding PPE procurement, distribution, and maintenance in Federal Capital Territory, Abuja, Nigeria.

Discussion

In many different sectors, personal protective equipment (PPE) is now a basic component of workplace safety procedures. Ensuring that their health and safety are not compromised while doing daily activities, the equipment shields workers from risks and exposure to harmful compounds (Niwas, et al., 2023). Items that serve as barriers against physical, chemical, biological, and environmental threats include PPE: gloves, masks, helmets, protective gear, and respiratory equipment. Though its obvious relevance, awareness, and knowledge of PPE usage varies greatly depending on the sector and area. Many research have looked at these variances, pointing up areas where information is weak and where changes are required to guarantee improved compliance and PPE (asgedom, et al., 2019).

Aimed at lower patient mortality and management of clinical deterioration, Rapid Response Teams (RRTs) have become an essential part of acute healthcare environments. Comprising specialised healthcare professionals, these multidisciplinary teams are meant to act fast during pivotal patient events to stop escalation. RRTs do, however, have significant operational and systemic issues that compromise their efficiency notwithstanding their advantages (Jackson, 2017). Rapid Response Teams have various operational issues that must be resolved even if they are quite important in enhancing patient outcomes by reacting fast to critical events. To maximise RRT effectiveness requires effective communication, well defined roles, overcoming cultural opposition, and guarantees of sufficient resources and training. Moreover, maintaining the long-term efficacy of team members depends on their emotional well-being being addressed. By means of ongoing study and focused initiatives, these issues can be reduced to improve the general effect of RRTs in healthcare environments. Any effective team operation is based on communication, particularly in situations where time is of the essence like quick responses. One of the most important obstacles to the team's performance is misinterpretation among RRT members and other healthcare professionals (Herdrich, 2019).

In critical events, poor communication can cause delays in the timely delivery of treatment since unclear or insufficient messages usually result in misunderstanding.

Conclusion

The evaluation of Personal Protective Equipment (PPE) usage Among Rapid Response Teams in Abuja, Nigeria, highlights the essential importance of knowledge, accessibility, and training in guaranteeing the safety and efficacy of emergency response operations. The study indicates a diverse level of awareness and understanding of PPE across team members, with many recognizing its significance in mitigating occupational hazards. Significant deficiencies in consistent use practices were observed, mostly attributable to obstacles associated with low supply, procurement difficulties, and insufficient instruction on appropriate PPE usage. This study underscores the critical necessity for focused actions to enhance the acquisition, distribution, and maintenance of PPE for Rapid Response Teams in Abuja. By tackling these difficulties, health organizations can cultivate a safer workplace for personnel, so improving their ability to respond effectively to emergencies and reducing the dangers linked to occupational hazards and infectious diseases. Future study should concentrate on creating comprehensive training programs and efficient procurement methods to enhance PPE adoption in the field of public health and avoid escalation of community transmission on locally endemic and diseases of international concern menace.

Recommendations

- To provide policy frame work on Infection prevention and control to all state of federation and to ensure its implementation.
- Direct all the state of federation for the reactivation of rapid response pillars and issue guidelines that align with international best practices.
- Partnership with academic community on research for new insight and innovation skills in infection control and prevention mechanism include PPE use.

References

- Akagbo, S. E., Nortey, P., & Ackumey, M. M. (2017). Knowledge of standard precautions and barriers to compliance among healthcare workers in the Lower Manya Krobo District, Ghana. *BMC research notes*, 10, 1-9.
- Awekeya, H. E. C. T. O. R. I. A. (2019). *Knowledge, Attitudes and Compliance with Infection Prevention and Control Practices Among Nursing and Medical Laboratory Science Students in Koforidua* (Doctoral dissertation, University of Ghana).
- Bartkowiak, G., & Miśkiewicz, P. (2021). Analysis of Underwear Used with Protective Clothing Worn by Metallurgy Workers and Welders—Research Survey. *Fibres & Textiles in Eastern Europe*, (5 (149)).
- Bartkowiak, G., & Miśkiewicz, P. (2021). Analysis of Underwear Used with Protective Clothing Worn by Metallurgy Workers and Welders—Research Survey. *Fibres & Textiles in Eastern Europe*, (5 (149)).

- Baye, B. F., Baye, M. F., Teym, A., & Derseh, B. T. (2022). Utilization of personal protective equipment and its associated factors among large scale factory workers in Debre Berhan Town, Ethiopia. *Environmental Health Insights*, 16, 11786302221102324.
- Chersich, M. F., Pham, M. D., Areal, A., Haghghi, M. M., Manyuchi, A., Swift, C. P., & Hajat, S. (2020). Associations between high temperatures in pregnancy and risk of preterm birth, low birth weight, and stillbirths: systematic review and meta-analysis. *bmj*, 371.
- Francis, M. (2021). An Assessment of The Knowledge, Risk Perception, Public Trust and Preventive Practices Among Construction Workers Towards Covid-19 (Doctoral dissertation, Institute of Petroleum Studies-Kampala).
- Gessesew, A., & Kahsu, A. (2009). Occupational exposure of health workers to blood and body fluids in six hospitals of Tigray region (August 1-30, 2006): magnitude and management. *Ethiopian medical journal*, 47(3), 213-219.
- Gupta, R. K., Patel, A. K., Shah, N., Choudhary, A. K., Jha, U. K., Yadav, U. C., ... & Pakuwal, U. (2014). Oxidative stress and antioxidants in disease and cancer: a review. *Asian Pacific journal of cancer prevention*, 15(11), 4405-4409.
- Happy, P. M. (2022). *An Assessment of The Level of Personal Protective Equipment Usage Among Employees in Road Construction Projects* (Doctoral dissertation, Institute of Petroleum Studies-Kampala).
- Harrod, M., Weston, L. E., Gregory, L., Petersen, L., Mayer, J., Drews, F. A., & Krein, S. L. (2020). A qualitative study of factors affecting personal protective equipment use among health care personnel. *American Journal of Infection Control*, 48(4), 410-415.
- Koh, Y., Hegney, D. G., & Drury, V. (2011). Comprehensive systematic review of healthcare workers' perceptions of risk and use of coping strategies towards emerging respiratory infectious diseases. *International Journal of evidence-based Healthcare*, 9(4), 403-419.
- Ludy, S., & Eyre, A. J. (2024). Personal Protective Equipment. In *Ciotton's Disaster Medicine* (pp. 323-329). Elsevier.
- Lynch, J. P. (2007). Roots of the second green revolution. *Australian Journal of Botany*, 55(5), 493-512.
- McCarthy, C. P., Murphy, S., Jones-O'Connor, M., Olshan, D. S., Khambhati, J. R., Rehman, S., & Wasfy, J. H. (2020). Early clinical and sociodemographic experience with patients hospitalized with COVID-19 at a large American healthcare system. *EClinicalMedicine*, 26.
- Nankongnab, N., Kongtip, P., Tipayamongkholgul, M., Silpasuwan, P., Kaewboonchoo, O., Luksamijarulkul, P., & Woskie, S. (2021). Occupational hazards, health conditions and personal protective equipment used among healthcare workers in hospitals, Thailand. *Human and Ecological Risk Assessment: An International Journal*, 27(3), 804-824.

- Ofili, A. N., Asuzu, M. C., Isah, E. C., & Ogbeide, O. (2004). Job satisfaction and psychological health of doctors at the University of Benin Teaching Hospital. *Occupational medicine*, 54(6), 400-403.
- Reese, C. D. (2018). *Occupational health and safety management: a practical approach*. CRC press.
- Shimokura, R., Akasaka, S., Nishimura, T., Hosoi, H., & Matsui, T. (2017). Autocorrelation factors and intelligibility of Japanese monosyllables in individuals with sensorineural hearing loss. *The Journal of the Acoustical Society of America*, 141(2), 1065-1073.
- Siegel, J. D., Rhinehart, E., Jackson, M., Chiarello, L., & Health Care Infection Control Practices Advisory Committee. (2007). 2007 guideline for isolation precautions: preventing transmission of infectious agents in health care settings. *American journal of infection control*, 35(10), S65.
- Stam, E. (2007). Why butterflies don 't leave: Locational behavior of entrepreneurial firms. *Economic geography*, 83(1), 27-50.
- Swan, J., & McDonald, M. (2020). Infection Control Training for New York State Healthcare Professionals.
- Xia, F., Xiao, Y., & Ma, J. (2024). The optimal spatially-dependent control measures to effectively and economically eliminate emerging infectious diseases. *PLOS Computational Biology*, 20(10), e1012498.