

EVALUATION OF SIMULATION EXERCISE AND DRILLS IN RESPONSE TO COVID-19 IN PAKISTAN

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ABSTRACT

An evidence-based assessment for the monitoring, testing, and development of functional capacity to respond to outbreaks and public health emergencies is provided through simulation exercises, which are training and quality assurance tools. It is crucial for creating and using preparedness and response capabilities at different levels like national, regional, community, and global. The disease COVID-19 is brought on by a new corona virus strain that affect the humans through zoonotic transmission. To prepare Pakistan in advance for this emergency a simulation exercise needed to occur. Keeping in view the guidelines of International Health Regulations (IHR), a proactive approach is adopted by National Institute of Health (NIH) to counter the spread of Covid-19 in Pakistan. As a part of this response plan, a functional simulation exercise is planned in Pakistan on January 29, 2020 and onwards. The exercise is developed and implemented by National Institute of Health Islamabad Pakistan as per W.H.O guidelines. Capacity building of workforce (including health workforce) for timely detection, prevention and response to covid-19 on all point of entries in Pakistan. Method: In this quantitative study, 200 participants were included from airports and point of entries. A validated questionnaire was sent online. Results: Majority of employees had been provided PPE's and they faced certain challenges in performing their duty regarding COVID 19. Results Participants were mainly satisfied with the training provided and the realistic scenario. The findings of the study also highlighted that all respondents obtained simulating exercise regarding Thermal screening of travelers, Triage, Shifting of suspected cases to hospitals, Infection prevention & control (IPC). Conclusion: Simulation exercise proved beneficial to upgrade the skills of staff to interact with the passenger by adopting all safety well.

Keywords: Simulation exercise, Point of entries, Covid-19

INTRODUCTION

The disease COVID-19 is brought on by a new coronavirus strain which is related to the virus that causes some kinds of the common cold and Severe Acute Respiratory Syndrome (SARS) (Unicef, 2020). When it comes to the number of people who contract the disease, the number who die, and the extraordinary demand for medical services, COVID-19 appears to be the worst infectious disease pandemic in a generation (Christine S.M. Currie, 2020).

Due to geographical boundaries, trading and frequent movement of people between Pakistan and China, Pakistan was at high risk of transmission of this disease. Pakistan is a developing country and this outbreak can badly affect the economic state of the country. Keeping in view the guidelines of International Health Regulations (IHR), a proactive approach is adopted by NIH to counter the spread of Covid-19 in Pakistan. As a part of this response plan, a functional exercise is planned in Pakistan on 29.1.2020 and onwards. The exercise is developed and implemented by National Institute of Health Islamabad Pakistan as per W.H.O guidelines.

The main purpose of this exercise was to:

- Test the national and provincial contingency plans on covid-19 and standard operating procedures (SOPs).
- Familiar participants with the roles and duties of the various stakeholders from diverse backgrounds who are involved in the prevention, mitigation, and response to a potential COVID-19 pandemic.
- In light of a potential covid-19 outbreak in Pakistan, evaluate and identify the strong and weak areas in terms of coordination and collaboration mechanisms, emergency response deployment, logistics and administrative processes, risk and crisis communication (RCC), emergency management, and leadership systems.
- To increase the capacity of workforce (including health workforce) for timely detection, prevention and response to covid-19.
- Health system strengthening in response to public health emergencies of international concern.
- Strengthening of Cross sectoral and intersectoral collaboration.

The scope of this simulation exercise was to:

- To train the staff (CHE and CAA) at Points of Entry (POE) on timely detection, prevention and response to Covid1-19 through simulation exercises and on field training
- To train the staff at tertiary care public sector teaching hospitals on timely detection, prevention and response to Covid-19 through simulation exercises and on field training. Participants will examine the procedures followed in reacting to these incidents, from the sending out of an investigation team to the announcement of the epidemic's conclusion.

This exercise has the following objectives:

1. Assess the use of Integrated Disease Surveillance & Response (IDSR) mechanisms at points of entry with emphasis on Airports of Pakistan and Pak China border at Khunjrab (Gilgit Baltistan) and Taftan (Balochistan) Pakistan
2. Examine the communication lines between various industries and nations, the command and control systems, and the mechanisms for information exchange (such as the activation of the EOC emergency structure, incident management systems (IMS), and PDSRUs).
3. Assess the deployment of rapid response teams (RRT);
4. Validate the activation and deployment of thermal scanners for detection of covid-19.
5. Assess cases investigation and management and functionality of tertiary care health facilities during a large-scale outbreak of a covid-19
6. Develop and practice SOPs for pandemic preparedness and risk & crisis communication including community engagement;
7. Evaluate selected preparedness and response measures at Airports in Pakistan and land crossing at Khunjrab and Taftan.
8. Take note of best practises and make sure that any lessons learnt are applied to upcoming events.

A specific number of tasks are carried out by the participants throughout the drill in order to test the functionality or operations of an emergency response.

Personal protective equipment (PPE) donning and doffing, chlorine solution preparation, blood sample collection and handling (pre-analytic phase), terminal disinfection and waste management at healthcare facilities, vehicle disinfection, data management, analysis, and interpretation, and reporting are among the operations that were put to the test.

Functions tested include, Triage, detection of suspected case, case management, referral and risk communications.

The following background information will help us to identify the current state of Covid-19 pandemic in Pakistan and how this simulation exercise seems effective towards the pandemic.

Background of conduction simulation exercise

The first case of Covid-19 was identified in China (Hubei Province) on November 17, 2019. (Bryner, 2020) Later on, most cases were noted in Wuhan city of China. Wuhan city was placed under lockdown which was actually a combination of local and personal quarantine measures to contain the virus, and by mid-February, the number of cases in China had stabilised at about 80,000. (Bryner, 2020). On January 30, 2020, for the first time, the epidemic was officially considered as a Public Health Emergency of International Concern. (WHO) By then, global air transport had already carried the virus to all continents recognized as a pandemic by the World Health Organization on 11 March 2020. (Stefan

Gossling, 2020). As of 23 March 2020, coronavirus (COVID-19) had infected more than 294,110 people in 187 nations, killed 12,944 people by rapidly spreading over the world (A.Lee, 2020). Till May 15, 2020 around the globe 4,307,287 cases tested positive for Covid-19 and 2,95,101 confirmed deaths has been occurred. In Pakistan, 37,218 cases tested positive for covid-19 and 803 being as fatal. (WHO)

METHODS

In this quantitative study, 200 participants were included 13 airports, 4 land crossing and 2 sea ports in Pakistan. A validated questionnaire was sent online to all participants. Inclusion criteria for the study participants were all the staff nominated by the Airports and POE's authorities for the exercise and drills. Both male and female staff between the ages of 18-58 years were employed in the study. Primary till Post graduate level individuals with temporary or permanent job statuses were inducted in the study. Those who participated in trainings were inducted in this study.

RESULTS

Table No. 1: Frequency & Percentage of male and female respondents and their age group

	<i>F</i>	%
Gender		
Male	138	69.0
Female	62	31.0
Age		
18-28 Yr	30	15.0
29-38 Yr	132	66.0
39-48	35	17.5
49- 58	3	1.5
Education		
Primary	1	.5
Secondary	23	11.5
Bachelors	117	58.5
Post-graduation	59	29.5
Marital Status		
Married	146	73.0
Unmarried	48	24.0
Other	6	3.0

The demographic information of the response dents in table 1 stated that among 69% of male and 31% of female participated in the study, 66% were in age group of 29-38 years, followed by 17.5% belonged to age group 39-38 years, 15% were under 18-28 age group and only 1% were above 49 years of age. Regarding their marital status the data shows 73% were married and 24% were single.

Table No. 2: Frequency & Percentage of male and female respondents and their age group

	<i>F</i>	%
Employment status		
Temporary	84	42.0
Permanent	116	58.0
Job Title/designation		
Airport janitorial staff	11	5.5
ASF Airport security force	46	23.0
CHE Central health establishment	51	25.5
Immigration desk	4	2.0
Medical	11	5.5
POE point of entry	77	38.5
Personal Protective Equipment (PPE) available		
Yes	148	74.0
NO	52	26.0

Table 2 indicated that majority (58%) of the respondents were working as permanent employee on various position. Majority (38.5%) were working as operational staff at Point of Entry at the airport,

followed by 25.5% working in Central Health Establishment 23% working as Airport security force, 5% were working as Airport janitorial staff and Medical staff, whereas 2% were working at Immigration desk. Furthermore, the findings also indicated that majority of the employee had Personal Protective Equipment (PPE) to protect themselves against any infections OF COVID-19. The PPE includes Mask, Gloves, Hand sanitizer, Gown, Head cover, Shoe cover, Tyvex suit.

The findings of the study also highlighted that all respondents were obtained simulating exercise regarding Thermal screening of travelers, Triage, Shifting of suspected cases to hospitals, Infection prevention & control (IPC). However, they had also faced some challenges with respect to coordination and communication with passengers and administration, timely detections, emergency and logistics management etc. despite such barriers, all of the respondents were actively engaged with all types of simulation exercises seem beneficial to full fill their job responsibilities efficiently.

Table No. 3: Mean and Standard Deviation of respondents experience with simulation exercise.

Statements	Minimum	Maximum	Mean	Std. Deviation
The exercise was well structured and organized	3.00	5.00	4.2950	.64033
The scenario was realistic	3.00	5.00	4.2650	.66103
Briefing before exercise motivated me towards the activity	3.00	5.00	4.2900	.64652
Exercise was helpful in recognizing our response systems	3.00	5.00	4.2950	.59981
Exercise was helpful in making plans	3.00	5.00	4.3100	.59639
Exercise helped me to understand my role and function during an emergency response	3.00	5.00	4.3050	.61143
Exercise helped me to recognize my strengths in response to system, plans and procedures	3.00	5.00	4.3350	.58694
Exercise helped me to recognize my gaps in response to system, plans and procedures	3.00	5.00	4.2700	.60741
At the end of exercise, I am better prepared for health emergency	3.00	5.00	4.3500	.60774

The mean values of each statement in the above table indicated that participants were satisfied with the simulation exercises conducted at airports for the front line staff to do screening of the passenger. The exercise was timely organized in a very structured manner to deal with the real life situations. Staff’s efficient response towards understanding the emergency situation and playing their role and responsibilities efficiently was also the result of these simulation exercise. Moreover it is also indicated that respondents feel themselves prepared to deal with health emergency as simulation exercise build up their abilities by following proper planning and procedures required to be followed. The highest mean value (4.35) on participants response about their preparedness for health emergency indicated that simulation exercise were productive and convenient.

Table No. 4. Correlation between simulation exercise and respondents’ satisfaction

	r	p
Correlation between structured of simulations and respondents’ satisfaction	.755**	.000

Table 4, highlighted the strong and significant correlation between the well-structured realistic simulation exercise and the respondent’s stratification to have useful and productive exercise.

DISCUSSION

The findings of the study demonstrated simulation exercises for airport staff to screen passenger for COVID-19 detection were timely organized in a very realistic and structure way. The Airport employees with different ranks had actively participated in the simulation exercises such as Thermal screening of travelers, Triage, Shifting of suspected cases to hospitals, Infection prevention & control (IPC).

Pang et al., (2014) stated PPE enhance employee and patient safety, for that front line contact person must be trained how to use it and how it dispose of properly. Therefore simulation exercise for the staff is important consideration taken by the government and other institutions. The findings of this study highlighted the same where employees were provided Personal Protective Equipment (PPE) such as Mask, Gloves, Hand sanitizer, Gown, Head cover, Shoe cover, Tyvex suit. Casanova et al, (2008) supported the statement by highlighting the importance of PPE to protect from infectious agents of COVID to enter into body. Failure to use PPE and its proper disposal can lead to harmful consequences of it spread.

Furthermore, employees' satisfaction with simulation is also important to be evaluated. The findings of the study depicted that respondents were satisfied with the timely structured trainings to enhance their skills to deal with passenger at airports. All of the respondents having varied designation were highly satisfied with the simulation exercise conducted by the government. Thanks to the simulation exercise which not only helped people to gain a better understanding of their roles and responsibilities during an emergency response but also enables them to recognize their strengths in response to system, plans and procedures. Respondents perceived such simulation helpful in recognizing the strengths and weakness of their response systems and through on-site training their skills enhanced to deal with emergency situations.

CONCLUSION

Simulation exercises for the airport staff during COVID-19 pandemic were useful to upgrade their skills to interact with the passenger by adopting all safety measures. Screening the passenger and avoid physical contact with them was the prime focus of the simulations for which all frontline staff working on various position were given training by the government. Timely and well-planned organization of the simulations benefited the employees to adopt all protective measures and learned how to deal with the passengers. It enabled them to enhance their abilities to perform their jobs' responsibility more proficiently without any hazardous dread.

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