MEDICAL SCIENCE

To Cite:
Samman A, Al-Raddadi R, Qumri F, Hassan A, Alzhrani W, Alghamdi O, Alsahafi A, Algarni H, Bakhsh Y, DaffaAllah Z, Elshafey E, Felimban M, Aljoiher T, Albaloshi A, Alhelali H, Saad Z, Abushanab R, Alghamdi M, Ageeli F, Alraqqas S, Aljoni F. Infectious disease control at an international airport: Ebola virus mock drill. *Medical Science* 2023; 27: e381ms3247
doi: https://doi.org/10.54905/disssi.v27i141.e381ms3247

Authors' Affiliation:
[1]Health Surveillance Center at King Abdul-Aziz International Airport in Jeddah/Ministry of Health, Jeddah, Makkah, Saudi Arabia
[2]Department of Public Health/King Abdul-Aziz University, Jeddah, Makkah, Saudi Arabia
[3]Jeddah Health Affairs/ Public Health Department, Jeddah, Makkah, Saudi Arabia
[4]Ports administration/Ministry of Health, Riyadh, Saudi Arabia
[5]Medical Fakeeh, Jeddah, Makkah, Saudi Arabia

[*]**Corresponding Author**
Health Surveillance Center at King Abdul-Aziz International Airport in Jeddah/Ministry of Health, Jeddah, Makkah, Saudi Arabia
Email: ahmedih@moh.gov.sa, ahmad06@msn.com

Peer-Review History
Received: 20 September 2023
Reviewed & Revised: 23/September/2023 to 10/November/2023
Accepted: 14 November 2023
Published: 21 November 2023

Peer-review Method
External peer-review was done through double-blind method.

Medical Science
pISSN 2321–7359; eISSN 2321–7367

DISCOVERY
SCIENTIFIC SOCIETY

Infectious disease control at an international airport: Ebola virus mock drill

Ayman Samman[1], Rajaa Al-Raddadi[2], Fahd Qumri[1], Ahmed Hassan[1*], Wael Alzhrani[1], Osama Alghamdi[1], Abdullah Alsahafi[3], Hamoud Algarni[4], Yasser Bakhsh[4], Zahir DaffaAllah[4], Elsayed Elshafey[5], Mohammed Felimban[1], Tariq Aljoiher[1], Anas Albaloshi[1], Hamad Alhelali[1], Zyad Saad[1], Rafat Abushanab[1], Mohammed Alghamdi[1], Faisal Ageeli[1], Sultan Alraqqas[4], Fahad Aljoni[1]

ABSTRACT

Introduction: International air travel is now a significant factor in transmitting public health threats, such as the Ebola virus. Thus, airports have become the first line of public health defense for many countries, and authorities have organized public health response plans to identify infectious cases and process them appropriately. *Methods:* To maximize the speed and efficiency of infectious disease detection and response, the health surveillance center at King Abdulaziz International Airport in Jeddah, Saudi Arabia, has formulated response measures that operate at three levels. The responders involved carry out regular drills to practice the screening, isolation, transfer and disinfection processes involved. *Results:* This paper describes a practice drill with the scenario of an Ebola case arriving at the airport. The study provides an analysis of the drill outcomes and recommendations for good practice. The drill highlighted the importance of participants' roles and it achieved its objective of increasing airport stakeholders' awareness of current public health threats. The need for better coordination and communication was among the shortcomings the drill helped to identify. *Conclusion:* The drill review presented here highlights the need to maintain health professionals' knowledge of, and confidence in responding to, international transmission of infectious disease. This requires stakeholders to share knowledge. Respondents with non-medical backgrounds can learn much about contagious diseases from medical teammates, but this paper also identifies learning opportunities for clinicians. Careful planning, particularly of a safe route within the airport, is critical.

Keywords: Mock drill, airport, infectious disease

1. INTRODUCTION

With globalization has come a boom in international travel, which has become a significant factor in the spread of infectious diseases. People are now traveling the globe by air in unprecedented numbers Kimball, (2016) and international hubs that receive large volumes of traffic from all over the world are the first line of defense against public health (PH) threats, mainly when those threats take the form of global pandemics or outbreaks of infectious disease. Implementation of the World Health Organization's International Health Regulations (IHR) in 2005 sought to minimize the spread of diseases between countries. The IHR set out the responsibility for containing disease transmission that falls to all countries that are signatories to the regulations.

Most pandemics share the characteristic of unpredictable transmission (World Health Organization, 2008). The world has learned many lessons about pandemics in the past couple of decades — from the SARS pandemic that spread to 29 countries in 2003 and the H1N1 virus that affected 208 countries in 2009 to the spread of the Ebola virus to many African countries and, in 2014, the United States. Since 2002, the SARS-Cov-2 coronavirus has had global medical and economic effects. All of these have indicated that international airports, as potential modes of transmission, must prepare for their roles in reducing the risk to public health threats to public health. These risks include infectious diseases (Martin and Boland, 2018).

Current Preventive Procedures in the Kingdom of Saudi Arabia

King Abdulaziz International Airport (KAIA) in Jeddah City is among the most important airports in the Kingdom of Saudi Arabia. It is near Makkah and Madinah, the holy cities of the Islamic religion to which many Muslims practice Islamic pilgrimage. The airport has over 37 million travelers annually from around the world, many of whom attend Hajj and perform religious practices in crowded places. Preventing the entry of infectious diseases through KAIA is a priority for the Saudi Government and its Ministry of Health. Through its Health Centers of Surveillance and Prevention at KAIA, the Ministry of Health has developed and published guidelines for PH emergencies. The Ministry wants to ensure the airport is always ready to deal with any PH threat. At KAIA the approach to PH protection has three stages. These are:

Constant readiness: This involves the preparation and provision of all resources, facilities, and equipment that are needed at KAIA for the airport to fulfill its surveillance and response activities under IHR regulations. Thus, it is always equipped to prevent or reduce the risk of any PH emergency.

Early warning: When a domestic or global PH threat is announced, the airport must collect information, develop a training drill, ensure the adequacy of relevant stock, and take preventive measures.

Response (action): This stage comprises the airport's real-time response. It must act promptly and effectively with complete coordination between all stakeholders involved and implement the urgent, effective communications required for the management of the emergency. The three-stage approach is illustrated in (Figure 1).

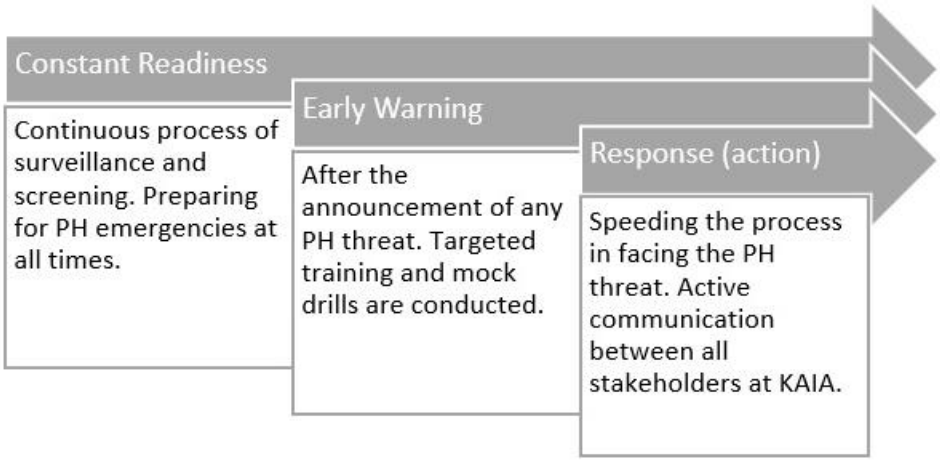

Figure 1 Public Health emergency stages at KAIA in Jeddah.

Many challenges are involved in maintaining smooth traffic flow at an airport. Air transport processes limit the time available for risk assessment. Risk assessment may be more or less complex depending on the flight paths, environmental conditions and the number of passengers involved.

Mock drill

When implementing the three-stage approach shown in Figure 1, KAIA carries out mock drills as part of its second-stage duty. Thus, when the re-emergence of the Ebola virus in Africa was announced in 2022, airport health staff prepared for the arrival of any suspected case. Healthcare training is a core practice at the airport, and by conducting mock drills in light of potential new PH threats (in the case of the drill described here, the re-emerging Ebola virus), KAIA airport stakeholders gain a clear understanding of what to do in an emergency and can evaluate mistakes and identify areas for improvement (Reilly and Markenson, 2011). The objectives of the mock drills conducted at KAIA are:

To establish a systematic plan for managing any suspected infectious disease case.

To update relevant disease control information, train and evaluate the staff involved.

To ensure that any genuine patients would have the best possible chance of survival while also ensuring that contact with other passengers is minimized, through robust responses.

To ensure open communication with and between stakeholders (such as airport managers, airline companies, customs, and passport authorities) at KAIA airport.

To objectively evaluate each new response (drill) for constant improvements.

In this paper, we present a study of a single drill at KAIA. We evaluate the outcomes of the drill and its relevance to the broader issue of mitigating public health risk. We also present recommendations for the further development and success of policies to reduce disease transmission via travel hubs.

2. MATERIALS AND METHODS

Upon discovering a highly infectious disease case at KAIA, the airport's primary goal is to transfer that individual to a medical institution while minimizing contact with other passengers. Figure 2 shows the steps implemented at KAIA to ensure the safety of the patient, other passengers, and health workers dealing with the suspected case. Based on the World Health Organization's 2014 guidelines for Ebola at points of entry and the 2005 IHR guidelines Word Health Organization, (2014), these steps can be summarized as screening, identifying the case, isolation, communication and notification, transfer, and disinfection.

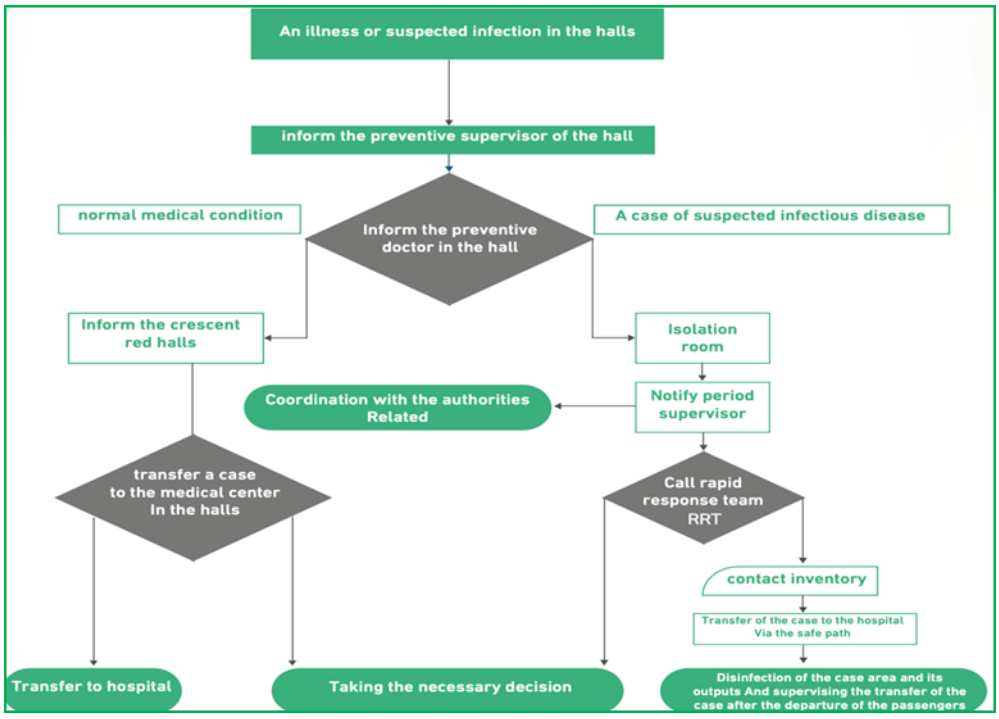

Figure 2 The KAIA Surveillance and Prevention Center plan for detecting an infectious case.

Elements of infection control process at KIAI

Screening

Screening is the crucial first step in any disease prevention process. The screening of passengers on arrival at airports has been used globally in the last few years and significantly since the onset of the SARS-CoV-2 pandemic, to reduce the likelihood of mass

infection. However, no screening process should depend on one method (Mouchtouri et al., 2019). Thus, KAIA uses multiple forms of screening. First, thermal screening cameras (model type MEGV2; dual-light camera) are used on entry after arrival in the hallways, before the passenger reaches the border agents in each terminal.

Thermal cameras can detect a high temperature in any passenger, so this approach is beneficial for capturing symptoms that may have developed during the flight (Gaber et al., 2009). Next, a doctor examines the patient to diagnose the case (Mouchtouri et al., 2019). However, because symptoms such as rashes can occur without the presence of fever, the KAIA prevention centers deploy PH specialists, usually epidemiologists, to conduct visual triage and refer the patient to the doctor after detecting any symptoms. All of this happens without delaying or disturbing the flow of travelers inside the terminal.

Detection and diagnosis

On detecting a suspected case, the PH specialist immediately notifies the doctor in charge and escorts the patient to an isolation room (these are available in each terminal). The doctor examines the case and decides, based on the emergency plan, to pursue one of two options:

Diagnose non-infectious disease or other medical condition(s): In this case, the doctor will contact regular emergency services to transport the patient to the medical center at KAIA. Afterwards, the patient may transfer to a local general hospital. Alternatively, the doctor may

Diagnose and confirm an infectious disease: In this case, the doctor will notify and advise the PH supervisor to coordinate with the stakeholders at KAIA to inform them about the emergency and to tell the rapid response team (RRT).

Rapid response team

The rapid response team (RRT) at KAIA contains personnel who ensure minimal contact with the patient and oversee the patient's transition. The RRT includes a physician, a nurse, two PH specialists or epidemiologists, and an infection control practitioner. The presence of an RRT has a positive impact on any health organization (Stolldorf, 2016). It provides the necessary training for personnel to act effectively in any emergency and helps to flag up the potential challenges that emergency response teams may be called upon to deal with in a genuine scenario (Stolldorf, 2016; Appendix 1).

Equipment

During a drill the RRT must contact the medical supply team at the KAIA Health Surveillance Center, who will supply the necessary equipment for transporting the case. This comprises full-body protective personal equipment (PPE) suits with air purifiers; gloves and boots (3M); a negative-pressure isolation chamber on a stretcher; and disinfection equipment. The PH supervisor oversees the proper use of the PPE kits and isolation chamber during the transfer.

Transfer route

Infectious patients must be transferred through a safe route that the airport authorities have planned. This safe route minimizes contact with other passengers to limit the spread of infection. It also speeds transition to the ambulance car that will receive the patient on the runway near a gate. The ambulance delivers the patient to the nearest hospital, King Abdullah Hospital. The safe route incorporates specific elevators which are used for transferring the infected patient and closed immediately afterward for disinfection. Transporting the patient via a planned safe route makes it easier to synchronize the airport's various activities and was advantageous when the Ebola virus arrived in the United States through a Nebraska airport (Lowe et al., 2015).

Disinfection

Transportation of the patient is essential, and disinfection of surfaces and items that have potentially come into contact with bodily fluids on the route is critical. The infection control practitioner must disinfect infectious waste during and after the transfer process supervise the proper removal of PPE kits, transport used PPE kits to a designated area for infectious waste, and disinfect the negative-pressure chamber and ambulance car (Lowe et al., 2015). The infection control practitioner must follow the guidelines issued by the Saudi PH authority by wearing the correct PPE kit and observing the donning and doffing procedures. It essential that a colleague in the infection control team supervises this procedure and checks the PPE for defects to minimize infection.

Contact tracing

The Saudi Ministry of Health has stated that close contacts (family, friends who stayed together during the incubation period of 2-21 days) of Ebola cases should quarantine at the point of entry. Every contact must provide travel history and airport personnel monitor them for any symptoms. The World Health Organization's regulations for dealing with the Ebola virus found at airport points of entry state that when the patient arrives the airport authorities should conduct contact tracing to minimize the spread of infection (World Health Organization, 2014).

The World Health Organization also states that authorities should collect contact information for all passengers who sat one seat away from the patient during the flight and for those crew members who had direct contact with the patient. Proper health education should be given to these contacts regarding the patient to minimize panic and fear of infection control procedures. Furthermore, to reduce the transmission of diseases, health education for cabin crew members is essential (Ryu et al., 2021). The KAIA Preventive Medical Center asks for contacts to be isolated or quarantined during the incubation period and samples are taken from them to exclude infection and provide the necessary medical services to those in need.

Drill participation and progress

The drill reported in this paper took place on June 7th, 2023 at 12:04 p.m. and followed the procedures described. Table 1 shows a timeline for this drill. The scenario was the arrival of a patient with Ebola. Health professionals conducted this drill at KAIA airport. The healthcare respondents had to coordinate effectively with other stakeholders and government authorities to expedite the process and deal with the infected passenger and contacts as efficiently as possible. A total of 56 people participated in the drill. Of these 19 were health professionals, 14 General Authority of Civil Aviation staff, 2 were border officers, three were Directorate of Passports officers, 6 were airport security officers, 1 was a General Directorate of Investigation officer, 5 were personnel from the ground services company at KAIA, and 6 were personnel from the Saudi airline operator company at KAIA.

Table 1 Timeline of the drill.

Time	Event
12:04	Start of the drill
12:05	Detecting the case through thermal and visual screening
12:06	Informing the preventive doctor
12:08	Informing the PH supervisor
12:10	Informing the medical director
12:11	Informing the RRT
12:15	RRT arrival
12:16	Disinfection of body fluids
12:20	Finishing the disinfection
12:20	Confirming the case
12:20	Starting epidemiological surveillance (contact tracing)
12:21	Informing the terminal operational room
12:21	Informing the KAIA Preventive Medical Center director
12:22	Informing PH authorities
12:27	Entry procedures for the patient and contact (passport stamping)
12:32	Starting transfer
12:37	The ambulance car moved from the terminal through the safe route
12:37	Disinfection of the terminal
Total	*33 minutes*

The drill began at 12:04 p.m. and took 33 minutes in total. The team recorded each event to create a timeline for this drill (Table 1) and to identify areas for improvement where changes would speed up the process and procedures.

Evaluation

Evaluation is essential for drills of this type. In this case, authorities evaluated the drill while and after it took place and compiled a detailed report to identify challenges and issues. The solutions found for these may prove helpful in future drills or incidents. The

evaluation report comprised five main categories: Detection and notification, response, intervention, transportation, and notifying higher authorities. The report included a checklist for each category, which focused on the core responsibilities of each team member in response to the drill. Team members' roles are shown in (Appendix 2).

3. RESULTS

This drill took 33 minutes. This is an acceptable time, since the team had to coordinate a substantial number of stakeholders and authorities. The drill helped to identify shortcomings and areas for improvement including the need to make the coordination of KAIA stakeholders faster and more efficient. It also revealed that better communication was required to speed up the safe transfer process. Representatives of government authorities and other participants without a medical background were keen to understand the mode of transmission for Ebola. This achieved one of this drill's objectives, which was to teach and learn about current PH threats. Similarly, crew members had the opportunity to improve their health education. Health professionals reported that they updated their knowledge during this training session, especially regarding self-protection. Additionally, participants were able to gain confidence in handling severe infectious cases, which is crucial when the time comes to transport such a case.

The drill highlighted the importance of all participants' roles through a practical training scenario. Consequently, the processes for selection and reselection of team members were updated in preparation for any re-emergence of Ebola and with clear definitions of the responsibilities falling to each participant. The drill also underlined the importance of increasing the number of infection control practitioners involved because the time taken for disinfection should have been shorter. Other issues highlighted by the drill include the value of designing a proper safe route within the airport. The safe route should be as short as possible while minimizing contact with other people and being accessible at all times to all relevant airport stakeholders. The location of the ambulance car on the airport runway near screening devices and the isolation room is critical to minimizing contact and the promptness of the drill.

4. DISCUSSION

The King Abdulaziz International Airport's (KAIA) drill served as a valuable practice to evaluate and enhance the airport's preparedness for handling an infectious disease case.

Effective communication and coordination

The time from identifying the suspected case to ambulance transfer in this drill was remarkably good. However, in this context the team was expecting the arrival of an infected patient. When an unexpected case or cases arrive on an international flight the time taken will be longer. In such cases the effective and continuous coordination of healthcare workers and airport stakeholders is critical to achieving the best outcome (Martin and Boland, 2018).

Health education

This drill and its evaluation highlighted the value of continuous education regarding the modes of transmission for emerging PH threats. In this case health professionals were eager to update their knowledge and non-medical personnel showed keen interest in all aspects of self-protection, the safe handling of patients, and disinfection. Subsequently the health authorities stationed at the airport have planned health education programs to address emerging threats for targeted airport stakeholders at the airport who are most likely to interact with patients in a real-life scenario.

Role clarification and confidence building

The drill scenario highlighted the importance of all participants' roles in the emergency response process. The authorities subsequently updated the processes used to select and reselect team members and added clear definitions of the responsibilities involved. This will reduce the time needed to complete future drills. This clarity not only simplifies the response but also stimulates participants' confidence in their ability to deal with severe infectious cases. Confidence is a significant factor in ensuring a swift and effective response when transporting infected patients. It helps to ensure the safety of the team members and reduce unnecessary contact with the suspected case.

Safe routes and disinfection

The drill revealed a need for more personnel to complete disinfection. Efficient disinfection correlates with prompt transportation of the patient because in a real-life scenario unexpected body fluids may leak from the isolation chamber. Thus, specialized infection control skills are vital to minimize the infection of other people at the airport. Response teams can also optimize safety by using a

safe route when evacuating any patient at the airport. That safe route should be as short as possible, with minimal contact with other people, to ensure safe disinfection practices by infection control members (Lowe et al., 2015).

5. CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

Performing PH drills of this type in airports is essential to speed up evacuating an infectious disease case in real life. It has the additional benefit of foregrounding any shortcomings in the plans and problems that may arise in such cases. Each drill I increases and updates the knowledge of all participants. When particular threats are targeted — in this case the Ebola virus — the increase in knowledge can be remarkable. All stakeholders should share knowledge about contagious disease transmission and associated processes. This ensures proper understanding of current and emerging threats and increases the confidence of responders. Before conducting any drill, the stakeholders and authorities involved must focus on the core issues. For example, there is a need for policies, procedures, and planning for such scenarios to be continually improved.

Monitoring the suitability of the safe route is vital for any airport, as area training in the procedures for donning and doffing PPE kits correctly and checking for any malfunction of these suits. Airports are not medical institutions, but through proper collaboration with stakeholders, health practitioners can advocate for isolation rooms and adequate places for screening and detecting infectious diseases. Systematic screening, using both visual triage and using thermal technologies, is essential to detect cases and manage them as a proper line of defense, without harming the flow of airport traffic. Having a team of medical and health professionals in the airport can ensure that other airport authorities and stakeholders have correct and timely information about infectious diseases.

All personnel who would be called upon to participate in a real-life scenario should have ongoing health education. Increasing their knowledge in this way may prove vital in applying infection control procedures they are needed. Running a mock drill in an airport may alarm travelers, especially in an international hub with substantial traffic. Thus, it is vital to give advance notice to ensure the flow of passengers and reduce their anxiety. Additionally, any drill witnessed by the public might induce speculation and false rumors of a new case arriving at the airport. Contact tracing is time-consuming by nature but vitally important. In airports, the air carrier and manifest should help to locate contacts per the World Health Organization regulations, and this should be the case for any infectious disease requiring a quick evacuation.

Recommendations

In light of the procedures described in this paper, the authors make the following recommendations for good practice in controlling infectious diseases at international airports.

All personnel involved in airport-based public health responses across all stakeholder groups and sectors must keep their relevant knowledge up to date and undergo continual training on applying any plan to address infectious disease at the airport.

All parties involved in implementing the response plan should share information and updates efficiently.

There is much to gain from exchanging information and experiences between international travel hubs such as airports. Such information may be taken from drills and real-life scenarios since these will reflect the application of PH expertise in a shared context.

Academic articles on drills and plans to combat the transmission of infectious diseases are beneficial for practitioners in the field.

Acknowledgements

The completion of this study would not have been possible without participation of many stakeholders at KAIA airport. Thus, we would like to thank General Authority of Civil Aviation, Saudi Border Authority, Directorate of Passports, airport security officers, General Directorate of Investigation officer, ground services company at KAIA, and Saudi Airlines operator company at KAIA.

Statement of Ethics

The study protocol was reviewed and approved by the institutional review board IRB in Jeddah city, ministry of health, Saudi Arabia, approval number IRB log no: A01643, date 01/06/2023. Site approval was obtained from the health center at KAIA airport after ethical approval. This study did not involve any data collection from human subjects, so written informed consent is not applicable.

Author Contributions

This research was conducted in a non-medical facility (an airport) so required a research team to cooperate and coordinate with many government authorities and private sectors and coordinate with the Ministry of Health. Authors Ayman Samman, Fahd Qumri, Ahmed Hassan and Osama Alghamdi conceptualized research ideas. Author Rajaa Al-Raddadi supervised academically. Authors Ayman Samman and Abdullah Alsahafi supervised the process on the field, and Author Zahir DaffaAllah directed and supervised from the Ministry of Health. Authors Osama Alghamdi, Elsayed Elshafey and Zyad Saad carried out the literature review. Authors Ahmed Hassan, Wael Alzhrani, Anas Albaloshi and Zyad Saad formulated the methodology.

The drill process, policy and procedures were planned and conducted by authors Osama Alghamdi, Rafat Abushanab, Mohammed Alghamdi and Fahad Aljoni. Authors Hamad Alhelali and Faisal Ageeli supervised the medical supplies. Coordination with authorities was carried out by Authors Mohammed Felimban and Tariq Aljoiher; Author Sultan Alraqqas coordinated with the Ministry of Health. Evaluation was conducted by Authors Fahd Qumri, Hamoud Algarni and Yasser Bakhsh. The results and discussion were drawn up by Authors Ayman Samman, Fahd Qumri, Ahmed Hassan and Wael Alzhrani. All authors approved the final manuscript.

Funding

This study has not received any external funding.

Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

The data that support the findings of this study are stored in a safe. The main author has access to this.

The data that support the study's findings are available on request from Authors Ayman Samman, Fahad Qumri or Ahmed Hassan for 3 years from the publication date.

Appendix 1 Rapid Response Team Tasks

Job	Description
Physician	• Full PPE Personal Protection Tools.
	• Confirmation of the suspected case.
	• Fill out the case transfer form, considering placing the passport in the (Biohazard bag) and disposing of the pen used in medical waste.
	• Follow up the transfer of the case with the ambulance.
	• Disposing of personal protection tools in (King Abdullah Complex) after handing over the case.
Nurse	• Full PPE Personal Protection Tools.
	• Assisting the doctor in detecting the suspected case.
	• Prepare the case for transportation.
	• Follow up the transfer of the case with the ambulance.
	• Disposing of personal protection tools in (King Abdullah Complex) after handing over the case.
Infection control	• Full PPE Personal Protection Tools.
	• Follow-up and direct supervision of all procedures.
	• Follow up, supervise and carry out infection control work (disinfection, isolation room, safe path for transferring the case).
	• Dealing with patient outcomes, if any.
	• List the contacts of the health staff and follow them up.
	• Verify the case data and fill out the Isolation Report form.
	• Dispose of personal protective equipment in the disposal area.
Donning and	• Observing the team at the stage of wearing personal protective equipment, ensuring

doffing observer	they are completed correctly and filling out the relevant form.
	• He takes care of the team at the stage of disposal and removal of personal protective equipment, ensuring that they are completed correctly and filling out the relevant form.
	• Assist in completing infection control tasks.
PH practitioners	• Complete essential personal protection tools.
	• Conducting the debate on all passengers coming from the affected countries.
	• Isolate the case and deliver it to the nearest isolation room in line with the safe path.
	• Inform the shift supervisor (public health member) to call the Rapid Intervention Team (RRT)
	• Tracing of those in contact with the case (escorts).
	• Identification of those in contact with the case from other sectors (passports, airport security, etc.).
	• Fill out the reporting forms and send the report to the Public Health Department.
PH supervisor	• Directing the team to deal with the situation.
	• Directing the ambulance transport to prepare for the transfer of the case.
	• Communication with other authorities (passports, customs, airport security).
Emergency transportation	• Personal protective equipment (gloves - face mask - yellow apron)
	• Staying in the driver's cabin and not participating in the medical team tasks.
	• Ensure disinfection of the ambulance after delivering the case and delivering the ambulance disinfection form.

Appendix 2 Evaluation report

Notification process				
#	Work	Responsibility	Needs	Action
1	Notification to the supervisor	Team members	Telephone-mobile	Notification: yes\no
				Response: yes\no
2	Notifying RRT	Supervisor	Telephone-mobile	Notification: yes\no
				Response: yes\no
3	Notifying other airport stakeholders (operation room)	Supervisor	Telephone-mobile	Notification: yes\no
				Response: yes\no
4	Notifying PH supervisor	Supervisor	Telephone-mobile	Notification: yes\no
				Response: yes\no
5	Notifying the health center manager	PH supervisor	Telephone-mobile	Notification: yes\no
				Response: yes\no
Response process				
1	RRT receives a notification/starts wearing PPE kit	Team leader	PPE kit	Supervision: yes\no
				Response: yes\no
2	Preparing equipment	Team leader	Isolation chamber/ disinfection tools	Available: yes\no
				Response: yes\no
3	Moving to the site needed	RRT team	Emergency kit	Movement: yes\no
				Team count: yes\no
Intervention process				
1	Isolation	RRT team	PPE kit Isolation room	Translator for the patient: yes\no
				Isolation: yes\no
				Distance to travelers:
				Patient covering:

				Chamber/mask
2	Intervention and disinfection	Infection control	Disinfection tools PPE kit	Available: yes\no
				Response: yes\no
				Location of body excretion: yes/no
				Corporation: yes/no
3	Medical history	RRT team	forms	Detailed travel history: yes\no
				Clinical diagnosis: yes/no
Transportation				
1	Following safe route instructions	RRT team	PPE kit Isolation chamber stretcher Disinfection tools	Safe route: yes\no Isolation: yes\no
				Ambulance car readiness: yes/no
2	Notification to the medical institution	RRT	PPE kit	Notification to the hospital: yes\no
				Doctor presence alongside patient: yes\no
				Notification to the operation room in MOH: yes/no
Notifying the Ministry of Health				
1	Notification to PH authority	Health center manager	Phone/Mobile	Notification: yes\no
2	Contact tracing information	RRT	Forms	All forms sent: yes\no
3	Sending all information needed for the case: ID diagnosis, hospital information.	PH supervisor	Email	All forms sent: yes\no

REFERENCES AND NOTES

1. Gaber W, Goetsch U, Diel R, Doerr HW, Gottschalk R. Screening for infectious diseases at international airports: the Frankfurt model. Aviat Space Environ Med 2009; 80(7):595-600. doi: 10.3357/asem.2360.2009
2. Kimball AM. Risky Trade: Infection Disease in the Era of Global Trade. Taylor & Francis Group 2016. doi: 10.4324/9781315606590
3. Lowe JJ, Jelden KC, Schenarts PJ, Rupp LE, Hawes KJ, Tysor BM, Swansiger RG, Schwedhelm SS, Smith PW, Gibbs S. Considerations for safe EMS transport of patients infected with Ebola virus. Prehosp Emerg Care 2015; 19(2):179-183. doi: 10.3109/10903127.2014.983661
4. Martin G, Boland M. Planning and preparing for public health threats at airports. Glob Health 2018; 14:28. doi: 10.1186/s12992-018-0323-3
5. Mouchtouri VA, Christoforidou EP, An-der-Heiden M, Menel-Lemos C, Fanos M, Rexroth U, Grote U, Belfroid E, Swaan C, Hadjichristodoulou C. Exit and Entry Screening Practices for Infectious Diseases among Travelers at Points of Entry: Looking for Evidence on Public Health Impact. Int J Environ Res Public Health 2019; 16(23): 4638. doi: 10.3390/ijerph16234638
6. Reilly MJ, Markenson DS. Health Care Emergency Management: Principles and Practice. Jones & Bartlett Publishers 2011.
7. Ryu J, Kim J, Choi-Kwon S. Infection prevention performance among in-flight cabin crew in South Korea. Int J Environ Res Public Health 2021; 18(12):6468. doi: 10.3390/ijerph18126468
8. Stolldorf DP. Original Research: The Benefits of Rapid Response Teams: Exploring Perceptions of Nurse Leaders, Team Members, and End Users. Am J Nurs 2016; 116(3):38-47. doi: 10.1097/01.NAJ.0000481279.45428.5a
9. World Health Organization. Ebola event management at points of entry. WHO, 2014.
10. World Health Organization. International Health Regulations 2005, 2nd ed. Geneva: The Organization; 2008.