# Barriers and facilitators to COVID-19 screening at Jaipur International Airport, India

Neha Mantri<sup>1</sup>, Nitin Kumar Joshi<sup>1</sup>, Pankaj Bhardwaj<sup>1,2</sup>, Akhil Dhanesh Goel<sup>2</sup>, Manoj Kumar Gupta<sup>2</sup>, Kuldeep Singh<sup>3</sup>, Sanjeev Misra<sup>4</sup>

<sup>1</sup>School of Public Health, <sup>2</sup>Department of Community Medicine and Family Medicine, <sup>3</sup>Dean Academics and <sup>4</sup>Director, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

#### **ABSTRACT**

Background: Airports pose a possible threat in facilitating global disease transmission within the community which may be prevented by rigorous systematic entry-exit screening. This study captures the perception of stakeholders on barriers and facilitators of coronavirus disease 2019 (COVID-19) screening. Further, key outcomes viz. total passengers screened, suspected cases, and confirmed cases were assessed. Methods: An inductive-deductive mix-method thematic analysis was conducted to capture qualitative data of key stakeholders on COVID-19 disease screening at Jaipur International Airport. Additionally, secondary data retrieved from Rajasthan Medical & Health Department team deployed for COVID-19 airport screening were analyzed. Results: Jaipur International Airport screened 4565 passengers (Males = 4073 and Females = 492) with 23 suspected cases during an outlined period of declaration of Pandemic to Lockdown in India (11 to 24 March 2020). Total 65 passengers had travel history from China (3 from Wuhan). The mean average age of passengers was  $40.95 \pm 7.8$  years. The average screening time per passenger was 2-3 min with a load of 25-90 passengers per team per flight. Fishbone analysis of screening challenges revealed poor cooperation of passengers, masking symptoms, apprehension, and stigma related to quarantine. Moreover, inadequate human resources and changing guidelines overburdened healthcare providers. But, perception of risk, and social responsibility of travelers together with supportive organization behavior act as facilitators. Overall, groundwork on airport screening was insightful to propose key action areas for screening. Conclusions: Globally, COVID-19 has an impact on health infrastructure and international travel. International coordination with streamlined screening will go an extended way in virus containment.

Keywords: Airports, COVID-19, IHR, India, points of entry, screening

# Introduction

The entire globe is suffering a public health emergency with the Novel Corona Virus (COVID-19) exposure emerging from Wuhan, China as an epicenter in December 2019.<sup>[1]</sup> Symptoms are mild in most people with cough, fever, sore throat, malaise, breathlessness, diarrhea, fatigue but may progress to pneumonia, respiratory distress, and even death.<sup>[2,3]</sup>

Address for correspondence: Dr. Pankaj Bhardwaj, Department of Community and Family Medicine, All India Institute of Medical Sciences, Jodhpur - 342 005, Rajasthan, India. E-mail: pankajbhardwajdr@gmail.com

**Received:** 20-02-2022 **Revised:** 19-03-2022 **Accepted:** 07-04-2022 **Published:** 31-10-2022

Access this article online

Quick Response Code:

Website: www.jfmpc.com

DOI:

10.4103/jfmpc.jfmpc\_427\_22

Transmission risk of virus increases exponentially in time and globally more than 200 countries are affected with confirmed cases 173,271,769, and 3,733,980 deaths, whereas, India has reported 28,441,986 confirmed cases and 3,37,989 deaths as of 3<sup>rd</sup> June 2021.<sup>[4]</sup>

Travelers exiting via airports pose a potential threat to facilitate the dissemination of infectious diseases. Effective ventilation inside an aircraft alleviates the risk of transmission of infection. Evidence suggests the effective ole of screening and travel restrictions in halting the spread of global diseases. The importance of effective and rigorous entry and exit screening will help prevent community spread globally.

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**How to cite this article:** Mantri N, Joshi NK, Bhardwaj P, Goel AD, Gupta MK, Singh K, *et al.* Barriers and Facilitators to COVID-19 screening at Jaipur International Airport, India. J Family Med Prim Care 2022;11:5969-82.

World Health Organization has recommended the International Health Regulations (IHR 2005) as a framework to nations in controlling the spread of the diseases. [8-10] Further, the Global Health Security Agenda (GHSA) launched in 2014 with the foundation of IHR strives to create a world safe from infectious disease threats. It focuses on strengthening health security capacity by 2024 working on four key areas, that is, real-time surveillance of public health threats, strengthening laboratory system, health worker training, and emergency response with the Rapid Response team. [11]

After the lockdown in Wuhan city on January 23, 2020, several countries have initiated international border regulations as security measures. [12] India reported its first COVID-19 case from Kerala on February 3, 2020. [13] Meanwhile, on March 2, 2020, Rajasthan reported its index case who was an Italian tourist in Jaipur District. [14] Rajasthan Government has taken precautionary action from January 28, 2020 as a tool to detect the suspected COVID-19 cases at Jaipur International Airport with help of the Medical Department to reduce the risk of transmission from travelers [Figure 1]. [14-16]

Jaipur Airport is the only international airport serving Rajasthan state being a tourist spot. It is the 11<sup>th</sup> busiest airport in India with daily scheduled flight operations. The terminal can handle around 1000 passengers at a time. When the COVID-19 virus had spread outside mainland China in countries like Thailand, Malaysia, Singapore, Germany, etc. Jaipur Airport officials along with the Rajasthan government had a consultative meeting with the objective to screen all travelers coming from affected countries to halt the spread of the virus in the community.

This article describes the Entry and Exit screening process undertaken at the airport for travelers during the COVID-19 disease along with stakeholder perception on the barriers and facilitators associated with the screening.

# **Methods**

Airport health screening was taken as a precautionary tool to detect travelers for risk of infection. This study describes the passenger screening for COVID-19 at Jaipur International Airport at Rajasthan during a period of January 28, 2020 to March 24, 2020. World Health Organization declared Pandemic on March 11, 2020. After this, the airport was shut down as a call of complete lockdown in India by the Central Government for containment of COVID-19. The airport premises were catered by the medical team and supporting staff of a total of 65 persons for the health screening procedure by the Rajasthan Medical & Health Department. Institution Ethics Committee permission was obtained before conducting the study.

To explore the challenges in screening passengers at the airport, a list of key stakeholders was made across the various department - State Administration, State Medical & Health (Nursing staff, Medical officers, Laboratory personnel), Airport personnel, Municipal corporation, Integrated Disease Surveillance Program cell (IDSP), Government Medical College, Police department, Quarantine facilities in-charge and WHO surveillance officer. Qualitative data were obtained from in-depth interviews of stakeholders. Interviews generally ranged from approximately 10-15 min. Prior information on the study and its objectives were given to all participants and informed consent was obtained. Ensuring privacy and confidentiality, telephonic interviews were conducted at a mutually convenient time. Appointments were re-scheduled if necessary. The interview was started with a short introduction and the purpose of the call and the importance of their contribution. Rapport building was done by asking for their well-being in this pandemic situation. The communication was kept simple with questions on their experiences. Measures were taken to prevent interruption or any disturbances during calls.

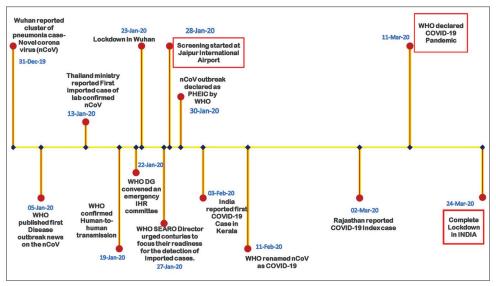


Figure 1: Explains the timeline of COVID-19 responses

Interview topic guides cover domains related to the Level of engagement, barriers, facilitators, and recommendations. Data collection continued till saturation was obtained. A mixed inductive-deductive approach was used for analysis. Interviews in the local language (Hindi) were translated into English by language experts while keeping the essence of content in the local language. Independently transcript of interviews was read and categories were made from grouping similar responses.

Further, a deductive approach using content analysis on questions about perceived barriers and facilitators for screening was done using the Fishbone analysis framework (root-cause analysis) by Ishikawa.<sup>[17]</sup>

The process of writing and re-writing themes around barriers and facilitators continued till stakeholders' perceptions were precisely captured. Interviews were conducted by one author to maintain consistency. Finally, after the consensus of the authors, themes were defined.

Secondary quantitative data was also obtained from the Rajasthan State and Medical health department after permission from respective authorities. Data were analyzed in terms of outcomes viz. total passenger screened, suspected, referred for testing, and confirmed for COVID-19.

# **Operational definitions**

#### 1. Points of Entry (PoE)

IHR Brief NO.3 (2005) defines Points of Entry as a passage for International entry or exit of travelers, baggage, cargos, containers as well as agencies and areas providing services to them on entry or exit points. Three PoE are airports, ports, and ground crossings<sup>[18]</sup>

#### 2. Entry Screening

Public health measures implemented at PoE on travelers (crew members and passengers) arriving in a country with the purpose to assess the exposure to any biological agent and/or presence of any symptoms. Entry screening takes place after other travelers have potentially been exposed during flight. It involved taking a self-declaration form, medical screening, contact tracing, and quarantine processes along with counseling sessions. Strong advice to take necessary precautions next 14 days and to report respective authority on the occurrence of any symptoms was circulated among passengers<sup>[19]</sup>

# 3. Exit Screening

Public health measures implemented at PoE on travelers (crew members and passengers) departing from a country with the purpose to assess the exposure to any biological agent and/or presence of any symptoms. Exit screening identifies the diseased person and prevents them from exposing other passengers to infection. It included medical check-ups and passport control. Primary screening was based on symptoms and accordingly passenger was categorized into A, B, and C Category and referred for secondary screening.<sup>[19]</sup>

# Results

At **Jaipur International Airport** screening of a total of 34082 passengers was done during the period of *January 28, 2020 to March 24, 2020* with a total of 175 suspected cases which were further investigated and quarantined systematically. A total of 233 flights (national and international) were screened with maximum traffic in nights (Nights n = 156 and Day n = 77). The average screening time per passenger was 2-3 min. The average load of screening per team varies from 25 to 90 passengers per flight.

WHO had declared a pandemic on March 11, 2020 and India declared Lockdown on March 23, 2020. The number of passengers screened during these 12 days was 4565 (Males = 4073 and Females = 492) of which 23 passengers were identified as being symptomatic by the medical team and were sent for laboratory investigations by Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR). The mean average age of passengers was  $40.95 \pm 7.8$  years. The majority of the inbound travelers were from UAE [n = 4351 (95.3%)]. 1.4% were from China – 4.6% of which were from Wuhan. The majority [97.8%] of travelers fall in Category C [No symptoms and low risk] and 1.64% of travelers in Category B [Asymptomatic and moderate risk]. Only 0.1% of travelers were high-risk Category A [symptomatic and High risk]. None of the passengers were found to be RT-PCR positive [Table 1].

Detecting potentially infected persons at International Points of Entry (PoE) was done through exit-entry screening at the airport. A team comprising of a medical officer along with 2 paramedical staff were trained for screening and were deployed at the airport by Rajasthan Government. There were 3 points of entry/exit for which 11 medical teams were construed for rotational duties. The team procured the list of all flights and passengers departing from and arriving at Jaipur International Airport.

# Overview of entry screening at airport

All travelers were required to fill out a self-reporting health form which included demographic details, relevant travel history (port of origin and final destination), seat and flight number, residence, and contact details. Further, any symptoms like fever, cough, or shortness of breath were to be self-reported [Supplement 1].

After reviewing the self-reporting form, a paramedical staff records vital parameters and measures temperature by a no-touch infrared thermal scanner. One positive finding in any of the above parameters, the passenger was referred for additional screening by a medical officer who would categorize travelers based on signs/symptoms and known risk factors. Risk factors included age criteria >60 years, Pregnancy, a child under 5 years of age, and co-morbidities like Diabetes, Hypertension, Chronic kidney disease, Chronic Obstructive pulmonary disease, Heart conditions, Immunocompromised state, Blood disorders, Obesity (BMI >40 kg/m²), Asthma, Cerebrovascular disease, Liver Diseases, and Cancer. Further, decision (Category A, B, and C) on necessary clinical action was taken [Supplement 2].

Table 1: Illustrates the Passenger's Country Origin of Journey to Jaipur Airport (From March 11-March 24, 2020)

Country	Total Passenger	Category C (Low Risk)*	Category B (Medium Risk)**	Category A (High Risk)***
China (From Wuhan=3)	65 (1.4%)	63 [96.9%]	01[1.5%]	01 [1.4%]
UAE	4351 (95.3%)	4260 [97.90%]	71 [1.63%]	20 [0.45%]
Thailand	124 (2.71%)	122 [98.3%]	01 [0.80%]	01 [0.80%]
Other (France, USA, UK)	25 (0.54%)	22 [88%]	02 [8%]	01 [4%]
Total	4565	4467 [97.8%]	75 [1.64%]	05 [0.10%]

\*Low Risk – No symptoms on screening – Category C. \*\* Medium Risk – Asymptomatic, Age <60 years and suspected case. \*\*\*High Risk – Symptomatic, Age >60 years and suspected case. ()=represent column-wise percentage. []=represent row-wise percentage

After the screening procedure was completed, all symptomatic passengers were transferred by dedicated ambulance services to Sawai Man Singh Hospital (SMS) for nasopharyngeal swab for COVID-19 RT-PCR testing. Initially, for a few days, samples were sent to the National Institute of Virology, Pune which took seven days for reporting, later SMS hospital, Jaipur was equipped to perform the laboratory tests. Passengers were kept quarantined within the government facilities until two consecutive test reports came negative. For International passengers, Quarantine in a State facility (Rajasthan University of Health Sciences-RUHS) was mandatory while domestic flight passengers could be home quarantine. Contact tracing was planned for confirmed cases if any and reported to State Departments for further follow-up [Figure 2].

## Overview of exit screening

After the declaration of the pandemic on March 11, 2020, no flights disembarked with passengers from Jaipur International Airport. Figure 2 describes the exit screening strategy used for the exit screening of passengers.

After filling the self-reporting form, passengers get their passport approval done at the check-in counter. A Medical team conducts screening. Those with "No" in all criteria (Category C) are allowed for the immigration process. Passengers with "Yes" for any criteria, further undergo additional screening by a Medical Officer and are transferred to Hospital for Laboratory testing. Those with high risk (Category A) and positive results were deferred travel. Category B passengers (Moderate risk) with negative results were onward travel after necessary instructions [Figure 3].

#### Challenges to screening

Qualitative interviews were conducted with key stakeholders about the practical challenges of screening implementation at airports. A fish-bone analysis framework (Ishikawa model) was used to elaborate on challenges/barriers in different domains [Figure 4].

#### A. Source of Infection

The variable incubation period and clinical spectrum ranging from asymptomatic to severe influenza-like illness cases were not easily understood by many participants. Furthermore, human-to-human transmission in a closed setting like aircraft and airport premises posits a great challenge.

# B. Surroundings

Pandemics are better controlled if there is a collective effort.

i.) Lack of inter-departmental co-ordination

There was a lack of accountability for work which led to omission and duplication of work and creates chaos among health care providers. Thus, there was a contradiction between the duties and power of airport staff and the health department.

# ii.) Dynamic updates of Guidelines

The guidelines on COVID-19 infection controls were still maturing and updates to ground staff were lacking. Further, there was a gap in the Standard of Protocol on extensive reporting format.

#### C. Provider

The major constraints were the lack of adequate frontline workers to screen passengers. At times, flight timings would coincide which led to a bottleneck at the screening counter. Delay in screening further agitated passengers making them uncooperative. Most of the healthcare providers were overburdened by double shifts. Most of the frontline workers were demanding isolated accommodation so that they do not risk their family members due to their COVID duties.

#### D. Passenger

#### i. Fear of Exposure

The most pressing issue among passengers was fear of exposure to COVID-19 while traveling. They were afraid to be screened positive and to be quarantined somewhere alone for the next 14 days.

## ii. Dignity

The passenger would complain about the sub-standard quarantine facilities. This thought increased their stress and made them highly uncooperative.

#### iii. Human Rights

The passenger would argue about their rights and scream at the medical team for denying travel. One nursing staff shared an experience of how an uncooperative passenger yelled at them asking for their human rights. [Verbatim 1]

#### iv. False history and Hiding symptoms

Some of them would hide their symptoms by taking antipyretic medication or give false travel history. They also did not reveal the contact identity of their loved ones to avoid tracing.

# v. Social Stigma

Passengers were also suffering from mental trauma due to the prevailing stigma in society. Very few passengers were reluctant to adopt hygiene measures. [Verbatim 2]

#### E. Promotion

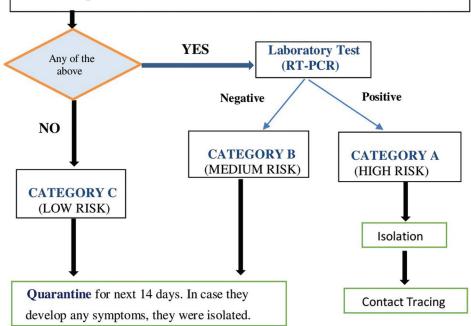
There was a lack of IEC activities at the community level. Passengers were not aware of the travel advisory to be followed

#### PASSANGER AT ENTRY POINT AT JAIPUR AIRPORT

- Mandatory Self-Declaration Form (to be filled in flights)
- IEC for Physical Distancing.
- IEC for Respiratory Hygiene.

# **SCREENING**

- Self-reported fever/ cough/ Shortness of breath
- Age > 60 years / pregnancy.
- Temperature measurement by No-touch method if >38°C
- Co-morbidities like DM, HTN, CKD, COPD, Heart conditions, Liver Disease, Blood disorders and immunecompromised state.



#### **SANITATION MEASURES at Airport Premises**

Figure 2: Describe the entry screening algorithm at Jaipur International Airport

during the journey. The language also became a barrier to effective communication. Sometimes, health workers were not able to communicate with international passengers due to the lack of a translator. This led to a void in information exchange also.

#### F. Management

Managing teams from the multidisciplinary branch was a challenging task. Someday, there will be a dilemma to keep out VIPs from waiting in line. Sometimes, a lack of coordination between departments resulted in misalignment of the workflow. An interview with one of the managerial officers revealed a practical challenge in communicating with passengers on quarantine facilities. [Verbatim 3]

#### G. Material

During the early days, there was an acute shortage of PPE for frontline workers due to an imbalance in the demand-supply chain. Also, the public started stocking the N-95 masks which further added to the shortage.

# Facilitators to screening

# A. Risk Perceptions

Perceptions of passengers for getting exposed to COVID-19 was a motivating factor for getting screened at the airport. Knowledge regarding the increased risk of infection to the old age group (>60 years) also motivated senior citizens

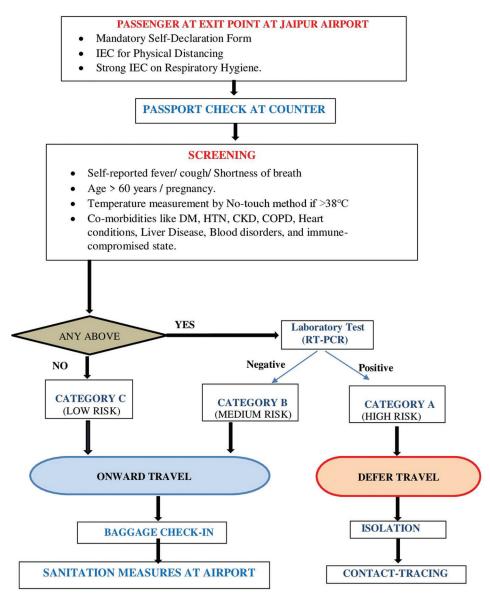


Figure 3: Describes the exit screening algorithm at Jaipur International Airport

for timely screening and intervention. There were two classes of thoughts among passengers, concern for self and other being altruism. One of the Medical Officers shared how these thoughts act as facilitators to get themselves screened. [Verbatim 4]

#### B. Social Responsibility

Some passengers believe in their responsibility towards the nation. Their positive attitude to help the government in containing this virus, act as a motivating factor to encourage passengers for screening. Also, peer pressure and colleagues play a crucial role in inculcating social values in society. [Verbatim 5]

#### C. Social Network

Mass media has a powerful impact on the way travelers had perceived COVID-19 disease globally. It had created awareness and promoted travelers to adopt preventive measures during their journey. Further, it has also created a sense of unity among individuals to fight back against this fast-spreading virus. [Verbatim 6]

#### D. Service Quality

Passengers were anxious and worried about traveling in this pandemic situation. They are burdened with numerous thoughts and emotions. But the quality of communication and service they got from providers developed confidence toward the system. Also, the preventive measures taken by the health team like PPE kit and sanitizer draw the attention of travelers developing positive perception. [Verbatim 7]

# E. Non-invasive screening Technique

A unique aspect of airport screening was a hand-held thermal scanner which is a non-invasive temperature screening that is easy to accept for every passenger when compared to any invasive testing.

F. Organization Environment

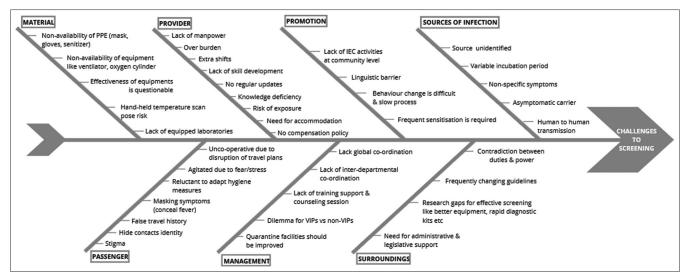


Figure 4: Elaborates challenges to screening using fish-bone analysis framework

The airport and medical team build a supportive environment for a passenger to reduce stigma and panic among passengers by strong IEC at airport premises. The preventive measures like social distancing, use of masks, and frequently sanitizing hands gave a sense of safety among passengers. Further, the government support helped the airport authorities to conduct the screening procedures systematically. Moreover, the team dynamics played a substantial role in keeping the spirit of healthcare providers high even in this propitious time. [Verbatim 8]

Few recommendations by stakeholders include strengthening the surveillance system by preparedness plans, adequate human resources, and efficient screening technology [Supplement 3]. Sharing information to passengers on the screening process and quarantine facilities will build their faith and raise cooperation. Counseling may play an influential role in reducing stigma and stress among passengers.

#### **Discussions**

With the screening of international passengers arriving at Jaipur International Airport, a checkpoint was created to identify travelers likely to harbor the disease. Thus, airports are considered crucial corridors for seeding transmissions in the community through travelers. Indian jurisdictions have released frequent travel advisories to refrain to citizens from unnecessary travel to affected countries.<sup>[15]</sup> Later, domestic flights were also included in this screening procedure. A large number of passengers were screened and those found symptomatic were sent for laboratory testing. The screening approach could not counter the travelers harboring diseases. But the systematic approach during the screening was insightful to reveal suspected cases from departing countries that may pose a threat to spread infection. An action like "Bharat Band for 21 days" (Nationwide Lockdown) is an applaudable act by the Indian government to stop this contagious viral spread with solidarity.

As there was no benchmark for screening procedures for airports hence Jaipur authorities take upon themselves to create their model of implementation suited best at that time similarly to the Frankfurt model. [6] Further, our study revealed a few lacunas in Entry screening like counseling support for passengers, Bio-Medical Waste management at the Airport, and lack of SOPs on baggage claims according to the category of travelers. While during Exit screening, there were limited IEC on health hygiene measures inside Aircraft. There was a lack of electronic passport approval as mentioned in the Frankfurt airport model. Further, Immunity passes (color-coding) to categorize passengers were missing inside aircraft as suggested in the Hongkong airport screening method. Further, a disposable safety kit for passenger exit points will help ensure safe travel. Thus, future screening programs must have clear objectives and streamline processes to minimize disruption.

Some of the ground challenges highlighted by stakeholder interviews in our study were false declaration by passengers about exposure, concealing fever by antipyretic tablets, and a language barrier in understanding the messages were observed which were similar to the findings in a study by Samaan G *et al.* in Australia.<sup>[20]</sup>

Our study explores short- and long-term dividends of airport screening. Short benefits include easy identification of high-risk individuals along with prompt referral. In the long-term, it would alleviate fear and develops faith among travelers. Similarly, an Ebola virus airport entry and exit screening conducted by Brown *et al.*<sup>[21]</sup> in the United States in 2014 revealed how implementing infectious disease screening could have few benefits.

At Jaipur International Airport, all passengers cleared laboratory testing and none was refrained from traveling. A similar outcome was observed in a study by Ronald K St. John *et al.*<sup>[22]</sup> in 2003 for border screening for SARS in Canada where all the outbound and inbound passengers were cleared on screening. Thus, the screening procedure might miss travelers importing diseases.

Jaipur International Airport screening highlighted a step-by-step approach taken by the medical team in screening keeping in line with IHR and GHSA goals. Cross-sectoral involvement, Strong IEC activities, reporting system, and feedback mechanism gave a strong foundation for screening. Good Governance is the prime factor in the effective containment of this virus. This article proposes a novel Airport Entry and Exit Screening Clock model developed using evidence-based data obtained from the literature search, past experiences, and public health measures executed at Jaipur International Airport [Supplement 4 and 5]. Thus, we recommend that in the future any screening program should be formulated keeping into account the specific needs of passengers, Use of SOPs, and optimal use of the health workforce.

# Airport 12 -key action areas

Key action areas that emerged from qualitative interviews based on 12 'S' like Self-reporting health form, Social distancing, Screening, Safe quarantine, Stigma reduction by counseling, Sanitation measures, Strengthening laboratories, Skill development of staffs, Surveillance and reporting, Supportive supervision by authorities, Standard operating protocols, and Sovereignty. In the whole process, communication and information exchange is key to successful management. These key action areas can help enforce health screening measures to deter the limit of pathogenic agents at entry and exit points.

# 1. Self-reporting Health form

All passengers are required to mandatory fill Self-declaration health form at the Health counter which includes personal details, contact information, and presence of any signs/symptoms.

# 2. Social distancing

Sensitization of passengers on benefits of preventive measures like Social distancing, hand hygiene, cough etiquettes, etc. through multilinguistic IEC materials and health notices at premises at this propitious pandemic time.

#### 3. Screening

Screening is done by paramedical staff which includes detailed case history and review of self-declaration form, and monitoring vitals and temperature scan. On failing any of the above criteria, the passenger is referred for additional examination by medical officers for risk assessment.

#### 4. Safe Quarantine

All passengers must be provided with counseling support to alleviate fear. Further, complete information should be shared regarding Quarantine facilities and then transferred. Thus, the provision of dignified treatment on the positive outcome and stay with minimum trouble is the right of every traveler.

# 5. Stigma Reduction

Efforts should be made to reduce the stigma associated with symptomatic passengers. Also, community awareness should be promoted to curb prevailing myths related to COVID-19 tested positive travelers.

#### 6. Sanitation measures

Proper sanitation measures should be practiced even inside aircraft like cleaning seats, handles, doorknobs, and any

surface which could act as a potential source of infection. Airport premise sanitation is done using 1% hypochlorite solution fumigation daily. Cleaning of floor, railings, waiting chair, windows, gates, doorknobs, tables, curtain, and counters are disinfected using checklist after every flight movement.

#### 7. Strengthening laboratories

Well-equipped laboratory system with adequate human resources is the need of time. The focus should be made to strengthen the laboratory network to combat global outbreaks.

# 8. Skill development

A training session should be conducted for the team deployed at the airport for health screening. Demonstration/Mock-drills must be planned to enhance skills.

# 9. Surveillance and reporting

Any health incidence during flight must be reported promptly to the Surveillance team in -charge. Surveillance helps in the identification of contacts and further helps in the containment of virus spread through timely reporting.

# 10. Supportive supervision

Management of the airport screening process should be supervised by authorities. Regular feedback helps check performance and leads to improvement. Group dynamics should be maintained and efforts should be taken for strengthening inter-department coordination.

## 11. Standard Operating Procedure

Dynamic updates on changing guidelines should be provided to ground staff. All Standard Operating Procedures should be made available in written documents. Further, weekly workshops/meetings would help exchange information.

#### 12. Sovereignty

At last, Sovereignty is the key factor which will motivate all stakeholders to implement screening procedure systematically achieving its full potential. It would also encourage travelers to follow guidelines for benefit of the nation.

# **Conclusions**

COVID-19 has stressed the health infrastructure and poses a great call on international tourism. This article has brought out the challenges and lacunas in the existing health system. Airports in line with IHR regulations must treat every passenger with dignity minimizing discomfort. Challenges like inter-department coordination issues, dynamic updates in guidelines, associated stigma, and lack of human resources need to be addressed for effective screening at Airports. Future scope includes an assessment of the effectiveness of screening technology, quarantine facility, economic impact, and strengthening of the health system to fight against any zoonotic outbreaks of unknown origin. Further, the action focusing on key areas while implementing the Airport Screening in different settings will be insightful.

# Declaration of participant consent

The authors certify that they have obtained all appropriate participant consent forms. In the form, the participant(s) has/

have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The participants understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

#### **Abbreviations**

PPE (Personal Protective Equipment); IHR (International Health Regulations);

IEC (Information, Education, and Communication), GHSA (Global Health Security Agenda).

# Acknowledgments

We would like to acknowledge the efforts made by Rajasthan State Medical and Health Department team deployed at Airport in Screening for providing insight and expertise that greatly assisted us.

# Financial support and sponsorship

Nil

## **Conflicts of interest**

There are no conflicts of interest.

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#### Ministry of Health and Family Welfare Government of India

#### SELF REPORTING FORM to BE FILLED BY ALL INTERNATIONAL PASSENGERS

#### (TO BE PRESENTED AT THE HEALTH & IMMIGRATION COUNTER)

All passengers coming to India are required to fill-up this proforma in duplicate & submit a copy each to Health and Immigration counter.

#### Personal Information:

#### **Contact Address in India for All Travelers:**

1	Name of the passenger		
2	Seat No.	3. Flight No.	
4	Passport No.		
5	Date of Arrival		
6	Port of origin of Journey		
7	Port of final destination		

1	House Number	
2	Street/ Village	
3	Tehsil	
4	District/ City	
5	State	
6	PIN	
7	Residence Number	
8	Mobile Number * (mandatory field)	
9	E mail ID	

#### (PART-A)

Details of the cities / countries visited since last 28 days?

b. Are you suffering from any of the following symptoms

Fever Yes No
Cough Yes No
Respiratory distress Yes No

For persons having travel history to China, Hong Kong, Republic of Korea, Italy, Iran, Japan and other Covid-19 affected countries\* or contacts with people having such travel history are requested to undergo mandatory thermal screening at the Health Counters.

Signature of the passenger

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\*AS NOTIFIED BY W.H.O. FOR LOCAL TRANSMISSION. (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situationreports/)

In case you develop symptoms such as fever and cough within 28 days of leaving this airport, restrict your outdoor movement and contact MoHFW's24 hours helpline number 011-23978046. Call operator will tell you whom to contact further. In the meanwhile, keep yourself isolated in your house/room.

Supplemental File 1: Self-reporting form for international passengers

#### Supplemental File 2: Standard Operating Protocols for Categorization of Passengers\* Category C -Low Risk Category B-Moderate Risk Category A- High Risk An asymptomatic passenger coming from A Passenger with fever, cough, shortness of An asymptomatic passenger coming from COVID infected country including passenger China, Democratic Republic of Korea, breath, with history of travel to or residence coming from China, Democratic Republic of France, Germany, Spain, Italy, Iran and in a country/area or territory reporting local Korea, France, Germany, Spain, Italy, Iran. are elderly (above 60 years), Hypertensive, transmission, of COVID -19 disease during Action- Kept under Home quarantine and will Diabetic, Asthmatic, respiratory diseases. the 14 days prior to symptom onset. be monitored by IDSP network for 14 days, Action – To be shifted by State Government if they develop fever/cough/difficulty in to a dedicated Quarantine facility (especially A patient with any acute respiratory illness breathing within 14 days after return from foreigners) and home quarantine preferably and having being contact with COVID-19 any COVID affected countries should for Indians and monitored daily by State in the last 14 days prior to symptom onset. government for next 14 days. In case they immediately call at National helpline number. Action- Segregated from other passenger developed symptoms, they should be isolated and sent for isolation and treatment.

<sup>\*</sup>As received from Rajasthan State Medical & Health Department.

#### Supplemental File 3: Verbatim from different Stakeholders on Airport Screening Sub-theme Verbatim Who said Human "I'm a passenger, not a patient, then why Passenger Rights I'm forced to undergo these tests. Who provides you with the right to refrain me from my travel plans? Why would I stay at that sub-standard government facility on a positive result?" Social Stigma "Why I am treated as a criminal and Passenger stamping ink on my hands. Do you have any idea how neighbors are going to behave with me?" "We have to Do No Harm Policy Management Managerial for passengers and have explained to Officer them how these screening procedures will benefit them as well as society. Special arrangements have been made to enhance their experience during the quarantine period. Still, passengers are stressed for their hospital stay." Risk "Doctor, please check whether I am Passenger Perceptions carrying any pathogen or virus. I cannot endanger the life of my beloved people." "I am ready to follow procedures and Social Passenger Responsibility help the government in handling this situation as my duty towards the nation." Social "Yes...I had heard about COVID-19 on Passenger Network the News channel. This deadly virus is spreading fast and doctors do not have any treatment for this." Service "We are dedicated 24\*7 with our Administrative Quality screening teams at airports. We believe Officer in solidarity and have laid all efforts to reduce inconvenience to passengers

while screening, referral, and quarantine facilities. With mutual support, we shall

"We initiated systematic early screening

at the airport. Before deployment,

the staff was given training on health safety measures and procedures. Team dynamics have helped us in deterring the spread of COVID-19 in our state

overcome this hard time.'

through these borders."

Organization Environment

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Administrative

Officer