

Preparedness of Jindal Institute of Medical Sciences for COVID-19

By

Saryu Tyagi

*Dissertation submitted in partial fulfillment of the requirements of the degree
MBA Hospital and Health Management*

Academic year, 2018-2020



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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled “Hospital preparedness for COVID-19 according to WHO emergency Response Checklist “ and submitted by “Dr. Saryu Tyagi” Enrollment No.....0820..... Under the supervision of “Dr Neetu Purohit” for award of MBA in Hospital and Health/ in Health and Hospitals of the University carried out during the period from toembodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.

Signature

ACKNOWLEDGEMENTS

I, Dr. Saryu Tyagi, student of MBA HM 23 at IIHMR Jaipur, would like to express my gratitude to Dr. Shekhar Sinha, Medical Director at Jindal Institute of Medical Sciences, Hisar, for giving me incredible opportunities to gain knowledge about management of a healthcare organization.

I am sincerely grateful to Mrs Kumkum Roy Choudhary and Mr Surjeet Bhogal, Senior Manager Operations for sharing their valuable experiences and giving illuminating views on many issues related to management .I am greatly indebted to all the staff members of Jindal Institute of Medical Sciences , for co-operating with me and providing sufficient data and information whenever required.

I would like to express my special thanks to Dr. Neetu Purohit (Associate professor, IIHMR) for providing me guidance on my project and for providing constant supervision and support in completing this project.

TABLE OF CONTENTS

SR.NO	CONTENT	PAGE NO
1	Introduction	9
2	Literature review	13
3	Objectives	17
4	Methodology	17
5	WHO Emergency response checklist	18
6	Results	19
7	Conclusion	26
	References	27
	Annexure	32

LIST OF TABLES

SR. NO	TABLE NAME	PAGE NO
1	Command and control	15
2	Communication	16
3	Safety and security	17
4	Triage	19
5	Surge capacity	20
6	Continuity of essential services	18
7	Human resources	21
8	Logistics an supply management	24

LIST OF ABBREVIATION

SR. NO	ABBREVIATION	FULL FORM
1	SARS	Severe Acute Respiratory Syndrome
2	MERS	Middle East Respiratory Syndrome
3	WHO	World Health Organization
4	PPE	Personal Protective Equipment
5	ICG	Incident Command Group
6	ICU	Intensive Care Unit
7	OPD	Out Patient Department
8	IPD	In Patient Department
9	OT	Operation Theatre
10	DTC	Drug and Therapeutic committee
11	DGCI	Drug Controller General of India

INTRODUCTION

In December 2019, Wuhan, China reported a number of viral pneumonia cases, which was believed to be caused by a newly identified coronavirus, initially named as 2019-novel coronavirus. Later WHO officially named this disease as coronavirus disease 2019 (COVID-19). The WHO declared this outbreak as an International Public health emergency on 30th January, 2020 and then it was declared as a pandemic on 11th March 2020. As of now, on 13th June, 2020 there are around 7.8 million cases of COVID-19, reported in almost 213 countries and territories which resulted in more than 4 lakh deaths around the world.

The most severely affected countries include The United States of America 2.2 million cases, Brazil 9.6 lakh cases, Russia 5.5 lakh cases, India 3.6 lakh cases, United Kingdom 2.9 lakh cases. India is the most affected country in Asia accounting for more than 3.6 lakh cases on 13th June, 2020.

ORIGIN

According to health experts, SARS coronavirus2 is thought to have a zoonotic origin from bats or pangolins. Majority of the cases that reported to the hospitals in China, had a common exposure to Huanan seafood market which also traded on live animals. Environmental samples, taken from Huanan seafood market also tested positive therefore signifying that the virus originated from there. The first transmission was seen in Wuhan, China and since then the mode of transmission has been human to human contact.

EPIDEMIOLOGY AND PATHOGENESIS

People of every age group are susceptible to this disease. The infection is transmitted mainly through symptomatic patients and asymptomatic carriers to others through respiratory droplets which are generated during coughing and sneezing. Infection is usually acquired by inhalation of these droplets, or by touching surfaces contaminated by these droplets and then accidentally touching nose, mouth and eyes. Virus is also present in stool. The most common way that this virus spreads is through close human contact with a person who has infection. The incubation period, which is the time between exposure to the virus and onset of

symptoms, is on average 5-6 days, but can be up to 14 days. Individuals who don't show any symptoms at all and are termed as asymptomatic carriers.

CLINICAL FEATURES

COVID-19 affects different people in different ways. Symptoms varies from mild to severe

MOST COMMON SYMPTOMS

Fever, dry cough, tiredness

LESS COMMON SYMPTOMS

Sore throat, nasal congestion, diarrhoea, nausea, vomiting conjunctivitis, headache, loss of taste.

SERIOUS SYMPTOMS

Difficulty in breathing, Chest pain.

RISK FACTORS

People who are above 60 years of age, have underlying, non-communicable diseases, diabetes, hypertension, cardiac disease, chronic lung disease, cerebrovascular disease, chronic kidney disease, immunosuppression, cancer and smoking.

COVID-19 IN INDIA

India is currently the most affected country in Asia, accounting for 3.2 lakh cases and the journey of COVID-19 began when 1st case of this disease was identified in Kerala on 30th January, 2020. When WHO declared COVID-19 a pandemic, airlifting of Indian origin people, who were stranded abroad mainly in the countries worst affected by this virus, began and screening of all the passengers who came from abroad started at the airports. All the people who came from foreign countries were advised 14 days of quarantine.

On 22nd March, 2020 The prime minister of India announced a one-day curfew known as 'Janta Curfew' and suspended all forms of air travel. A nation-wide complete lockdown of 21 days was announced on 25th March,2020 in a hope to break the chain of infection. By the end

of April, the number of confirmed cases increased to 30,000 and the lockdown was extended further till 3rd May, 2020, which was later extended to the end of May. In the month of May India saw quick rise in the number of cases in the country as the community transmission of the infection began with more than 1 lakh confirmed cases.

Worst affected states of India include Maharashtra, Gujarat, Delhi, Rajasthan, Madhya Pradesh.

THE WHO PANDEMIC PHASES

Phase 1: no virus circulating among animals is known to have caused infection in humans.

Phase 2: An animal influenza virus circulating among domestic or wild animals is known to have caused infection in humans, and is considered a potential pandemic

Phase 3: Virus has caused sporadic cases or small clusters of diseases in people, but has not resulted in human to human transmission to sustain community-level outbreaks

Phase 4: this phase is characterised by verified human to human transmission of virus to be able to cause community level outbreaks.

Phase 5: characterized by human to human spread of the virus into at least 2 countries in one WHO region.

Phase 6: Characterized by community level outbreaks in at least one other country in a different WHO region in addition to criteria described in phase

IMPORTANCE OF HOSPITAL AT THE TIME OF DISASTER

Hospitals play a very critical and essential role within the health system in providing medical care to the community, especially during any crisis like an epidemic or a pandemic. Prolonged outbreaks of such endemics or pandemics can lead to continuous spread of disease which results in rapidly increasing service demands that can potentially overwhelm the capacity of hospitals and health system.

A disaster is a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

During disaster, hospitals play an important role within the healthcare system by providing medical care to the community. Without proper emergency planning, hospitals can become overburdened in attempting to provide medical care during crisis. Very limited resources, an increase in the demand for medical care and disturbance in communication and supply chain creates a significant obstruction in provision of health care. Sudden rise in patient admission can overburden a hospital beyond its functional reserve.

Prompt and efficient services provided by the hospitals, during any crisis, can play an important role in reducing the disaster mortality rate. Accordingly, hospital planning should be done such that they can effectively manage all kinds of crisis situations.

IMPORTANCE OF HEALTHCARE MANAGEMENT:

Hospital management involves taking care of administrative needs of healthcare facilities and ensuring smooth operations. Hospital managers have a wide range of responsibilities like management of day-to-day operations, ensuring timely availability and maintenance of biomedical equipments, determining budget and billing practices, accreditation and quality standards, representation of organization to public, media, and other organizations.

The work of hospital management professionals is of critical importance during crisis like COVID-19 pandemic as they must be ready and efficient to manage healthcare facility under enormous stress. Healthcare management professionals must determine proper staffing level and safety procedures to protect both healthcare workers and patients while in emergency situation. They continuously monitor and maintain supply chain of essential equipment like testing kits, ventilators and PPE for staff such as N-95 masks, gloves and respirators.

During the COVID-19 Pandemic, access to healthcare is very important for the society and healthcare managers and administrators play a vital role in these crisis situations to ensure hospitals have resources they need to be effective in their mission. COVID-19 has shown us that keeping hospital functioning during crisis can be challenging and it takes an entire organization of dedicated professionals working together to be successful.

LITERATURE REVIEW

AUTHOR	STUDY LOCATION	STUDY YEAR	SALIENT FEATURES
Dr Sanjay Mehta	India	2006	• The author emphasise on having a disaster management plan for all the hospitals as hospitals are first to bear brunt of any disaster whether man made or natural. • The author highlights the importance of having regular mock drills which simulate disaster. • He states that the main objective should be to prepare the hospital for disaster through development of an emergency response system, staff training should be done and purchase of essential equipment and material so that there is continuity of services. • He highlights the need of a standardised guidelines for hospitals and accreditation of hospitals based on disaster management plan
2) Shweta Talati, Prateek Bhatia, Ashok Kumar, A. K. Gupta, and Col. D Ojha	India	2014	• Author highlights that according to the Disaster management act,2005, it is essential for hospitals to have a disaster management plan. • This study focuses on preparation of a disaster management manual of a 900 bedded tertiary care hospital, in consultation with all the concerned stakeholders.

3) Jolin Wong	Singapore	2020	• The department of Anaesthesia, at the Singapore General Hospital developed a disease outbreak and response measures in coordination with surgeons, nursing staff and other healthcare workers. • The goals of these measures were to (1) ease the care of patients who were known or suspected cases of COVID-19, who needed surgery (2) To reduce risk of viral transmission to healthcare workers. • The authors highlights that the preparation of a pandemic involves different levels of hierarchy of controls. In the operating rooms , the preparation involves a) modification of infrastructure and process, b)management of staff and patients, c)infection prevention and strategies
4 Yunin Cao	China	2020	In this study author wants to highlight the preparedness of West China Hospital's emergency department. • The author retrospectively reviewed the daily emergency visits and PPE supply records from January 13 to February 1, 2020. There was increase in the number of patients complaining of fever in this time period with maximum patients reported on January 25th. • The author highlights that emergency and disaster preparedness was a global issue at the time of COVID-19. The West China Hospital invested efforts to establish an emergency management system. These measures concentrated the limited supply through the hospital on the staff who mostly needed protection.

			• The author also highlights the interim measures taken by the hospital like online consultation, separate isolation areas for patients suspected of COVID-19, postponing elective and non-essential services, • Hospital followed a series of measures to achieve “zero infection”
5)Shaili Gupta, Daniel G. Federman	U.S.A	2020	In this study conducted in a hospital in U.S.A, the authors want to highlight the outline of how Connecticut Veterans Affairs Healthcare System prepared for COVID-19. • The first step was to form an Incident Command Croup comprising of the Head of the departments of all the institutional departments of hospital. • The second step was gatekeeping that is they started screening the patients at the entrance, cancelling and postponing elective and non-urgent services, limitation on the number of visitors. • Third was provision of PPE kits to the healthcare workers, trainings were provided to enhance the knowledge. • Fourth, redistribution of hospital beds in order to prepare for COVID-19 patients.

6)Doret de Rooij,	Netherlands	2020	• The aim of this study is to define preparedness of healthcare institutions during threat of infectious diseases that require centralized care. • Also to develop a standardized preparedness system, describing preparedness activities for healthcare institutions by defining phases of preparedness during threat. • The phases ranged from no outbreak to a situation where many patients whether suspected or confirmed are admitted to the hospital. • It was a qualitative three-step study with an iterative design of in-depth interviews and a focus group. • The study population includes professionals from various levels in healthcare institutions and public healthcare organizations. • The author highlights the four Pandemics (SARS, H1N1, MERS, Ebola) that have emerged since the beginning of this century, that necessitates global awareness and optimal control strategies
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OBJECTIVES:

To assess the status of Jindal Institute of Medical Sciences for preparedness of COVID-19 using the WHO Hospital Emergency response checklist.

METHODOLOGY:

STUDY DESIGN: Descriptive study

STUDY AREA: Jindal Institute of Medical Sciences

DURATION OF STUDY: 3 months (February, 2020- April, 2020)

STUDY TOOL: WHO hospital emergency response checklist

DATA COLLECTION PROCEDURE: Assessment was done with the help of hospital staff and direct observation. Each component of the checklist was assessed after discussion with the designated staff.

WHO EMERGENCY RESPONSE CHECKLIST

The World Health organization, developed an emergency response checklist to guide and assist hospital and emergency managers. This checklist guides the managers and integrates priority actions required for rapid and effective response to any crisis that is approaching.

This checklist has 9 components:

1. Command and control
2. Communication
3. Safety and security
4. Triage
5. Surge capacity
6. Continuity of essential services
7. Human resources
8. Logistics and supply management
9. Post-disaster recovery

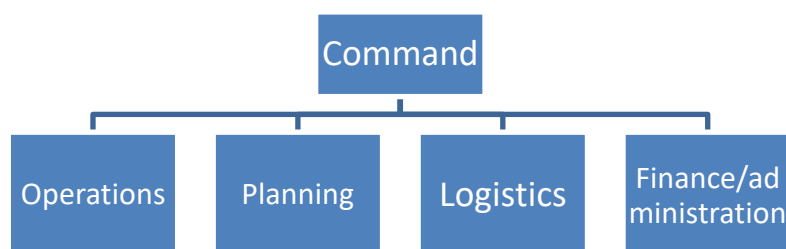
This checklist aims to support hospital managers and emergency planners in achieving the following:

1. The continuity of essential services
2. Well-coordinated implementation of hospital operations at every level.
3. Clear and accurate internal and external communication
4. Swift adaptation to increased demands
5. Effective use of scarce resources
6. A safe environment for healthcare workers.

RESULTS

Key component 1

- **COMMAND AND CON**



Recommended action

STATUS

Activate the hospital incident command group (ICG) or establish an ad hoc ICG, i.e. a supervisory body responsible for directing hospital-based emergency management operations	COMPLETED
Designate a hospital command centre, i.e. a specific location prepared to convene and coordinate hospital-wide emergency response activities and equipped with effective means of communication.	COMPLETED
For each of the nine key components listed in this document, designate an individual (focal point) to ensure the appropriate management and coordination of related response activities.	COMPLETED
Designate prospective replacements for directors and focal points to guarantee continuity of the command-and-control structure and function.	COMPLETED
Implement or develop job action sheets that briefly list the essential qualifications, duties and resources required of ICG members, hospital managers and staff for emergency-response activities	COMPLETED
Ensure that all ICG members have been adequately trained on the structure and functions of the incident command system (ICS) and that other hospital staff and community networks are aware of their roles within the ICS	COMPLETED

Table 1. Command and Control

FINDINGS FOR KEY COMPONENT 1

- The ICG consists of members of hospital representing:
Hospital administration, Security, nursing administration, human resource, pharmacy, infection control, engineering and maintenance.
- All the Duties and responsibilities of ICG members are listed in the Disaster Management Manual of JIMS and yearly inductive refresher training is provided to all the members.

Key component 2

Communication

Clear, accurate and timely communication is necessary to ensure informed decision-making, Effective collaboration and cooperation, and public awareness and trust.

Recommended Action	Status
Appoint a public information spokesperson to coordinate hospital communication with the public, the media and health authorities	COMPLETED
Draft brief key messages for target audiences (e.g. patients, staff, public) in preparation for the most likely disaster scenarios.	COMPLETED
Ensure that all communications to the public, media, staff (in general) and health authorities are approved by the incident commander or ICG.	COMPLETED
Establish streamlined mechanisms of information exchange between hospital administration, department/unit heads and facility staff	COMPLETED
Brief hospital staff on their roles and responsibilities within the incident action plan.	COMPLETED
Ensure that all decisions related to patient prioritization (e.g. adapted admission and discharge criteria, triage methods, infection prevention and control measures) are communicated to all relevant staff and stakeholders.	COMPLETED
Ensure the availability of reliable and sustainable primary and back-up communication systems (e.g. satellite phones, mobile devices, landlines, Internet connections, pagers, two-way radios, unlisted numbers), as well as access to an updated contact list.	COMPLETED

FINDINGS FOR KEY COMPONENT 2:

- The Medical Director is the public information spokesman of this hospital.
- Many brief messages have been drafted for the target audiences coming to the hospital. These brief messages were played over the public announcement system and messages were even displayed in the form of posters.
- There is a “list of authorities” to be informed and all the decisions that are made within the organization are communicated to the relevant staff according to that list.
- Hospital has an EPBAX system to ensure effective communication.
- A separate handbook “JIMS corona handbook” was made comprising of all the SOP and guidelines to deal with COVID-19.

भाती कमी कर दी है। स्प्राइजेट एक प्रकृति ने आज बताया की कोविड-19 के कारण उद्योग अर्थव्यवस्था के मोहोरन स्प्राइजेट की 2 मार्च से 30 अप्रैल, 2020 तक अर्थव्यवस्था अंतर्राष्ट्रीय उद्योग सेवाओं की अस्थायी रूप से निर्लंबित करने के लिए मजबूर हो रहा है। उन्होंने कहा है यथिस्त सामान्य हूटे हो इलियत उद्योगों को फिर से शुरू करने। प्रकृति ने एलाफिक कहा कि उसको कोकलत दाका उद्योग तथा समवसरणीय अन्तरासर काली रोहो। उन्होंने कहा हमारी चेन्नई, कोलकोता उद्योग 25 मार्च 2020 से दोबारा शुरू होगे, जबकि हमारी दिल्ली, दुबई और मुंबई, उद्योग 16 अप्रैल 2020 से दोबारा शुरू होगे।



Brief messages for the public

Key component 3

Safety and security

Well-developed safety and security procedures are essential for the maintenance of hospital Functions and for incident response operations during a disaster.

Recommended Action	Status
Appoint a hospital security team responsible for all hospital safety and security activities.	COMPLETED
Prioritize security needs in collaboration with the hospital ICG. Identify areas where increased vulnerability is anticipated (e.g. entry/exits, food/water access points, pharmaceutical stockpiles).	COMPLETED
Ensure the early control of facility access point(s), triage site(s) and other areas of patient flow, traffic and parking. Limit visitor access as appropriate.	COMPLETED

Establish a reliable mode of identifying authorized hospital personnel, patients and visitors	COMPLETED
Provide a mechanism for escorting emergency medical personnel and their families to patient care areas.	COMPLETED
Ensure that security measures required for safe and efficient hospital evacuation are clearly defined.	COMPLETED
Ensure that the rules for engagement in crowd control are clearly defined.	COMPLETED
Establish an area for radioactive, biological and chemical decontamination and isolation	COMPLETED
Identify information insecurity risks. Implement procedures to ensure the secure collection, storage and reporting of confidential information.	COMPLETED

Table 3. Safety and security

FINDINGS FOR KEY COMPONENT 3:

- All the entries/exits of hospital were guarded by security guards.
- Guards were given additional training to restrict visitors and crowd.
- Only one attendant was allowed with the patient to reduce crowding.
- Entry within the hospital was allowed only after showing Visitor pass for the attendants and Employee ID card for the staff.
- Regular/Periodic announcement on public address system were made to urge patients to come to hospital only in case of emergency.
- Markings for social distancing were done all over the hospital to ensure safe distance between two people
- An ambulance from the hospital was sent to pick up doctors for night shift to ensure safety.



Key component 4

Triage

Maintaining patient triage operations, on the basis of a well-functioning mass-casualty triage Protocol, is essential for the appropriate organization of patient care.

Recommended Action	Status
Designate an experienced triage officer to oversee all triage operations (e.g. trauma or emergency physician or a well-trained emergency nurse in a supervisory position).	COMPLETED

Ensure that areas for receiving patients, as well as waiting areas, are effectively covered, secure from potential environmental hazards and provided with adequate work space, lighting and access to auxiliary power.	COMPLETED
Ensure that the triage area is in close proximity to essential personnel, medical supplies and key care services (e.g. the emergency department, operative suites, the intensive care unit).	COMPLETED
Ensure that entrance and exit routes to/from the triage area are clearly identified.	COMPLETED
Identify a contingency site for receipt and triage of mass-casualties.	COMPLETED
Establish a mass-casualty triage protocol based on severity of illness/injury, survivability and hospital capacity that follows internationally accepted principles and guidelines	COMPLETED
Establish a clear method of patient triage identification; ensure adequate supply of triage tags	COMPLETED
Identify a mechanism whereby the hospital emergency response plan can be activated from the emergency department or triage site.	COMPLETED
Ensure that adapted protocols on hospital admission, discharge, referral and operative suite access are operational when the disaster plan is activated to facilitate efficient patient processing.	COMPLETED

Table 4. Triage

FINDINGS FOR KEY COMPONENTS 4:

- The medical officers oversee all the triage operations.
- There is a sheltered receiving area in front of emergency, and there is a waiting area at the entrance of the emergency
- The emergency department is at ground floor with easy access to Radiology department, OT, and is in close proximity to Trauma ICU. There is an isolation room in the emergency department itself, all suspected patients of COVID-19 are immediately isolated to contain virus transmission.
- The main entrance and exit of emergency department is guarded by security guards.
- South African Triage is followed.

- Screening of all patients and attendants at the first point of contact with the health system in order to identify individuals that are suspected or confirmed COVID-19
- After screening and isolation, patients who are suspected of COVID-19 are triaged with a standardized triage tool such as Interagency Integrated Triage Tool, and evaluated to determine disease severity.

Key component 5

Surge capacity

Surge capacity – defined as the ability of a health service to expand beyond normal capacity to Meet increased demand for clinical care – is an important factor of hospital disaster response and should be addressed early in the planning process

Recommended Action	Status
Calculate maximal capacity required for patient admission and care based not only on total number of beds required but also on availability of human and essential resources and the adaptability of facility space for critical care.	COMPLETED
Estimate the increase in demand for hospital services, using available planning assumptions and tools	COMPLETED
Identify methods of expanding hospital inpatient capacity (taking physical space, staff, supplies and processes into consideration).	COMPLETED
Verify the availability of vehicles and resources required for patient transportation.	COMPLETED
Prioritize/cancel nonessential services (e.g. elective surgery) when necessary.	COMPLETED
Designate an area for use as a temporary morgue. Ensure the adequate supply of body bags.	COMPLETED

Table 5. Surge capacity

FINDINGS FOR KEY COMPONENT 5:

1. Amid the COVID-19 pandemic, 125 beds were kept for isolation of suspected and or positive patients, and ventilators in negative pressure isolation room. In case of admission of COVID-19 positive patients, were admitted in Medical east (isolation ICU) The patients were transported via designated route
2. All non-emergency OPD, Routine OPD were stalled till 22nd April,2020, to prevent overcrowding. To take care of patients follow up OPD, Emergency OPD, Emergency patients were taken care.
3. A helpdesk was set up to enable telephonic OPD, through which patients can book time-slots to seek OPD consultation between 10 AM to 6 PM

Time Slot	Departments			
10AM-12Noon	ENT	Surgery	Medicine	Dental
12Noon-2PM	Pead.	Cardiac	Nephro	Medicine
2PM-4PM	Plas. Sur	Ortho	Gastro	Onco
4PM-6PM	Gynae.	N.Surg	Eye	Urology

4. All elective surgeries were cancelled.
5. The ambulance service is outsourced at JIMS, the ambulance contractor was instructed to be a standalone facility only for JIMS.

Key component 6

Continuity of essential services

A disaster does not remove the day-to-day requirement for essential medical and surgical services (e.g. emergency care, urgent operations, maternal and child care) that exists under normal circumstances. Rather, the availability of essential services needs to continue in parallel with the activation of a hospital emergency response plan.

Recommended Action	Status
List all hospital services, ranking them in order of priority.	COMPLETED
Identify and maintain the essential hospital services, i.e. those that need to be available at all times in any circumstances.	COMPLETED

Identify the resources needed to ensure the continuity of essential hospital services, in particular those for the critically ill and other vulnerable groups (e.g. paediatric, elderly and disabled patients)	COMPLETED
Coordinate with the health authorities, neighbouring hospitals and private practitioners on defining the roles and responsibilities of each member of the local health-care network to ensure the continuous provision of essential medical services throughout the community.	COMPLETED
Ensure the availability of appropriate back-up arrangements for essential life lines, including water, power and oxygen.	COMPLETED
Ensure contingency mechanisms for the collection and disposal of human, hazardous and other hospital waste	COMPLETED

Table 6. Continuity of essential services

FINDINGS FOR KEY COMPONENT 6:

- There is a list in which all the services provided by the hospital are listed.
- Although OPD was closed, but all the essential services were running 24*7. and even for public convenience Telephonic OPD was started.
- For continuous provision of medical services, JIMS was in contact with the local government hospital and medical college.
- Power backup is available round the clock. Levels of oxygen is monitored daily.
- There is a proper biomedical waste management for segregation, collection and disposal for biomedical waste generated from COVID-19 patients, which is separate from normal patients.

Key component 7

Human resources

Effective human resource management is essential to ensure adequate staff capacity and the Continuity of operations during any incident that increases the demand for human resources

Recommended Action	Status
Update the hospital staff contact list.	Completed
Estimate and continuously monitor staff absenteeism.	Completed

Establish a clear staff sick-leave policy, including contingencies for ill or injured family members or dependents of staff.	Completed
Identify the minimum needs in terms of health-care workers and other hospital staff to ensure the operational sufficiency of a given hospital department	Completed
Establish a contingency plan for the provision of food, water and living space for hospital personnel.	Due for review
Prioritize staffing requirements and distribute personnel accordingly.	Completed
Provide training and exercises in areas of potential increased clinical demand, including emergency and intensive care, to ensure adequate staff capacity and competency.	Completed
Cross-train health-care providers in high-demand services (e.g. emergency, surgical, and intensive care units).	Completed
Ensure adequate shift rotation and self-care for clinical staff to support morale and reduce medical error.	Completed
Identify domestic support measures (e.g. travel, childcare for ill or disabled family members) to enable staff flexibility for shift reassignment and longer working hours.	In progress
Ensure staff dealing with epidemic-prone respiratory illness are provided with appropriate vaccinations, in accordance with national policy and guidelines of the health authority.	Complete

Table 7. Human Resources

FINDINGS FOR KEY COMPONENT 7:

- The H.R department has a list of all the details of all the staff in hospital and staff is expected to inform the department if any changes in details occur.
- Monitoring staff absenteeism is NABH KPI that all NABH accredited hospitals have to maintain.
- Several trainings have been provided to both clinical and non-clinical staff to ensure adequate staff capacity and competency.
- More experienced and qualified staff is posted in critical areas.

- There is an adequate shift rotation and self-care for staff working in clinical areas as on contact with positive patients, sample is taken for COVID-19 testing and staff is quarantined for 14 days.
- All the staff in hospital are vaccinated for diseases.

Training given for sample collection



Training give to wear PPE



Key component 8

Logistics and supply management

Continuity of the hospital supply and delivery chain is often an underestimated challenge during a disaster, requiring attentive contingency planning and response

Recommended Action	Status
Develop and maintain an updated inventory of all equipment, supplies and pharmaceuticals; establish a shortage-alert mechanism.	Completed
Estimate the consumption of essential supplies and pharmaceuticals, (e.g. amount used per week) using the most likely disaster scenarios	Completed

Consult with authorities to ensure the continuous provision of essential medications and supplies (e.g. those available from institutional and central stockpiles and through emergency agreements with local suppliers and national and international aid agencies).	Completed
Assess the quality of contingency items prior to purchase; request quality certification if available.	Completed
Establish contingency agreements (e.g. memoranda of understanding, mutual aid agreements) with vendors to ensure the procurement and prompt delivery of equipment, supplies and other resources in times of shortage	In progress
Identify physical space within the hospital for the storage and stockpiling of additional supplies, taking ease of access, security, temperature, ventilation, light exposure, and humidity level into consideration. Ensure an uninterrupted cold chain for essential items requiring refrigeration.	Completed
Stockpile essential supplies and pharmaceuticals in accordance with national guidelines. Ensure the timely use of stockpiled items to avoid loss due to expiration.	Completed
Ensure that a mechanism exists for the prompt maintenance and repair of equipment required for essential services. Postpone all non-essential services when necessary.	Completed

Table 8. Logistics and supply management

FINDINGS FOR KEY COMPONENT 8:

- In routine operations, the lead time is 1.5 months but in COVID-19 Pandemic the lead time is increased to 2 months. Lead time is increased as the consumption has been decreased. 15 days is the reorder period.
- Consumption of essential supplies and pharmaceuticals is monitored daily and a chart is prepared daily to see the amount of consumption.
- For continuous supply of essentials during lockdown the CMO of district was sent a list of essential items needed in the hospital. Local authorities and dealers were contacted

- Materials procured are approved by DTC, WHO, JMP, USFDA, European certified, DGCI.
- There are 4 stores within hospital premises, meeting the requirements such as proper temperature, humidity, and light exposure.

CONCLUSION:

- Planning is very essential to deal with a pandemic of this scale as COVID-19, affecting almost all countries in the world. Like any other industry hospital sector is also affected by COVID-19 and adequate planning has to be done to ensure smooth functioning of healthcare system. All the hospitals should provide adequate training to staff to ensure they are capable and confident to deal with patients of COVID-19. Hospital should ensure training so as to prevent spread of COVID-19 within the facility, staff should be able to identify and isolate suspected and positive cases as

soon as possible and further report to the concerned authorities, there should be continuous monitoring of frontline health workers so as to prevent cross infection.

- To deal with this pandemic, JIMS also made strategies and did planning so as to provide essential services at this time. The first step was to stop elective services and the OPD department to focus only on the essential services and to limit crowd coming to the hospital. Hospital adopted several interim measures such as telemedicine consultation, a separate ward for COVID-19 positive and suspected patients to reduce the risk of cross infection, provision of proper PPE kits to the frontline workers, an infection prevention and control programme, and rigorous staff training.
- The COVID-19 pandemic has created a global health crisis which has a deep impact on everything. In order to control this pandemic each sector should recognize its responsibilities. There should be cooperation among public and private health systems so as to ensure best healthcare facilities are provided to the patients. Cross-sector collaboration should be there among sectors such as health, agriculture, tourism, trade to improve the public health security. Knowledge regarding treatment, vaccines, technology should be shared openly with every country, to ensure global health.

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ANNEXURE

Steps followed by the hospital upon re-starting the OPD services

1. **Patients entering the hospital:** the patients and their attendants had to wait outside the hospital for their turns for screening at the flu clinic. They had to strictly follow

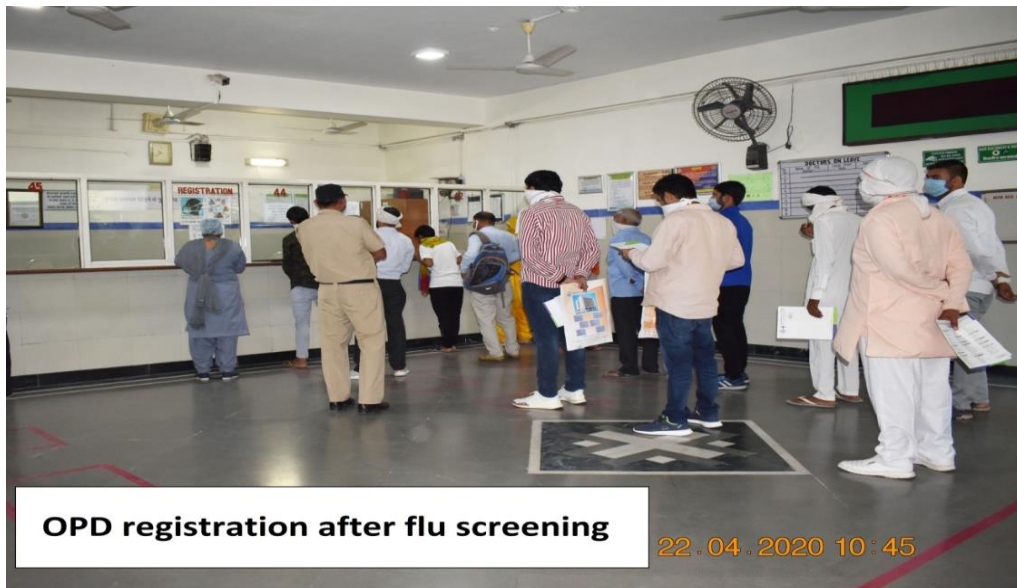
the social distancing rule.



2. **.Screening at the flu clinic-** Flu clinics were set up in front of all the 3 buildings and all the patients and their attendants were screened before entering the OPD area. Temperature was checked upon arrival and a screening questionnaire was filled up by patients and attendants. Attendants were allowed only if patients is no able to walk or is a minor. Patients who were found to be suspected were referred to civil hospital and stamped with RED colour and were not allowed to enter the hospital.



3. **OPD registration after screening.** Patients were allowed to enter the hospital only after screening and they had to follow social distancing rule. The OPD slips were taken by the GDA of consultants, patients were given a token with a time slot. Adhar number/ Mobile number was mandatory on all OPD registration.



4. **Social distancing followed at the OPD waiting area:** Hand washed and face mask covered patients were only allowed in the OPD area and were reminded again and again by announcements on public announcement system.



5. **On site X-ray in the OPD** To divert the patient flow from the main X-ray Unit, a separate X-ray unit was made in the OPD area itself where only chest X-rays were done.



6. **Sample collection centre in the OPD:** Sample collection centres were made in each building to reduce the patient flow in main lab.



7. **CCTV crowd monitoring:**

Crowd monitoring was done in the CCTV control room and c



8.. OPD pharmacy: Social distancing followed at the pharmacy



9. **Sanitation of the OPD:** After the doctors and patients left OPD, deep cleaning and sanitation of OPD areas was done.

