

STUDY ON PRE AND DURING COVID-19 SITUATION AND ITS IMPACT ON HEALTHCARE SECTOR

ABHIJEET PILLAY, AISHWARYA RAWAT, ANURADHA MHASHAKHETRI, RAJ PARMAR,
Dr.Prof. Meenal Pendse

MARKETING-D (HHM), MIT-WPU School of Management (PG), Pune

Abstract:

COVID-19 has had a major effect on the health care systems around the globe with cancellation of elective medical services and disruption of daily life. We would like to highlight the learning opportunities offered by the current pandemic and their implication for a better future health care system. The novel Coronavirus (COVID-19) pandemic began in Wuhan (China) in December 2019 and spread worldwide. Staff quarantine, supply-chain failures, and sudden reductions in customer demand have created serious complications for companies across wide range of sectors than initially anticipated. For most, the revenue lost in this period represents a permanent loss and has put sudden, unexpected or sudden pressure on working capital lines and liquidity. This study was conducted to examine the pre and present impact of covid-19 on healthcare sector. The research study was conducted using secondary and primary data. All the relevant data is collected from the government and non-government websites, previous articles, newspapers, Questionnaire etc. purpose of the study is to understand the changes in healthcare sector pre and during covid-19 pandemic and also a comparative study on pre and present covid-19 situation.

Purpose:

As the novel corona virus is increasing and almost the whole world is facing the issues with this disease and specially many changes are taking place in the world like earlier people were free and there was no rules of wearing mask, lockdown or social distancing and now after this virus come into an action people started to accepting the new normal of wearing mask, lockdown and social distancing and in this situation the Hospitals are facing many problems and changes like PRE COVID situation the hospitals were not ready with separate isolation wards for the COVID infected people so to analyse the pre and during impact of the COVID on the Hospitals and different changes that took place in the hospital environment and what is customer perspective towards the hospital service before and during the pandemic.

Sector Profile:

The value of merger and acquisition (M&A) deals across hospitals jumped by a record 155 percent to Rs 7,615 crore (US\$ 1.09 billion) in FY19.

In August 2019, Microsoft India and Apollo Hospitals Group entered in agreement to set up a National Clinical Coordination Committee for AI-powered Cardiovascular Disease Risk Score API.

In January 2019, National Company Law Tribunal (NCLT) approved Tri-County Premier Hearing Services Inc.'s planned to acquire Bhilai Scan and Research Pvt Ltd (BSR) Diagnostics Ltd for Rs 67 crore (US\$ 9.29 million).

India and Cuba signed a memorandum of understanding (MoU) to increase cooperation in the areas of health and medicine, according to Ministry of Health and Family Welfare, Government of India.

Fortis Healthcare approved the de-merger of its hospital business with Manipal Hospital Enterprises. TPG and Dr Ranjan Pal could invest Rs 3,900 crore (US\$ 602.41 million) in Manipal Hospital Enterprise.

Government Initiatives:

Some of the major initiatives taken by the Government of India to promote Indian healthcare industry are as follows:

In Union Budget 2020-21, Rs 35,600 crore (US\$ 5.09 billion) has been allocated for nutrition-

related programmes.

The Government has announced Rs 69,000 crore (US\$ 9.87 billion) outlay for the health sector that is inclusive of Rs 6,400 crore (US\$ 915.72 million) for PMJAY in Union Budget 2020-21.

The Government of India aims to increase healthcare spending to three percent of the Gross Domestic Product (GDP) by 2022.

In February 2019, the Government of India established a new All India Institute of Medical Sciences (AIIMS) at Manethi, District Rewari, Haryana at a cost of Rs 1,299 crore (US\$ 180.04 million).

The Union Cabinet approved setting up of National Nutrition Mission (NNM) with a three-year budget of Rs 9,046 crore (US\$ 1.29 billion) to monitor, supervise, fix targets and guide the nutrition related interventions across ministries.

On September 23, 2018, Government of India launched Pradhan Mantri Jan Arogya Yojana (PMJAY), to provide health insurance worth Rs 500,000 (US\$ 7,124.54) to over 100 million families every year.

In August 2018, the Government of India approved Ayushman Bharat-National Health Protection Mission as a centrally sponsored scheme contributed by both centre and state Government at a ratio of 60:40 for all States, 90:10 for hilly Northeastern States and 60:40 for Union Territories with legislature. The centre will contribute 100 per cent for Union Territories without legislature.

The Government of India launched Mission

Indradhanush with an aim of improving coverage of immunisation in the country. It aimed to achieve at least 90 per cent immunisation coverage by December 2018 and cover unvaccinated and partially vaccinated children in rural and urban areas of India.

Indian healthcare sector is much diversified and is full of opportunities in every segment, which includes providers, payers, and medical technology. With the increase in the competition, businesses are looking to explore for the latest dynamics and trends which will have positive impact on their business. The hospital industry in India is forecast to increase to Rs 8.6 trillion (US\$ 132.84 billion) by FY22 from Rs 4 trillion (US\$ 61.79 billion) in FY17 at a CAGR of 16-17 per cent.

The Government of India is planning to increase public health spending to 2.5 per cent of the country's GDP by 2025.

Literature Review:

Fourth largest employer:

Healthcare market in India is expected to reach US\$ 372 billion by 2020, while medical devices market is expected to cross US\$ 11 billion by 2022. In FY17 Indian healthcare sector stood as the fourth largest employer as the sector employed a total of 319,780 people. The sector is expected to generate 40 million jobs in coming years.

Rising incomes, greater health awareness, lifestyle diseases & increasing access to

insurance will contribute to growth. 100,000 jobs are expected to be created from Ayushman Bharat, the National Health Protection Scheme.

Growth prospects:

Indian healthcare sector is expected to record a threefold rise, at a CAGR of 22 per cent during 2016-22 to reach US\$ 372 billion in 2022 from US\$ 110 billion in 2016. The government of India aims to increase healthcare spending to three per cent of the Gross Domestic Product (GDP) by 2022.

Strong fundamentals and cost advantage:

The government aims to develop, India as a global healthcare hub. Creation of new drug testing laboratories and further strengthening of the 31 existing new state laboratories

The low cost of medical services has resulted in a rise in the country's medical tourism, attracting patients from across the world. Moreover, India has emerged as a hub for R&D activities for international players due to its relatively low cost of clinical research.

Healthcare workers responding to global health crisis

They are trying to protect individuals, families and communities in adverse situations with stretched resources, shortage of personal protective equipment (PPE) and other equipment's. They have found themselves as unexpected targets in the fight against COVID-19. There have been several reported incidences of such violence against them during this pandemic time in India. Although the exact

numbers of such cases cannot be determined.

Challenges faced by healthcare workers

The violence against doctors and other medical personnel has increased over the past few decades, with up to 75% doctors facing this during their practice in India. Doctors attribute the surge in violence against healthcare workers to a mix of ignorance and fear, which is amplified by the pandemic. The lockdown has exacerbated the problem, with patients unable to access healthcare due to transport suspension, fear of law enforcement and frustration following quarantine or containment zone restrictions. The types of attacks have ranged from verbal abuse, verbal threats or aggressive gestures in majority of cases. The reasons for violence against healthcare workers may vary from fear, anxiety, panic, misinformation, mistrust and misplaced quotes in the social-media. Government hospitals in India are inundated in such public health crisis with lack of adequate facilities, equipment and infrastructure are other quoted reasons. The private hospital sectors have largely shut down to nonemergency admissions, and people find it difficult to access medical aid. Aggressive emotional response of relatives may sometimes boil over with frustration exhibited in the form of damage to the healthcare facilities and verbal or physical violence against the healthcare personnel.

Telemedicine revolution

During COVID-19 pandemic organisations have accepted that telemedicine has a key role,

developed their departments to facilitate telemedicine. Current and evolving telecommunication technologies play a key role in exchange of valid information for diagnosis and management of diseases and injuries. The main modalities for remote consultations include telephone consultations, virtual fracture clinics and video consultations. These innovations are going to be main-stay in how we deliver health care in the future.

Telemedicine set to transform healthcare in a post Covid-19 world. The Government of India has recently launched the e-sanjeevani OPD, a national tele-consultation service, as mandatory for health-care providers. Through e-Sanjeevani OPD, patients can medical advice through audio and video. With this service people living in the remotest areas will also be able to get their health-related consultation. Recently, The Indian Medical Association has adopted the necessary regulatory frameworks for supporting wide adoption of telemedicine and issued an advisory for its use in few situations. When the pandemic will end, doctors will prefer to see patients directly, but at the same time due to increased experience in tele-medicine will help them to see patient if they skip the doctors' visits.

Role of telemedicine Telehealth has been a game changer and one of the positives that has emerged out of this COVID-19 pandemic and will be an integral part of healthcare in the post-COVID-19 era. Use of tele health will reduce the face-to face contact of patient and thus may reduce the

physical assault to the doctors to some extent. The thought of recording of the telemedicine services may force the patients and their caregivers to behave properly and thus prevent verbal abuse and threats.

Government Initiatives:

Government initiatives for COVID 19 exposed health care system of many countries including India. In India public health-care system is grossly underfunded and patchy while private health-care sector is unregulated. The Indian government's expenditure on health as a percentage of GDP is around 1\$5%. There are several gaps in India's preparedness for COVID-19 pandemic. The uptake of 'Aarogya Setu' Indian government's COVID-19 contact tracing application, can be promoted by smart phone technology companies and web providers to minimise the spread of COVID-19, thus help to safely reduce lockdown measures. This will help prevent a 'second wave' of viral outbreak in the future.

Taking in account during pandemic the Indian government has increased expenditure in the public health system to reboot healthcare. The government has launched an ambitious project 'aatmanirbhar bharat' to become more self-reliant with investment in acquiring and building lifesaving equipment's like PPE, ventilators, building hospital infrastructure, ICU beds, oxygen supply in hospitals, strengthening of laboratories, hiring of additional human resources which were scarce before pandemic. All this will

improve the health care system and facilities in India.

Lockdown impact on human health

A lockdown implemented for the COVID-19 (Coronavirus disease 2019) pandemic caused by SARS-CoV-2 may have slowed the progression of the disease but has caused restriction of movement, resulting in decreased exercise and also dietary indiscretion in patients with type 2 diabetes. Previously reported the impact of this lockdown on worsening of glycated hemoglobin (HBA1c) and the associated complications in type 2 diabetes mellitus(T2DM), probably due to the restriction of movement, limited exercise, improper diet, and psychological stress. Lack of exercise and improper diet caused by poor availability of healthy food may lead to significant weight gain. It is important to note that patients with COVID 19 and obesity are associated with worse in hospital outcomes. Both mortality rates and the requirement for mechanical ventilation are increased in the presence of obesity in patients diagnosed with COVID-19.

Patients with chronic diseases who need life-long medications may find it difficult to reach medical services during the coronavirus disease 2019 (COVID-19) pandemic and lockdown.

Methodology:

Research Methodology is a procedure or technique used to defining and redefining of problems, formulating hypothesis or suggested solutions, collecting, organizing, and evaluating

data, making deductions and reaching conclusions, and at last carefully testing the conclusion to determine whether they fit into the formulating hypothesis. Research methodology is a method to solve the research problem systematically. It involves gathering of data, usage of statistical techniques, interpretations of data, and drawing conclusions from the data about the research. It is a blueprint, that is followed to complete the study. It is similar to builders' blueprint who uses it for building a house. Research plan requires developing the efficient ways of gathering the required information. This section discusses the research design chosen to conduct the study, keeping in mind the objectives of the study. The structure of the research plan is described below:

Study area and period of study:

Present study is an attempt to understand pre and present impact of covid-19 on healthcare sector. Area chosen for the study is India. Study was conducted during the months of 3rd October 2020 to 10th September 2020.

Research Design: 1. Descriptive Research 2. Exploratory Research.

Sources of data and collection of data:

Research has been conducted using both primary and secondary resources for the collection of data.

Primary Data:

Primary data is the one which is collected by the investigator himself for the purpose of a specific

inquiry or study.

Method: -

The quantitative part of the study was conducted through a questionnaire and target group for survey consisted of students, employees etc. this survey was done by creating a Google form and shared it with the participants.

Secondary data:

Secondary data are those data which have been already collected and analyzed by some earlier agency for its own use; and later the same data are used by different agency.

Method: -

The research mainly depends on secondary research. In the study secondary data is collected from the previous research papers, articles, newspapers and government and non-government websites, WHO report.

Data analysis and Interpretation:

t-Test: Two-Sample Assuming Unequal Variances

	Do you feel other treatments are neglected due to COVID-19	dummy
Mean	1.88	0
Variance	0.760816327	0
Observations	50	2
Hypothesized Mean Difference	1	
df	49	
t Stat	7.133912241	
P(T<=t) one-tail	2.05781E-09	
t Critical one-tail	1.676550893	
P(T<=t) two-tail	4.11561E-09	
t Critical two-tail	2.009575237	

In Hospitals other treatments are neglected because of COVID-19

Interpretation: Null Hypothesis is rejected since p is greater than 1.

So, of all the responses recorded the overall answer of p two tail is 4.11, Hence all the records say that other treatments are neglected because of COVID-19.

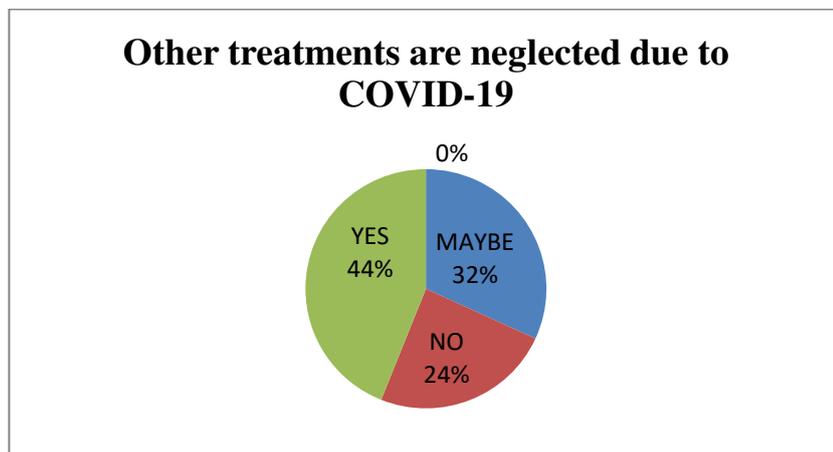


Figure 1

Waiting Time in Hospital Before and During COVID-19

t-Test: Two-Sample Assuming Unequal Variances

	<i>Waiting Time in Hospital [Before COVID-19]</i>	<i>dummy</i>
Mean	1.22	0
Variance	0.338367347	0
Observations	50	2
Hypothesized Mean Difference	1	
df	49	
t Stat	2.67432054	
P(T<=t) one-tail	0.005073651	
t Critical one-tail	1.676550893	
P(T<=t) two-tail	0.010147301	
t Critical two-tail	2.009575237	

Interpretation: Null Hypothesis is rejected since p is equal to 0.
 So, of all the responses recorded the waiting time is less than 2 hours.

t-Test: Two-Sample Assuming Unequal Variances

	<i>Waiting Time in Hospital [During COVID-19]</i>	<i>dummy</i>
Mean	1.96	0
Variance	0.243265306	0
Observations	50	2
Hypothesized Mean Difference	2	
df	49	
t Stat	-0.573462344	
P(T<=t) one-tail	0.284477234	
t Critical one-tail	1.676550893	
P(T<=t) two-tail	0.568954469	
t Critical two-tail	2.009575237	

Interpretation: Null Hypothesis is rejected since p is more than 0.
 So, of all the responses recorded the waiting time is more than 2 hours.

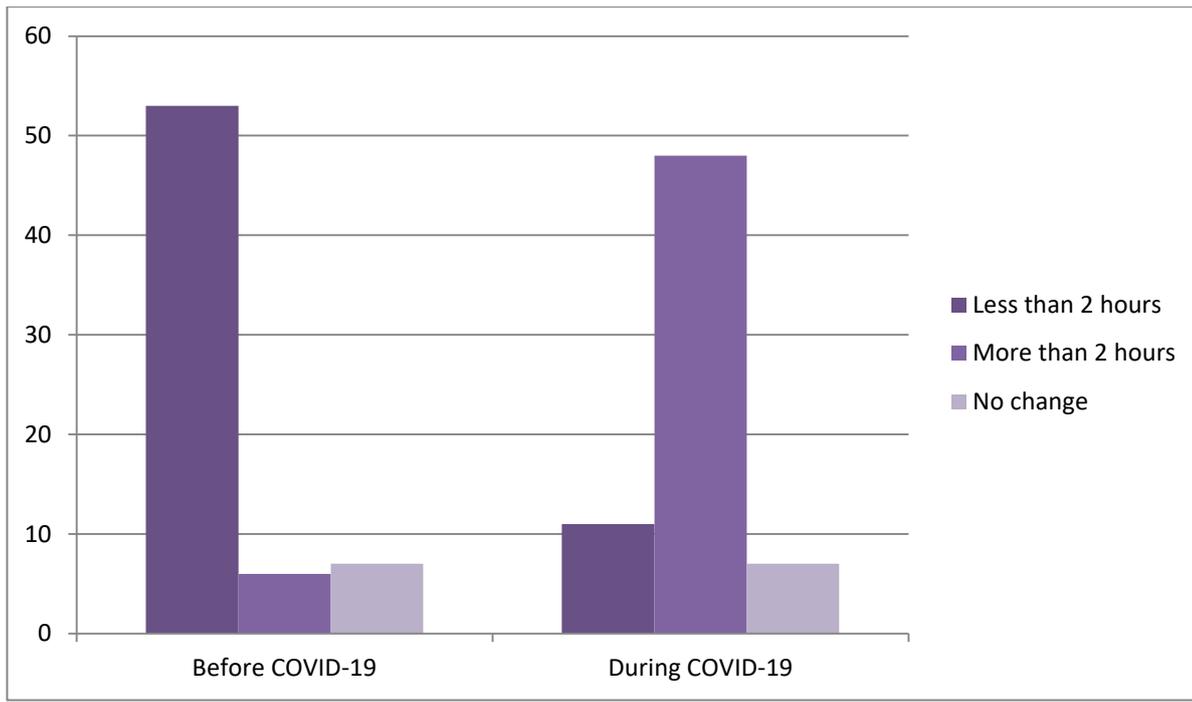


Figure 2

OPD and Emergency Unit working Before and During COVID-19

t-Test: Two-Sample Assuming Unequal Variances

Is the OPD and Emergency Unit working [Before dummy COVID-19]		
Mean	2.34	0
Variance	0.882040816	0
Observations	50	2
Hypothesized Difference	Mean	2
df	49	
t Stat	2.559879827	
P(T<=t) one-tail	0.006803029	
t Critical one-tail	1.676550893	
P(T<=t) two-tail	0.013606059	
t Critical two-tail	2.009575237	

Interpretation: Null Hypothesis is rejected since p is equal to 0.
 So, of all the responses recorded the OPD and Emergency unit working hour is as usual they were before.

t-Test: Two-Sample Assuming Unequal Variances

Is the OPD and Emergency Unit working [During dummy Covid-19]		
Mean	2.9	0
Variance	0.704081633	0
Observations	50	2
Hypothesized Difference	Mean 3	
df	49	
t Stat	-0.842700972	
P(T<=t) one-tail	0.201745203	
t Critical one-tail	1.676550893	
P(T<=t) two-tail	0.403490405	
t Critical two-tail	2.009575237	

Interpretation: Null Hypothesis is rejected since p is equal to 0.
 So, of all the responses recorded the OPD and Emergency unit working hour is raised during COVID-19

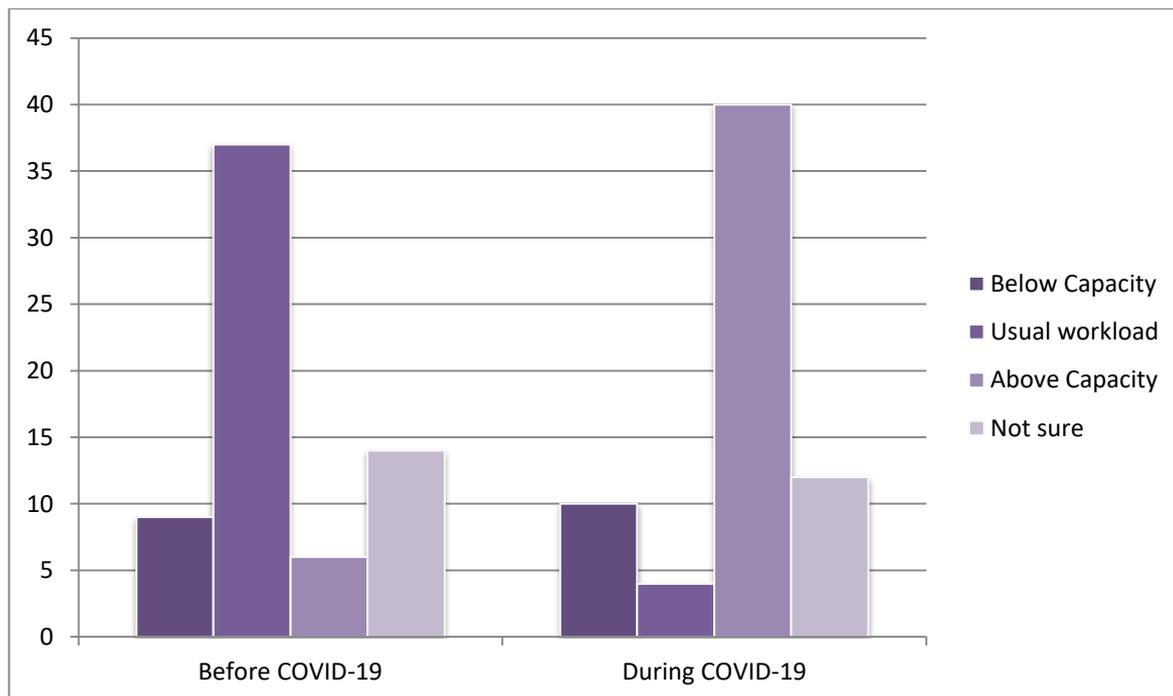


Figure 3

Findings:

The research is based on study on pre and during impact of COVID-19 on healthcare sector. Following are the findings drawn from the research:

- The violence against doctors and other medical personnel has increased much more, with up to 75% doctors facing this during this pandemic in India.
- The lockdown has exacerbated the problem, with patients unable to access healthcare due to transport suspension, fear of law enforcement and frustration following quarantine or containment zone restrictions.
- Telemedicine set to transform healthcare during Covid-19. The Government of India has launched the e-Sanjeevani OPD, a national tele-consultation service, as mandatory for health-care providers. Through e-Sanjeevani OPD, patients can medical advice through audio and video.
- The uptake of 'Aarogya Setu' Indian government's COVID-19 contact tracing application, can be promoted by smart phone technology companies and web providers to minimize the spread of COVID-19. This will help prevent a 'second wave' of viral outbreak in the future.
- It was observed that majority of the peoples came know about outbreak of COVID-19 in the month of March.
- The working hours got increased during COVID-19 as well as there was increase in the waiting time in hospitals.
- Other treatments were neglected due to COVID-19.

Research limitation:

This is cross sectional type of research on the bases of customer perspective towards the hospitals pre and during COVID the research has

been done as there is lockdown and everyone are at their respective places the primary data is collected on the bases of the Google forms and no personal interviews or physically going to the hospital was done during the research. Every customer has their own perspective towards the impact healthcare sector pre and during COVID. Also, secondary data is collected from magazines, articles, published research paper etc. which cannot be trusted as every study tells something different about the impact. Customers are facing many problems with the government as well as private sectors like availability of medicines, beds in the hospital, isolation wards are full, increase in patients in the hospital and many more. Data collected was not up to the mark as we are not able to get the clear idea about the most of the impact but we can say that there are many changes that came into existence during the pandemic in compare of the pre COVID-19 situation also the healthcare sectors was not well prepared for this situation.

- The project duration was of one month, hence the data collected and the analysis made thereof is not exceptionally comprehensive in nature.
- The research carried in a limited time period due to a time constraint.
- As the source of information is primary so there could be chances of biasness and error.
- People who will be surveyed might be reluctant to answer questions due to time crunch and might feel it as just a waste of time.

Practical implication:

In the early days of COVID-19 pandemic, the

world anxiously witnessed many countries' health system strain under the exponential onslaught of cases. Critical care capacity was a bottleneck, given that on in five patients, initially, were dependent on ventilators. Healthcare supply chains, especially for personal protective equipment, were overwhelmed.

To create health capacity, health system and consumers ceased elective care seemingly overnight. That resulted in an imbalance of capacity, with overloaded health systems in COVID-19 epicentres transformed into disaster-response hubs. In areas where the disease had not yet spread, care centres sat empty, waiting for an outbreak they were unsure would ever arrive.

We know now that health systems in any developed country should be able to anticipate plan for, manage, and successfully navigate the pandemic adequately both for patients with COVID-19 and for patients with other diseases. Some require focused action, especially surge capacity, supply availability, workforce readiness, clinical-operations processes, structure for COVID-19-case governance, and financial resiliency.

Policy makers can continue to keep a close eye on both the evidence for new therapeutics and the standards of clinical practice.

Public-health measures to control the COVID-19 pandemic will be relevant for as long as its risk continues. Many regions have risen to the challenge by combining multiple public-health measures that work for them, although almost all

have some room to improve.

CONCLUSION:

Overall, from this research we can conclude that Indian healthcare system was not ready for pandemic situation and during this COVID situation many changes took place in healthcare sector. Some change was problematic from customers perspective like negligence of other treatments, waiting time of hospitals, hygiene factor of hospitals, OPD and Emergency ward, etc. with help of primary and secondary data this research is been done successfully.

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ANNEXURE:

Hello Everyone!! This is a survey Conducted by Abhijeet Pillay, Aishwarya Rawat, Anuradha Mhashakhtri, Raj Parmar, MBA students of MIT-WPU, for the assessment of the Impact of COVID-19 on Healthcare Sector.

Email address

Name

Age

Gender

Occupation

Location

Q1. Approximately when did you 1st hear about the COVID-19 (Prefer Month)

Q2. Source of information regarding COVID-19

1 Newspaper & Magazines

2 Television

3 Social Media

4 Family & Friends

Q3. Change in Working Hours of Hospital During COVID-19

1 Reduced

2 Increased

3 No change

Q4. Waiting Time in Hospital

Before COVID-19

1 Less than 2 hours

2 More than 2 hours

3 No change

During COVID-19

1 Less than 2 hours

2 More than 2 hours

3 No change

Q5. Challenges faced by patient

Before COVID-19

1 Shortage of medicine

2 More waiting time

3 Less availability of services

4 Less working staff

During COVID-19

- 1 Shortage of medicine
- 2 More waiting time
- 3 Less availability of services
- 4 Less working staff

Q6. Is the OPD and Emergency unit working during COVID-19

- 1 Below capacity
- 2 Usual workloads
- 3 Above capacity
- 4 Not sure

Q7. Rate availability of equipments in hospital

Before COVID-19

- 1 Excellent
- 2 Very good
- 3 Good
- 4 Fair
- 5 Poor

During COVID-19

- 1 Excellent
- 2 Very good
- 3 Good
- 4 Fair
- 5 Poor

Q8. Do you feel treatments are neglected due to COVID-19?

- 1 Yes
- 2 No
- 3 No maybe

Q9. Revenue of hospital

Before COVID -19

- 1 Increase
- 2 Decrease
- 3 No change

During COVID-19

- 1 Increase
- 2 Decrease
- 3 No change