

Summer Training Report

By

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MBA (Hospital and Health Management)

2019-21



Acknowledgments

I am grateful to the all people in my University, for their sincere guidance I received to uphold my practical as well as theoretical skills during my research.

I would like to extend my note of thanks to my mentor **Dr. Susmit Jain (Associate Professor, The IIHMR University)** for his constant support and guidance.

I would also thank my family who encouraged me throughout the time of my research and the positive attitude they showed for my work was very encouraging and supportive.

Sonali Taggar

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List of Abbreviations:

- **SARS:** Severe Acute Respiratory Syndrome
- **MERS:** Middle East Respiratory Syndrome
- **HCOV:** Human Coronavirus
- **WHO:** World Health Organization
- **JHSPH:** Johns Hopkins School Of Public Health
- **MOHFW:** Ministry of Health& Family Welfare
- **MHA:** Ministry of Home Affairs
- **NDMA:** National Disaster Management Authority
- **UT:** Union Territory
- **ICMR:** Indian Council of Medical Research
- **CAPF:** Central Armed Police Forces

Part – 1
(Research Study)
Study on current status of COVID-19 in Jammu & Kashmir with respect to India and Global level

Introduction:

The 2019-20 coronavirus pandemic is an ongoing pandemic which is also known as coronavirus, COVID-19, 2019-nCoV acute respiratory disease, Novel coronavirus pneumonia. This outbreak was identified in Wuhan which is the capital of China's Hubei province and hence has since spread globally, resulting in ongoing pandemic (2019-2020). The WHO declared this outbreak as the Public Health Emergency of International concern on January 30th and a Pandemic on March 11th. This is an infectious virus which is thought to have a zoonotic origin because health authorities in Wuhan reported that cluster of viral pneumonia cases of unknown cause on December 31st to early January 2020 mostly had links to the Human seafood wholesale market. Coronavirus disease belongs to the large family of viruses which cause less severe common cold to more severe disease such as (SARS) Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome (MERS). The first human coronavirus outbreak which was recorded late in 1965 (HOV-229E), followed by two outbreaks of its similar capacity i.e. SARS-COV and MERS-COV in 2003 and 2012, this newly discovered virus closely related to bat coronaviruses, pangolin coronaviruses.

This virus is primarily spread between people by close contact, small droplets produced by coughing, sneezing or talking. People may also be infected by touching the surfaces, ground on which the droplets may be present or remaining in the air over long distances. It is most contagious during the first 3 days after the onset of symptoms which include fever, cough, fatigue, shortness of breath and loss of smell. Complications may include pneumonia and acute respiratory distress syndrome. The time from exposure to onset of symptoms is around 5 days, but may vary from 2-14 days. Till now there is no known vaccine or specific antiviral treatment. Symptomatic and Supportive therapy is primary treatment, recommended preventive measures include handwashing, covering one's mouth when coughing, maintaining distances from others, wearing face mask and self-isolation.

Review of Literature

DATE& JOURNAL	TITLE	AUTHOR'S	MAIN QUESTION	KEY FACTS
The European respiratory journal 16 MARCH 2020	Pathogenesis of COVID-19 from a cell biological perspective.	Robert J.Mason	What is the pathogenesis of COVID-19 from the perspective of cell biology	1) Disease caused by the virus SARS COV-2. 2) SARS COV-2 binds with the eleptical cells in nasal cavity & replicates. 3) Main receptor for COV-2 in ACE inhibitors. 4) Virus propogates & migrates to the respiratory tract causing respiratory & breathing problems. 5) End result is it release toxins in pulmonary region by self replicating in just 2-3 days.
China CDC Weekly	The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)-China 2020		What are the epidemiological characteristics of COVID-19 found in china?	1) 61.8%confirmed cases found in china. 22.4% cases are suspected, 14.6% were clinically diagnosed,12%(889) cases were asymptomatic. 2) Most of the cases were in the age group of (30-79 years) approximately 86.6% cases. 3)1023 deaths occurred among total confirmed cases with overall Case fatality of 2.3%. 4)The epidemic curve peaked around January 23-26 and then began to decline reading up to February 11.

J Clint Med 17 FEB 2020	Incubation period and other epidemiological characteristics of 2019 Novel coronavirus infections with Right Truncation A statistical Analysis of publicly Available case Data	Linton et.al, JAPAN	What is the incubation period of COVID-19 in Humans?	Incubation period falls within the range of 2-14 days with 95% confidence interval and has a mean value of around 5 days. The mean time from onset of illness to hospital admission (for treatment and/or isolation) was estimated at 3-4 days to 12-14 days.
PUBMED.GOV MAY 2020	Imaging and clinical features of patients with 2019 novel coronavirus SARS-COV-2	Xi xu et.al	What are the imaging and clinical features of patients with 2019 novel coronavirus SARS-COV-2	SARS-COV-2 can be confirmed if chest CT examinations show multiple patchy ground glass opacity in bilateral multiple lobular with periphery distribution which are the typical chest CT imaging features of COVID-19 pneumonia.
International journal of infectious disease MAY 2020	Prevalence of comorbidities and its effects in patients infected with COVID-19: a systematic review and		What are the Comorbidities which increase risk of infection in COVID-19?	When assessed in 1576 infected patients, it was observed when compared between severe and non-severe patients, the prevalence of comorbidities in the COVID-19 patients is Hypertension, Cardiovascular disease, Respiratory system disease is a risk factor for severe patients.

	meta-analysis			
JAMA 11 MARCH 2020	Detection of SARS-COV-2 in different types of clinical specimens	Wang,china <i>et.al</i>	Which specimens present with the highest positive rate and the lower positive rate?	1070 specimens collected from 205 patients positivity by RT-PCR. Bronchoalveolar lavage fluid (93%) sputum(72%) Nasal swabs(63%) Fibrobronchoscope brush biopsy(46%) Pharyngeal swabs(32%) Feces(29%) Blood(1%) Urine (0%).
Sci.china life sci. 04 MARCH 2020	Clinical characteristics of 24 asymptomatic infections with COVID-19 screened among close contacts in Nanjing,China	Zhiliang Hu <i>et.al</i>	What are the clinical characteristics of asymptomatic infections?	Laboratory –confirmed positive for the COVID-19(pharyngeal swab) No obvious symptoms at time of screening (all of them) 20.8% developed symptoms (fever,cough,fatigue .etc.) 50.0% cases showed typical CT images of ground glass chest. 20.8% presented stripe shadowing in the lungs 29.2% cases showed normal CT image and had no symptoms during hospitalization(these cases were younger) Epidemiological investigation revealed asymptomatic transmission.

METHODOLOGY:

- 1) Research question: To understand current status of COVID-19 in Jammu & Kashmir with respect to India and global level till 3rd JULY 2020.
- 2) Study objectives:
 - To know the mortality, morbidity and recovery indicators among total positive COVID-19 individuals in Jammu & Kashmir.
 - To determine the age-sex composition of COVID-19 patients in Jammu & Kashmir.
 - To find out total no. of districts affected by COVID-19 in Jammu & Kashmir.
 - To find the availability of hospitals beds for COVID-19 patients in Jammu & Kashmir with respect to others states.
 - To enlist positive steps taken by the J&K government to control the spread of COVID-19 in J&K and India.
- 3) Type of research method :
Qualitative method
- 4) Type of research design:
Descriptive cross sectional study
- 5) DATA COLLECTION:
Data is collected from various secondary sources like articles, journals, websites and papers.

RESULTS & DISCUSSION

A. World health organization (WHO) Globally

(updated 3rd July 2020 23:36 GMT+5:30)

Confirmed cases: 10,720,449

New cases: 186,167

Deaths: 517,340

Recovered: 572, 7110

B. John Hopkins school of public health(JHSPH)Globally

(updated 3rd July 2020 23:36 GMT+5:30)

Confirmed cases: 10,931,638

Deaths: 522,618

Recovered: 5,767,210

C. World health organization(WHO) India:

(updated 3rd July 2020 23:36 GMT+5:30)

Confirmed cases: 625,544

Deaths: 18,213

Recovered: 3,81164

New cases: 20,903

D. Ministry of health and family welfare(govt.ofindia)

(updated 3rd July 2020,20:36 GMT+5:30)

Confirmed cases: 647,503

Deaths: 18.661

Recovered: 3,93,172

Active cases:235,604



Figure 1

E. India COVID-19 tracker (by govt.of India)
(updated 3rd July 2020,08:00IST GMT+5:30)

AT INDIA LEVEL:

Confirmed cases :647,503

Deaths: 18,213

Recovered: 379,891

Active cases: 227,439

AT STATE LEVEL(J&K):

Confirmed cases: 8,019

Deaths: 119

Recovered: 5,075

Active cases :2,825



Figure 2

At district level in Jammu & Kashmir

As of 3rd July 2020 20 districts have been affected from COVID-19 in Jammu & Kashmir

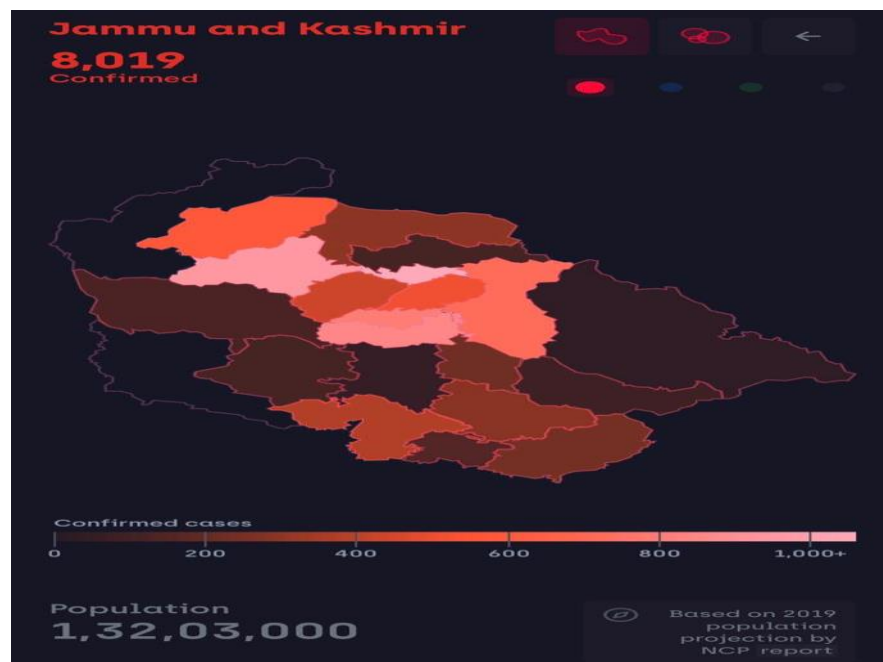
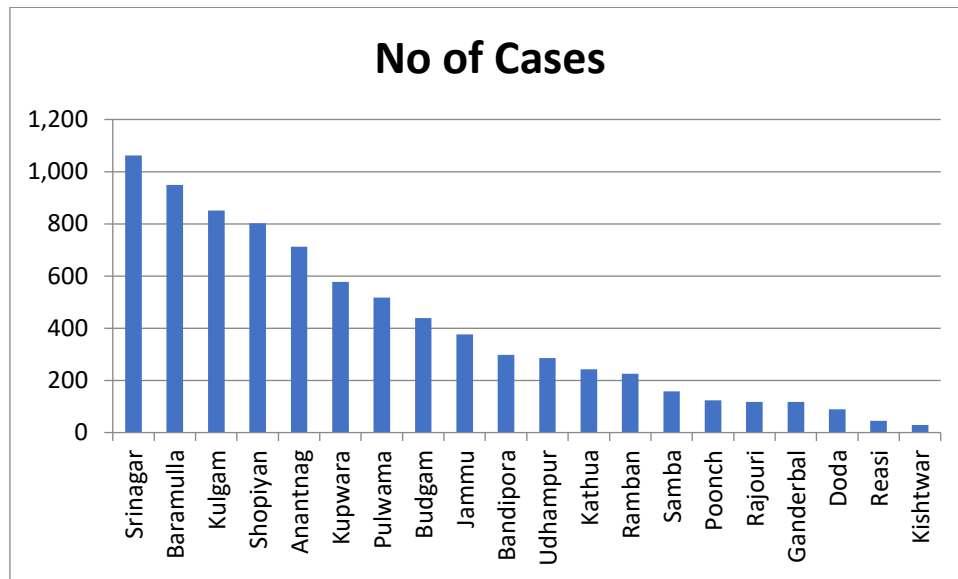


Figure 3

COVID-19 Fatalities in Jammu & Kashmir

As of 3rd July 2020 there have been **119 fatalities** recorded in the state of Jammu & Kashmir in the following districts.

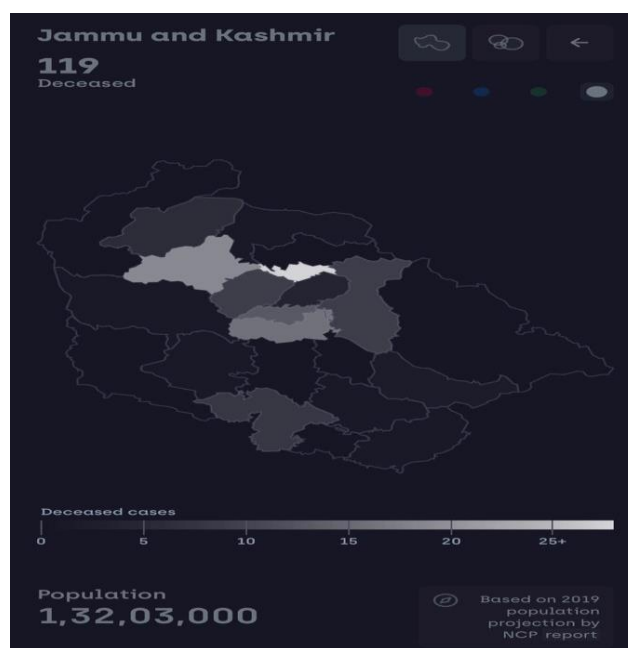
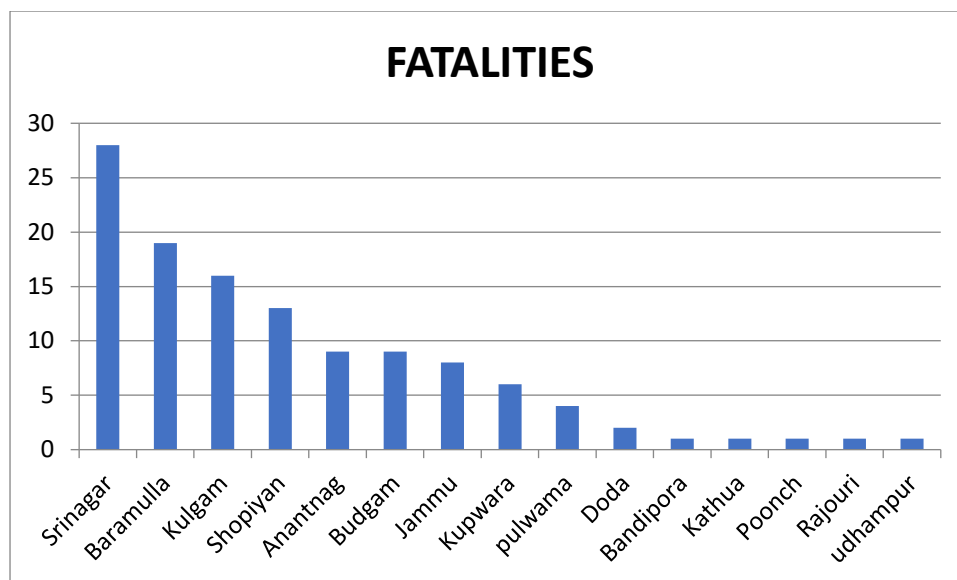


Figure 4

COVID-19 Recoveries in Jammu & Kashmir:

As of 3rd July 2020 there have been **5,075 patients** successfully recovered in the state of Jammu & Kashmir in the following districts.

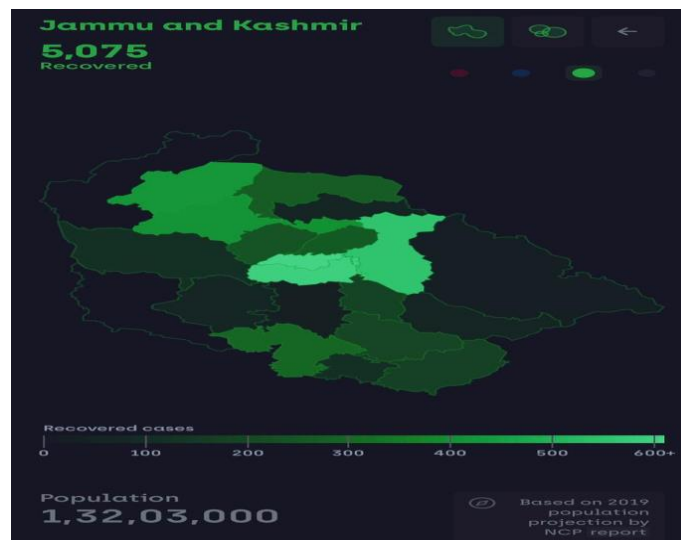
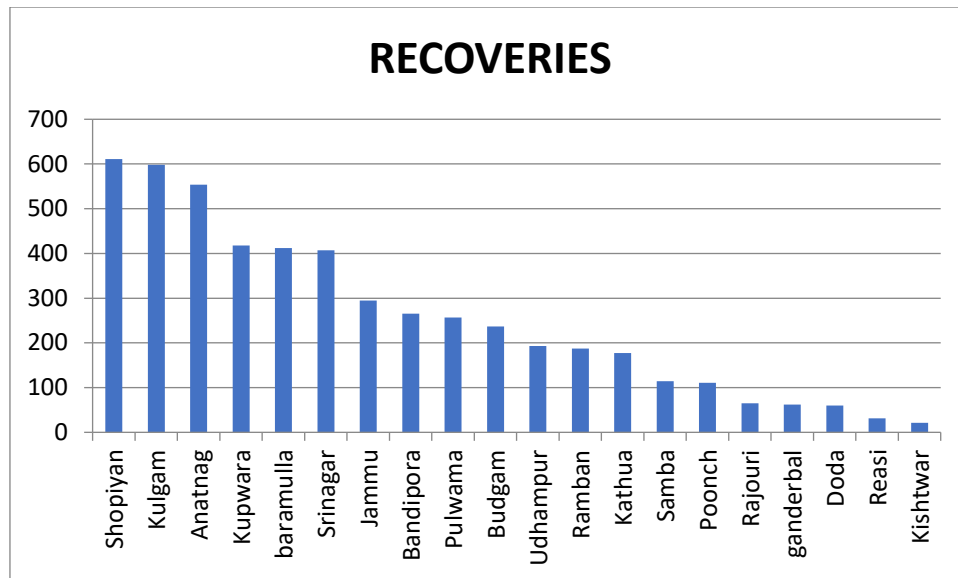


Figure 5

Steps taken by government/non-government organizations to control spread of COVID-19 in India and Jammu & Kashmir

- On 24th March 2020, the prime minster announced a 21-day national lockdown. There was a complete ban on people from steeping out of their homes.
- Mass gatherings at public places have been prohibited.
- People are advised to follow social distancing and have been asked to maintain at least a distance of 1 meter from each other while standing at public places or talking to each other
- International and domestic travels has been banned within and outside the countries of the world to prevent the spread of disease.
- Mandatory screening of passengers and tourists at airport and railway stations.

- Constructions of quarantine and isolation centers for the patients who have been suspected of COVID-19.
- All educational institutes and offices have been closed and people are advised to remain at their places and advised not to come outside unless there is an emergency.
- All the citizens are advised to use masks,gloves and hand sanitizers and wash hands frequently with soaps to control infections.
- Hospitals and medical services are made to be remain vigilant and alert 24/7 to treat and report any cases of COVID-19 with immediate effect.
- Contactless delivery system have been started by many shopkeepers where shopkeeper will leave your order at your doorstep and you can later you can collect it, inorder to prevent the spread of infection by having no or minimal contact.
- Many NGO's have come forward and many people also volunteered to distribute free ration and food items to those who are unable or cannot afford to buy food during this period.
- In states which have reported 6 or more cases in particular areas,they have been marked as hotspots and have been completely sealed off to prevent the spread of the infection in society.

VARIOUS DISTRICTS OF JAMMU & KASHMIR ARE DIVIDED IN DIFFERENT ZONES:

Zones are classified as follows:

1. RED ZONE: Area where cases have occurred in last 14 days, in this area complete restriction on movement is imposed and it is completely sealed.
2. ORANGE ZONE: Areas where from last 14 days no cases have occurred, few activities and little but of vehicular movement is allowed with extreme precautions and proper sanitization.
3. GREEN ZONE: Area where no cases have occurred in last 28 days, normal activities are allowed for few hours with proper guidelines.

90 HOTSPOTS HAVE BEEN IDENTIFIED IN JAMMU & KASHMIR (15th APRIL 2020):

14 hotspots are found in Jammu region and 76 hotspots are found in Kashmir region. These are spotted in order to prevent the deadly coronavirus.

<u>DISTRICTS</u>	<u>NO OF RED ZONES</u>
JAMMU DIVISION	
Rajouri	5
Udhampur	4
Jammu	4
Samba	1
KASHMIR DIVISION	
Srinagar	15
Bandipora	14
Baramulla	14
Shopian	8
Budgam	7
Kulgam	7
Kupwara	7
Pulwama	7
Gandarbal	2

Table 1

Areas which are designated as hotspots:

JAMMU DIVISION:

- **JAMMU:** Janipur , Peer mitha(gujjarnagar) Bhatindi, Sunjwan and Bahu fort.
- **RAJOURI:** Sarola, Dehridhara, MangalNar, Gambirmuglan, Kotli.
- **SAMBA:** Chak Ram Chand.
- **UDHAMPUR:** Chunti (Block chenani) village kotli, Mangiote, Rakhsansoo, Padanoo, Chopra shop, Mageni area of viilage of Rehambal and MohraDuggar of village Jib (block tikri) village Thaplal, Kannals, Marta (Mora bassi) Dalsar,Kheen,

Kirmoo and Ramnagar, village tikri, Lehnu, Jarmara, Mand east and Mand west (block tikri).

- **BANDIPORA:** Parraymohalla, Chandergeer, Batagund, SK bala, Hakbara, Naidkhi, Gundjehanger and maudwan (block Hajin) Kunan, Gondikesar, Nowgam (bunkoot), Gundidaichina (block bandipora)
- **BARAMULLA:** Sulinda, Chektan, Chanpora, Chandiloora, Hariwatnoo, Kampora, Qaziora, Kilwara, Kralpora, Khajipora, Swan, Ogmuna (Tangmarg), Sultan Daki and Amlok colony (URI).
- **BUDGAM:** Batpora, Wathura (Chadoora), Kanidajan, Trajbal, Pakharpora and Chak Mohrandpora (charar-e-sharief), Soibugh and Paller (Block Budgam).
- **GANDERBAL:** Waskoora and Guzhama (Wakoora)
- **KULGAM:** Reshipora W.no.4/Naikpora MC Kulgam, Sopat in Tehsil Devsar, Batpora/Bagbal in Tehsil D.H Pora (All in kulgam), and Check Wangund (administratively in Anantnag, but Health block under Kulgam).
- **KUPWARA:** ITI Handwara, Baghbella, Manigah, Andherhama, Gomal, Trehgam and Dildar.
- **PULWAMA:** Gudoora, Chandgam, Pinglena, Parigam, Abhama, Sangerwani, Khaigam.
- **SHOPIAN:** Sedow, Ramnagri, Sindho Shirmal, Bemnipora, Memendar, Palpora, Heerpora, Kanipora.
- **SRINAGAR:** Ahmed Nagar, Lal Bazar, Hawal and Nowshera (Zone: Zadibal), Nishat (Zone: Hazratbal), Khayam (Zone: Khanyar), Iddgah and Goripora (Zone: S.R. Gunj and chattabal, Hyderpora, Bemina, Jawaharnagar, Naitipora, Lasjan and Tengpora (Zone: Batamaloo).

Afterwards various guidelines related to isolation, district wise progress and strategy to open/extend lockdown in J&K and quarantine protocols.

1. The logic behind to isolate these hotspots is to ensure no visits or step out, in order to ease detection and isolation of other positive cases to break the chain of transmission.

2. Regular sanitization have been started in the localities which have been identified as the hotspots.
3. Drones have been deployed to keep a strict vigilance in the areas which have been identified as the hotspots.
4. Nationwide lockdown was imposed which limit the movement of the entire 1.3 billion population.
5. Different phases of lockdown was imposed in Jammu and Kashmir
PHASE 1: (25th March 2020 - 14th April 2020) 21 days.
PHASE 2: (15th April 2020 - 3rd May 2020) 19 days.
PHASE 3: (4th May 2020 - 17th May 2020) 14 days.
PHASE 4: (18th May 2020 – 31st May 2020) 14 days.

The goal of this lockdown was to control the spread of coronavirus in J&K.

On 30th May, it was announced that lockdown restrictions were to be lifted onwards and ongoing lockdown is further extended till 30th June only for containment areas. PM Modi later clarified with his statement that the lockdown phase in the country is over and unlock had begun which is termed as Unlock 1.0.

UNLOCK 1.0: (1st June 2020 – 30th June 2020) 30 days, under the MHA guidelines in this first phase of unlock 1.0 the opening of malls,restaurants,religious places,hotels are permitted from 8th June. Night curfews were in effect from 5am to 9pm, large gathers were still banned.

UNLOCK 2.0: (1st July 2020 – ongoing scheduled to end on 31st July)

This phase of unlock began on 1st July under the instructions and guidelines of the MHA and NDMA. Lockdown is still imposed in containment zones, night curfews would be in effect from 5am to 10pm, inter and intra state movement is permitted also limited international travel has been permitted as part of Vande bharat mission. Educational institutions ,recreational activities are to remain closed till 31st July, further guidelines regarding usage of masks and AarogyaSetu app will reiterated.

6. Anyone entering the UT by road,rail and air has to take mandatory COVID-19 test and undergo institutional quarantine till the test results are negative.
7. After receiving the test results, individuals tested negative they can return home but have to undertake 14-day home quarantine. COVID-19 positive patients are relocated to dedicated healthcare facilities for their treatment.

8. Travellers can also opt for a paid hospitality quarantine by get registered themselves for one at KIOSKS where the samples for the COVID-19 test are collected.
9. Travellers who want inter district movement need to have a pass with them for movement, and those who are designated in red zones and want to travel in orange or green zone districts within the UT had to undergo same testing and quarantine regime.

Following categories are exempted from the mandatory quarantine protocols.

- Pregnant women, mothers with infants below 1year.
- Cancer, chronically ill and dialysis patients.
- Children below 10 year travelling alone.
- Travellers with COVID-19 test negative certificate issued by ICMR approved lab and not older than 48 hours.
- CAPF and Armed forces personnel reporting for active duty in the UT, will be sent to their respective formations.

Helplines issued by the administration

- **1075:** Toll free national COVID helpline.
- **0191-2549676:** UT level cell.
- **0191-2520982, 0191-2674444, 0191-2674115:** Jammu division.
- **0191-2440283, 0194-2430581:** Kashmir division.

Effect of migration on COVID-19 in India and J&K

The migration from one state to another is considered to be the main factor behind the widespread of the covid -19 disease in India, which has led to tremendous rise in COVID-19 cases all around the country.

In J&K government evacuates 1,89,164 residents, 1,28,587 are evacuated via Lakhanpur ,60,577 through special trains. J&K administration has received 74 special trains at Jammu and Udhampur railway stations from various states and UT's. As per the figures,1869 stranded passengers including 5 from Dubai have entered through Lakhanpur while 916 passengers by COVID-19 special trains at Jammu. Till now, 53 trains reached Jammu with total of 44,881 passengers belonging to different districts while 15,696 passengers reached Udhampur in 21 special trains.

Sushma Chauhan, who is the deputy commissioner of jammu is supervising the whole process of boarding and deboarding of migrants at Jammu railway station.

Age & sex wise COVID-19 patients in J&K and India

Through a study conducted by ICMR based on the random sampling of 1801 samples, it was found that unlike other countries where older population is more vulnerable to the disease & 60% of the cases in India are between 20 to 49 years of age. It was also found that males are more affected than females from COVID-19. Nearly 73% of all COVID-19 cases in India are found in men and only 27% cases were found in women in India. In J&K there is also a similar trend seen where maximum, 70% of cases belong to age group 35-45 years of age & maximum numbers of deaths have been recorded in the patients who are 60 years. So from this findings we can conclude that older population in India and men's are more vulnerable to have fatal consequences.

Availability of hospitals beds for COVID-19 patients in J&K with respect to India.

In our study using the data from National Health Profile 2019, we have observed that there are 713,986 total government beds available in India. This amounts to 0.55 beds per 1000 population. The availability of beds for elderly people in India is around only 5.18 beds per 1000 population.

From a study done by CDDEP we have found that in J&K there are 7291 hospitals beds available in public sector and 704 beds available in private sector totaling 7995 beds in state & 182 ventilators in public sector and 18 are available in private totaling upto approximately 200 in J&K as of now.

In the study we have observed that many states including J&K lies below the national level figure (0.55 beds per 1000 population). From the data gathered we have estimated that there are 17,850 to 25,556 ventilators in country. Even in the best care scenario, where we assume that if all ICU beds are equipped with ventilators, we have maximum of only around 57 thousand ventilators to cater to a growing number of COVID-19 patients which is not enough as per the future demand in country.

CONCLUSION

Through the efforts of the Indian government and peoples co-operation it was found during the study that through strict lockdown and sealing off the hotspots in affected areas nationwide, India has witnessed an improvement

It was found that there is a decline in the death rate and at present India's death rate is stable at 2.82% in comparison to most of the European countries such as Spain 11.7%, Italy 18.45%, and UK more than 20%. As per the findings from study it has also been seen that rate of recovery of COVID-19 patients in India is also improving with each passing day, the recovery rate stands at 62.42% as on 3rd July 2020. In J&K recovery rate increased upto 62.35%, 112 COVID -19 patients recovered and discharged from various hospitals, 23 from Jammu division & 89 from Kashmir division. The fatality rate of India is 2.82% among the lowest in the world, compared to a global fatality rate which is 6.13%. In J&K the fatality rate is 1.62%.

In the study, it was also found that doubling rate in as many as 19 states and union territories across India is even lesser than the national average. This includes Himachal Pradesh, Chandigarh, Pondicherry, Bihar, Kerala, Orissa, Uttarakhand, Haryana, Ladakh, Telangana, Tamil Nadu, Andhra Pradesh, Delhi, Uttar Pradesh, J&K, Assam and Tripura. In J&K with stringent measures and promptly identifying the hotspots and sealing them off instantly resulted in flattening the curve in some districts like Doda, Poonch, Kishtwar and declared as corona free districts, however Srinagar, Baramulla, Kulgam, Shopian, Jammu and Udhampur are the worst affected districts of J&K. Migration was found to be the main reasons for the widespread of COVID-19 in J&K. It was also found that in J&K unlike other states majority of cases were present in 60+ year's of age group, here in J&K majority of cases belong to age group of 35 to 55 years of age in which males were more affected than females from COVID-19.

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Part -2

Name of Online Course: **Healthcare in India: Strategic Perspectives**

Course Description

Write about the course --

Length: 5 Weeks

Effort: 3–4 hours per week

Institution IIMBx

Subject: Business & Management

Level: Advanced

Language: English

Video Transcripts: English

Platform: Edx, MOOC

1. Objectives

Course Contents

Week 1: Strategy Foundations

Introduction to basic strategy concepts, including Porter's five forces, resource-based view, institution-based view and related notions

Week 2: The Indian Hospital Sector

Strategic overview of a specific sub-market in Indian healthcare

Week 3: The Indian Pharmaceutical Sector

Discussion of current and key trends in the sub-market

Week 4: The Indian Medical Devices and Diagnostics Sector

Case study discussion

Week 5: Disruptive Innovation and Regulation in Indian Healthcare

Interview with industry leader(s) across the Indian hospital, pharmaceutical and medical devices and diagnostics sectors

HEALTHCARE IN INDIA A STRATEGIC PRESPECTIVE

This course aims to build a comprehensive view of India's current healthcare ecosystem and share perspectives on the future evolution patterns of India's healthcare.

For a large number of Indians today, access to quality healthcare is inadequate, and the health system's goals of access, affordability and quality remain elusive. An onslaught of non-communicable diseases (NCDs) has resulted in a dual disease burden even as the country continues to struggle to combat communicable diseases (CDs). Focus on prevention and wellness is limited, reflecting a highly unorganized primary-care system and a long-standing curative bias among patients and caregivers. Compounding the situation is an inadequate delivery infrastructure, talent shortage and limited funding from public and private sources.

This paper lays out an aspirational vision for Indian healthcare for the next decade (2015–2025); the overall objective is to ensure access to quality care at an affordable cost for every citizen of India. To achieve this objective, this paper defines the key imperatives for multiple stakeholders, while assessing the gaps and requirements in critical resources and the paradigm shifts that will lead to change.

Today, healthcare in India is at a crossroads. As a nation, we have made noteworthy progress across several dimensions, and India is healthier today than ever. We have successfully eradicated multiple diseases, including smallpox, polio and guinea worm disease. HIV infections and AIDS-related deaths have dropped significantly. India has emerged as a hub for generic-drug manufacturing and boasts a large public-health infrastructure.

Despite evolution on multiple fronts, however, India still struggles with substantial issues and gaps in its healthcare system. Healthcare is under-served and under-

consumed. Insurance covers less than a quarter of the population, and out-of-pocket spending is considerably high. India faces a severe shortage of both hard infrastructure and talent, with regional imbalances and variations in healthcare delivery. The strong bias towards curative care reflects a culture in which prevention and wellness receive only limited focus and investments in primary care and public health have long been inadequate. Quality of care is questionable, hindered by limited accreditation and adoption of basic technologies.

Course contents: Healthcare in India-Strategic Perspectives

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- ☐ Strategy Foundations101
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MODULE 2: The Indian Hospital Sector

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Introduction to the course:

The Indian healthcare sector is garnering global attention. Be it the evolution of Indian pharmaceutical firms, low-cost hospitals or disruptive start-ups, the sector is a laboratory of myriad market forces impacting innovation, choices and societal welfare. At the same time, India continues to battle with an inadequate healthcare infrastructure and a rising disease burden.

This business course applies a strategic lens to the sector's submarkets including hospitals, pharmaceutical firms and diagnostic equipment providers. Through this course we will examine the role of disruptive innovation and the ways in which public policy shapes the evolution of healthcare markets. With this framework, we will be able to evaluate where the exciting business opportunities lie, and what are the unmet needs in this sector that can be addressed by a startup.

Objectives of the course-

- ☐ To explore the Indian Healthcare sector from the bird's eyeview.
- ☐ To understand the current scenario and market trends in the healthcare sector
- ☐ To understand the strategic perspectives in the Indian healthcare sector
- ☐ To analyse the gap between the consumer demand and healthcare services available in India.
- ☐ To understand the role of hospitals, pharmaceutical firms and diagnostic equipment providers in the Indian Healthcare sector.

Methodology-

- ☐ Video lectures
- ☐ Additional reading materials
- ☐ Thought Leader Insights

- ☐ Assignments
- ☐ Graded Assessment

Key Learnings from the course-

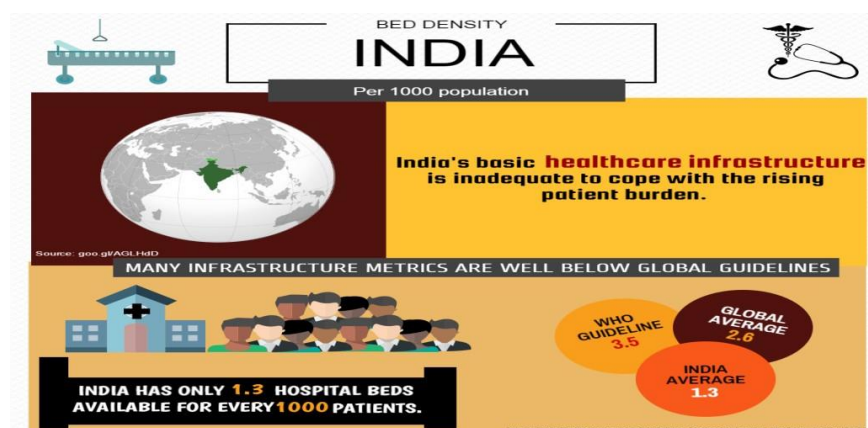
- ☐ Basic concepts in strategy applied to sub-markets within the healthcare sector.
- ☐ Competitive advantage and the role of resources in differentiating the successes from the failures.
- ☐ Corporate leader perspectives on the evolution of the various sub-markets in the sector.

Healthcare in India-Strategic Perspectives-

Using the strategic lens let's explore the Indian health sector but first have a look on the following facts

Did you know?

India faces a great challenge when it comes to basic healthcare infrastructure; India has only 1.3 hospital beds per 1000 patients, compared to the WHO guideline of 3.5 and the global average of 2.6 beds per 1000 patients



Key Issues and Challenges of Indian Healthcare Sector-

- Medical Negligence

- Poor sanitation
- Overcrowding
- Lack of Basic Hygiene
- High Cost of Medical Treatment
- Lack of effective health Insurance support system

Innovation in Indian Healthcare Sector-

Arvind Eye Care Hospital- Considered as a classical example of innovation in the Indian health care sector with limited resources. It started with one man and his dream to prevent unnecessary blindness and restore eye sight to millions of his country men and women. When Dr. Govindappa Venkataswamy started Aravind Eye Hospital in the Indian city of Madurai in 1976, it had 11 beds. Today, it has clinics and hospitals throughout India, and is the largest cataract facility in the world. Dr. Venkataswamy passed away in 2006, but his work lives on. The evidence: tens of thousands of Indians who have been given back the gift of sight.

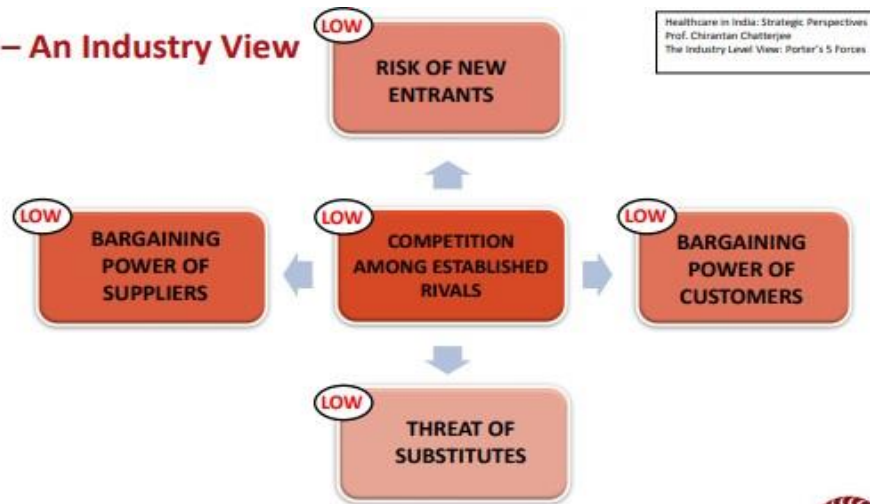
Strategic Viewpoint

Before discussing the strategic viewpoint let's understand **what is a strategy?**

Strategy is nothing but a common sense or a common approach. It's about diagnosing particular problem and finding a guiding policy in terms of the problem that has been diagnosed, and then finally, carving out coherent actions for the guiding policies that are decided to solve the problem that has been diagnosed.

The **first** strategic framework we examine is **Porter's Five Forces**, which operates at the **industry level**. This framework helps you to understand the level of competition within a given industry and the overall profitability of that industry.

5-Forces – An Industry View



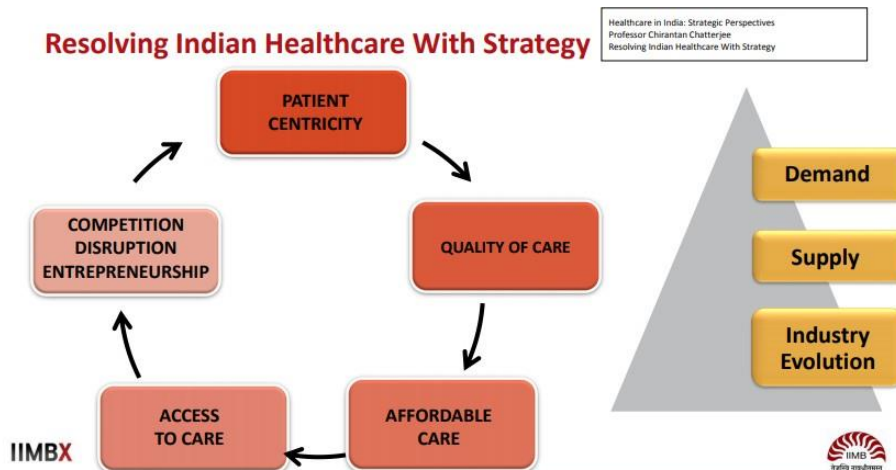
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Resolving Indian Healthcare system with a strategy-

To improve the healthcare system we have to strategize a model that will focus patient centricity with good quality of healthcare treatment that is accessible and affordable to all with healthy **competition**

Resolving Indian Healthcare With Strategy



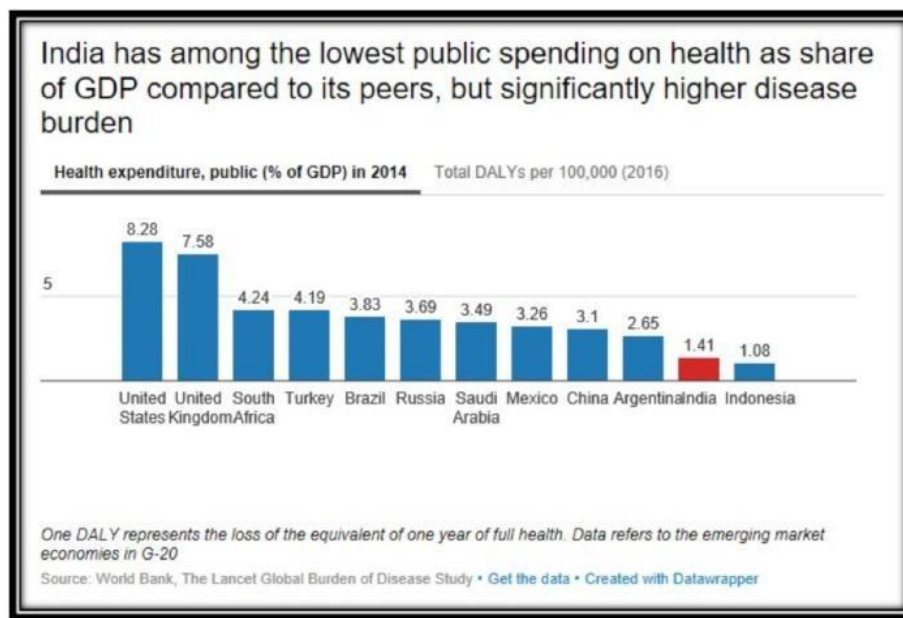
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THE INDIAN HOSPITAL SECTOR

Did You Know?

India's healthcare expenditure spent lags behind low and middle income (LMIC) countries. India's Total Healthcare Expenditure spend remained stagnant over the past decade with an **average spend of 1.4 % of the National GDP**. India's out-of-pocket spend (60%) continues to remain significantly higher than the LMIC average (40%).



Overview of Indian Hospital Sector-

In India if we look at especially, secondary and tertiary care in the sector, the key presence has been that of missionary hospitals in the country, and secondly, of the public sector. **But in recent times over the last 20 years, what we have seen is entry by a lot of private corporate chains in the Indian hospital market. Some of them have been so successful and have created some interesting business models like Narayana Hrudalaya or HCG oncology**

Coming to recent times, I think the first thing to note about this particular hospital sector is that a bunch of them have either a single unit hospital, which is their **uni-specialty hospital** or a lot of them are **multi-specialty hospital** and the element of focus in that is **the Product Strategy which makes them successful.**

The second element that we need to think a **having been in business for some time now to take their models beyond India.** So, when you look at how Narayana Hrudalaya is dealing with health city Cayman Islands, you see a great example of how the Indian Hospital model which is frugal, cost-effective based on an efficient, lean operation and mindset is now panacea for affordable healthcare to the western hemisphere and there is much interest around that.

The third thing to note about in recent times is that there is some amount of vertical integration that is happening. So, we see that HCG, which is a cancer hospital, now getting into production of cancer medicines. So, that's something interesting to note about this hospital.

While discussing these three things, you need to acknowledge that couple of things keep coming out from the discussion on Indian hospitals. The first is on patient centricity, and therefore, the role of some of these private hospitals in terms of their image in the society. In the process of trying to provide modern healthcare sometimes which might not be affordable? Some of these hospitals have indeed not played so well in terms of their sensitivities to the patient welfare, and that has had its implication in the general media on how these hospitals are evolving, whether this particular sector should have a more empathetic model, business model that is focused towards patient centricity. This relatedly also boils down to some disruptive models but here is the role of some these hospital



“LSP” Principle of Hospitals

L- localisation-Some of these hospitals are really geographically focused like Aravind Eye Care hospitals are mostly geographically focused in Southern India.

S-Specialisation-the product specialization or the care specialization is something clearly standing out in the context of the Indian hospital sectors. Some of these hospitals, as I noted, are focused on cancer, cardio care, or eye. While some others are more broad-based.

P-Privatisation- So, from missionary to public sector organization of these hospitals, we now see entry like in Arvind or HCG or in Narayana of private medical or otherwise entrepreneurs in delivering secondary and tertiary care at prices which are affordable to the common man, with technologies which are modern and state-of-the-art, improving health outcomes in India.

HEALTHCARE INSURANCE IN INDIA-

According to Mr Bhargavadas Gupta, CEO, MD of ICICI Lombard Insurance, he says While healthcare has grown at its pace insurance has also grown; **it's grown at about 20% over the last five years**. If you look back ten years, the 20,000 crore number that we have there was only 2,000 crores once upon a time so, the health insurance industry, has grown ten times in the last ten years.



THE INDIAN PHARMACEUTICAL SECTOR

Today India has earned a reputation for being the 'pharmacy of the world', thanks to its flourishing generic drug industry yet there are some of the key issues that the Indian pharmaceutical sector faces today. According to a report India has emerged as a market leader in generic drugs. The key issues that Indian Pharmaceutical sector is currently facing is

- ☐ Issue of the intellectual property.
- ☐ Quality issues on medicines coming out from Indian pharmaceutical sector.
- ☐ Innovation and entrepreneurship.

In recent times, we have seen an increasing number of Indian pharmaceutical firms being cited for quality issues by regulators in export markets. Apart from innovation, entrepreneurship, and intellectual property, the pharmaceutical and devices industry today in India also faces this key challenge on quality issues. Recently, **GVK Biosciences** was actually **tagged with being a problem in the context of quality of medicines coming out from the sector**. Essentially, the European Union looked at the drug data that came out by ratification from GVK and saw that they were fraudulently allowing ECG data to

be used to approve drugs for take up in the European Union context. **It raises a huge short-term and long-term effect.**

The short term issue with that is that it has a **reputational effect** that **Indian drug and medicines not being of good quality and them thus jeopardizing patient health globally**. The longer-run issue is that it impacts the exports capability of the sector.

Evolution of Pharmaceutical Sector from Earlier times to Present-

Three gentlemen come to our mind when we look at the history of the Indian pharmaceutical sector over the last 100 years. There is **Acharya Prafulla Chandra Ray and his work with ammonium nitrate in Bengal Chemicals** and pharmaceutical work, in the early 1900s. There is **Dr. Khwaja Hammed from Cipla who actually went to Germany and got his PhD in chemistry and travelled back and set up Cipla** which is one of the first domestic pharmaceutical companies with a science base that was developed in the 1930s. The third person to harp on is **Mr Sarabhai who has set up Ambalal Sarabhai which is one of the older Western-Indian pharmaceutical firms.**

Since independence, India adopted a regime which started focusing a little bit on how to develop domestic capabilities in Indian pharmaceuticals. Couple of entities were formed by the government of India—Indian Drugs and Pharmaceuticals Limited and the Hindustan Antibiotics Limited—both public sector units to develop the self-sufficiency in producing medicines for the country.

Current Trends-

*Today India is among the leading global producers of cost-effective generic medicines and vaccines, supplying 20% of the total global demand by volume. **The country has an established***

domestic pharmaceutical industry, with a strong network of 3000 drug companies and about 10,500 manufacturing units.

At present, Indian companies supply over 80 % of the anti-retro-viral drugs used globally to combat AIDS (Acquired Immuno Deficiency Syndrome). India's generic drug producers

hold a strong position in the global supply chain and play an integral role in developing the pharmaceutical industry. Some of the major domestic players in the industry include Sun Pharmaceutical Industries, Cipla, Lupin, Dr. Reddy's.

Challenges-

- The arbitrary and unpredictable nature of India's regulatory interventions, including restrictions on pricing and licensing are among the several challenges that global drug companies face in securing easy market access to India.
- The government's ban on fixed-dose combination drugs and demonetization of high-value currency notes in 2016 affected 6000 brands produced by 100 plus drug manufacturing companies. The regulations concerning price control of drugs, or making prescriptions of medicines by their generic name instead of brand names mandatory, too, remain key threats for the industry.
- Other concerns include interpretations of intellectual property protection that favour generics and biosimilars, impact of the goods and services tax (GST).

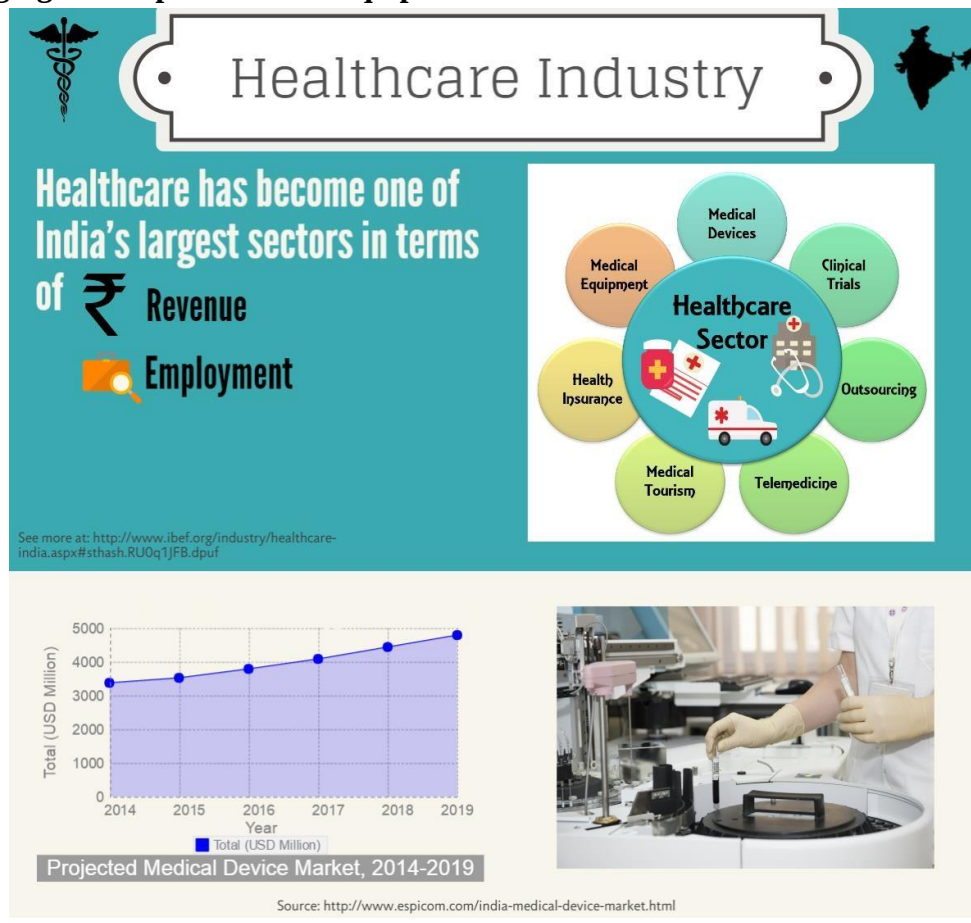
INDIA'S MEDICAL DEVICES AND DIAGNOSTICS SECTOR

Did you know?

The Indian Healthcare industry has become one of the largest sectors in terms of **Revenue** and **Employment**. The **Medical Devices and Diagnostics** sub-sector is expected to grow at an annual rate of **7.3%** (CAGR in USD).

Overview of the Sector- The global medical devices and diagnostic sector by some estimates is about three hundred and ten billion dollars as per a 2011 analysis, and India is estimated to be something around one billion dollars.

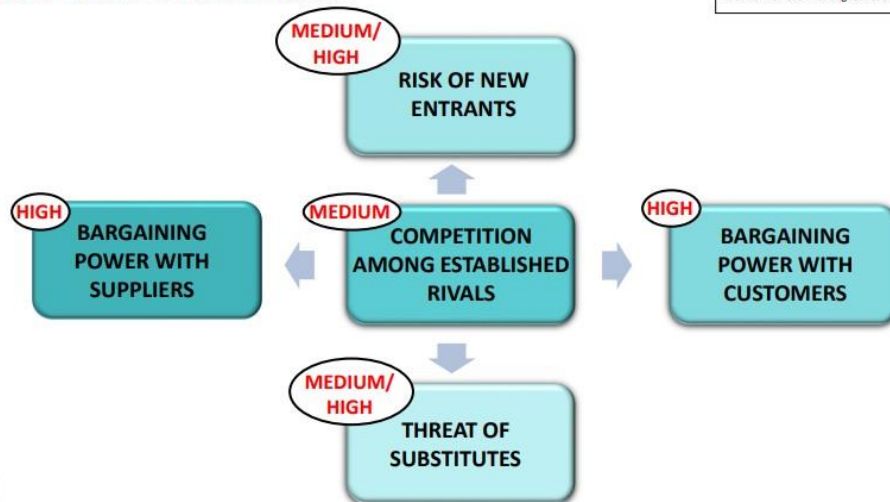
If we look and dive deeper into the medical devices and diagnostic sector, we will realize that in India, the higher share of the market comprises of those coming from imaging and implant-related equipments.



Strategic View of the Sector-

1. Industry Based View- Porter's 5 forces analysis-

5-Forces View of the Sector



2. Resource BasedView-

Suppose you are an existing firm, or you are a firm who wants to enter the market, you might also want to apply a resource-based view. And, when you start applying your resource-based view, one might want to understand what are the resources that are critical.

- Scientifically Trained and Skilled Staff
- Talent Retention
- Huge Capital Prevent Transfer of Tacit Knowledge from one Organisation to another

Quick Facts-



Disruptive Innovation and Regulation in Indian Healthcare

What is Disruptive Innovation?

A disruptive innovation is a low-cost alternative to existing services that arises via market forces when firms focus on "sustaining innovations" that eventually overshoot the needs of average consumers.

Technology is often involved in disruption—where it facilitates a lower-cost business model.

Example- **Retail "minute clinics" are a good example of disruptive innovation in health care.** For a patient who just needs an examination, treatment and prescription for a minor illness, or a routine vaccination, physical or screening—a retail clinic is a convenient and low-cost alternative to a doctor's office or urgent care visit

We are often asked why, with so many sophisticated medical technologies introduced every year, health care has not been disrupted to a significant degree already. **The reason is** that technology has almost always been implemented in a sustaining manner in health care—primarily to help hospitals and doctors solve the most complex problems. There is nothing wrong with this, of course, but it does little to make health care more affordable and accessible.

Regulation and competitive advantage-

India's competitive advantage lies in its large pool of well-trained medical professionals. India is also cost competitive compared to its peers in Asia and Western countries. The cost of surgery in India is about one-tenth of that in the US or Western Europe. India ranks 145th among 195 countries in terms of quality and accessibility of healthcare.

But the regulation in healthcare in India is very poor as

- ☐ The private sector dominates health care in India, but inadequate legislation and failure to enforce regulations contribute to poor quality medical services,.
- ☐ Eighty per cent of spending on health in India is from personal funds, but existing laws donot ensure that private medical services maintain even minimum standards.
- ☐ Consumer health organisations have long complained about: doctors overprescribing drugs, recommending unnecessary investigations and treatment, and failing to provide appropriate information forpatients.
- ☐ Health sector analysts say the private healthcare system in India should be segmented so that the relation between quality and prices of services can be examined.

So in short it is a high time to focus on the mentioned issues and regulate them better to make Indian healthcare services more better, affordable and accessible first to the citizens of our country and then to the other parts of the world. This regulation can be done through 3 ways –

