

# Coronavirus and its Impact on Indian Pharmaceutical Industry

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**ABSTRACT:** The novel Coronavirus Disease 2019 (COVID-19) was reported by the WHO as a global pandemic on 11 March 2020. The rationale for this study is to analyze the effect of the outbreak of COVID 19 on the Indian Pharmaceutical Industry, disturbance of working patterns and supply chain management, lack of availability of APIs, increase in raw material prices. Medical representatives were restricted in their ability to visit physicians, which diverted physicians to remote channels. Other obstacles that have disrupted the operations of pharmaceutical companies. This paper discusses various Mitigation measures that can be taken to resolve the risks arising in the domain of crisis management, human resources management, factory and inventory management, supply chain management, research and development, finance management.

**KEYWORDS:** Coronavirus, COVID-19, Novel Disease, Impact, Indian Pharmaceutical Industry.

## I. INTRODUCTION

Coronavirus disease which is also known as (COVID-19) is an infectious disease that is caused by a novel virus known as coronavirus. Coronavirus outbreak started in Wuhan, China during mid-November 2019. Coronaviruses are a genus that belongs to the Coronaviridae family that is enveloped viruses that contain a large plus-strand RNA genome. The RNA is 27–32 kb in size, it is capped and polyadenylated at ends.

The majority of people infected with the coronavirus are experiencing mild to moderate respiratory illness and it is seen that they are recovering without getting any special medical treatment. Coronavirus is seemingly looking fatal in older people, and those who are having a medical history of problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. (1)

Coronavirus has impacted various industries like manufacturing & logistics, travel and tourism, entertainment & media, healthcare, and pharmaceutical industry. No field is untouched by its impact. Largely the healthcare industry & travel and tourism industry have faced a massive blow. This paper focuses on the impact of coronavirus on the global pharmaceutical industry.

This paper is organized as follows. Section II describes coronavirus and its symptom. After discussing coronavirus and its symptom, how this pandemic is affecting the Indian pharmaceutical industry is given in Section III. Section IV presents steps that can be taken to curb the negative impact of COVID-19. Finally, Section V talks about the post COVID phase and the opportunities and challenges that might come in way of the pharmaceutical industry.

## II. CORONAVIRUS AND ITS SYMPTOM

The novel virus is widely known as coronavirus captured the whole of China and spread out across international borders in no time. The spread of viruses created havoc and panic in even developed countries like the USA, Russia, and Italy where the virus has become uncontrollable. The worldwide tally of cases has crossed a no. of



15,538,736 as confirmed cases and 634,325 deaths, as stated in a report by the World Health Organization (WHO) Situation Report-94 of 25<sup>th</sup> of July 2020 (WHO, 2020). Ever since the entire world has been caught off guard, the number of new cases are multiplying day by day and rate of transmission of 2019-nCoV is rapidly increasing, now formally referred to as SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) by the International Committee on Taxonomy of Viruses, the causative agent of Coronavirus Disease 2019 (COVID-19). Upon declaration of SARS-CoV-2 as a Public Health.

This virus mainly spreads through human contact via the exchange of respiratory droplets from an infected person. There is no vaccine available to cure this virus however many pharmaceutical companies are working day and night in developing a cure for this virus. Many Vaccines are in pipeline and some are on the verge of getting approval from regulatory authorities. When a person gets infected from coronavirus, there can be two responses, the patient can become symptomatic or he can turn asymptomatic as observed in various cases. Infected individuals are seen to develop with clinical symptoms like fever, myalgia, non-productive cough, shortness of breath, as well as normal or decreased count of leukocyte. (2). COVID-19 is a disease caused by SARS-CoV-2 that can trigger what doctors call a respiratory tract infection. It can affect your upper respiratory tract (sinuses, nose, and throat) or lower respiratory tract (windpipe and lungs). (3)

### III. IMPACT OF CORONAVIRUS ON INDIAN PHARMACEUTICAL INDUSTRY

The Indian pharmaceutical industry is the third-largest in the world. It produces almost 60% of the vaccines used globally, many of which are important, such as diphtheria, tetanus, and pertussis vaccines required by the World Health Organization (WHO). Besides, the nation meets 90% of the world market for measles vaccines. Millions of people worldwide use generic medicines manufactured by Indian drug manufacturers. More than 250 factories in the nation have been approved by the US Food and Drug Administration (FDA) and the UK Medicines and Healthcare Products Regulatory Agency (MHRA). They produce medicines for foreign markets, including the United States and European countries. India's active pharmaceutical ingredient (API) market is forecast to produce sales of \$6 billion by the end of 2020. (4)

The eruption of the Coronavirus pandemic is a grave threat to the whole world affecting crores of people. Apart from being detrimental to human health, it also hurt the national and international business world creating turmoil in the entire economic system and evertng trade and business across and inside borders. Both the primary sector and secondary sector have faced an economic blow due to a pandemic situation. (5)

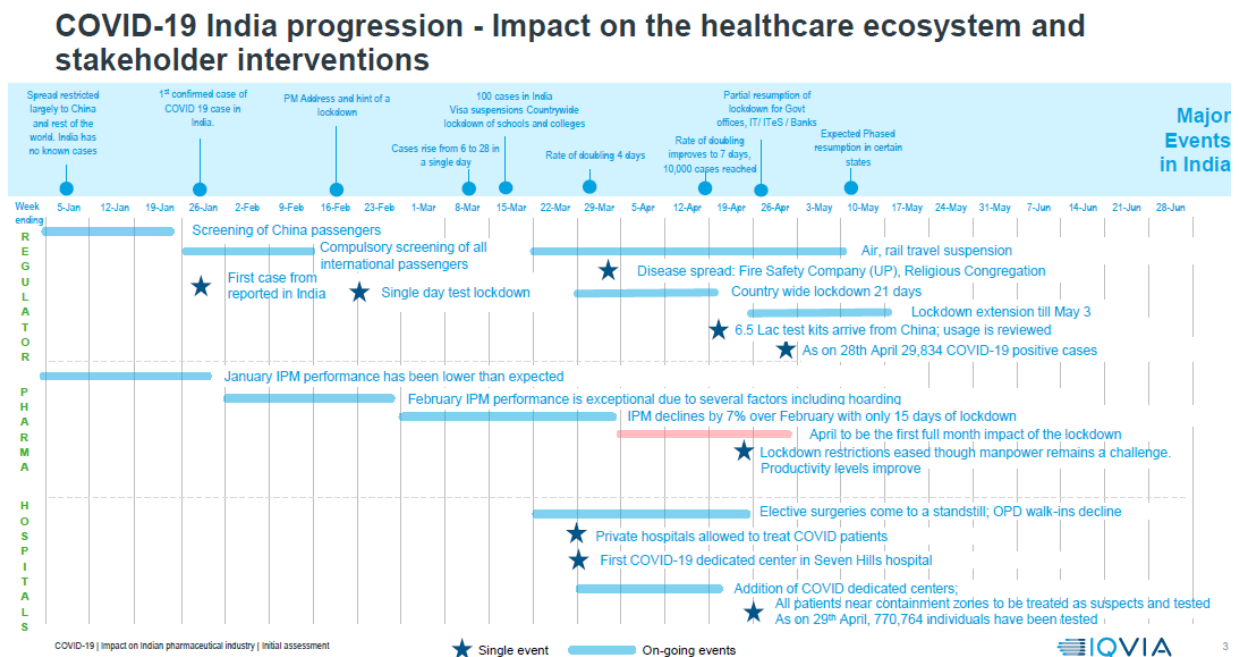


Fig 1: Progression of Covid-19 in India- Impact on healthcare ecosystem and stakeholder interventions, IQVIA



The COVID-19 pandemic has played havoc with the whole working style and even logistics network across the world. Every sector, including pharma, is enduring from supply chains coming to a halt. Prices of raw materials have risen amid limited supply, production schedules have been heckled, factories have been closed and shipping costs are skyrocketing in most countries.

Drug manufacturers in India are facing other challenges as well. Now, An Indian pharmaceutical firm can export drugs in the US only after being inspected and approved by the US authority known as USFDA. After the prohibition of international travel, inspection is naturally not in order, thus making it impossible for drug companies in India to sell in the US and other markets present overseas. This pandemic has also forced drug manufacturers & pharmaceutical companies to postpone their plans to launch new products. Ongoing clinical trials have also faced a blow and are facing delays, the drug companies from which they source materials face the heat resulting in Low sales. Therefore, pose another major opposition for Indian drug manufacturers supplying to far-reaching pharma organizations.

In some cases, some of the Indian pharma facilities had to be closed as workers were found positive for COVID-19. Plants that are still working are producing less than their capacity due to the crunch of human resources amid lockdown and measures such as social & physical distancing. In short, production schedules have changed exorbitantly. Also, whereas some segments of medicines experienced increased demand like anti-malarial drugs, some witnessed decline like anti-allergic. 55% of plants are operating at less than 60% capacity due to the unavailability of manpower. Almost 49% plants have reported insufficient availability of raw material as shown in the figure below. (4)

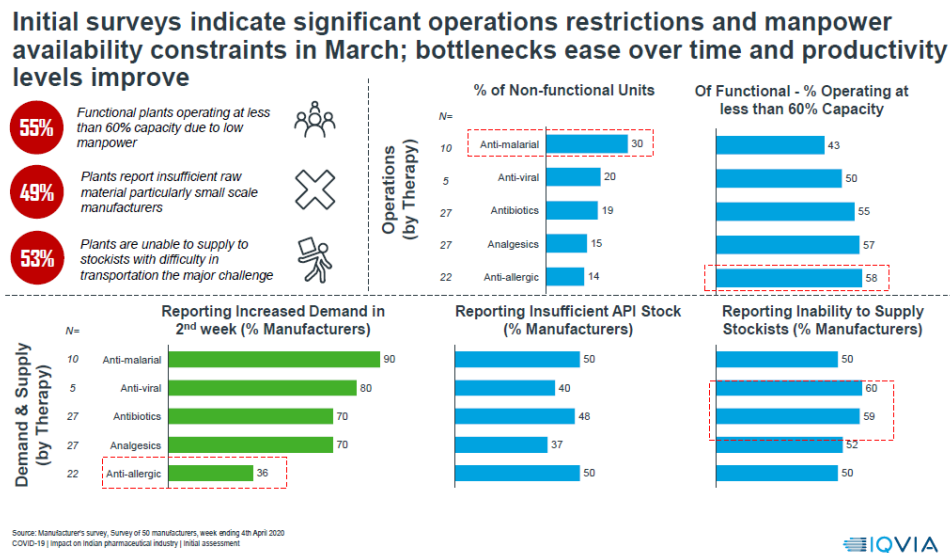


Fig 2: Figure showing changes in working, demand patterns, and the inability of different stakeholders.

A report on the Indian pharmaceutical industry showed that the source of APIs is a pivotal part of the pharma industry's master plan to fight the COVID-19. Most of the APIs for the manufacturing of generic drugs across the world are imported from India, which also accounts for 30 percent of the generic APIs used in the United States. However, Indian manufacturers depend heavily on China for APIs for the production of medicine formulations, acquiring around 70 percent from China, which is the globally the top manufacturer and exporter of APIs in terms of volume. The outbreak of coronavirus, COVID-19, has revealed the reliance of the Indian pharma industry on China for its API needs. Before 1991, the Indian pharma industry imported only 0.3 percent of its APIs need from China; however, due to the rise in the globalization of Indian pharmaceutical organizations and the increase in large-scale manufacturing prompted the increase in API import from China. The primary reason being the low cost. Disruptions in the logistic network and product exportation ban from India resulted from manpower inadequacy in China's production plants. This was caused due to quarantine regulations adapted by different regional governments in China instead of virus spread. Supplies were further affected by the unsettling of supply chain and transportation systems, restricting entrance and movement of products to and from ports. (6)

Looking at the impact from contraposition, the countries that lie in the band of Low & Middle-Income Countries, often depend laboriously on pharmaceutical imports and the impression of the pandemic may be experienced more when essential medicines are falling short and inaccessible to meet the needs of their country, chiefly those with chronic diseases. The global shut down has led to decreased imports and exports and the majority of pharma manufacturing

organizations have shifted their center towards the production of medicines and medical devices targeted at the war against COVID-19 in respective nations. There seems to be a change of shift in the import of pharmaceuticals towards fighting the COVID-19 pandemic, thus leaving a huge void for pharmaceutical imports that aim for other chronic diseases. This focus by pharma industries will cause loss to LMICs countrywho are rather vulnerable and have inadequate pharmaceutical capacities in their countries to meet their general medicinal needs and those for chronic diseases segment. With less supply to meet the increased demand created, the market prices of medicines for chronic diseases have risen, making them unavailable &unaffordable for several patients in LMICs who need them.(7)

A report from IQVIA shows that there is a sharp decline in the traditional way of how doctors engage with pharma companies due to COVID-19.It shows 57% of doctors recalled Indian companies attop of mind.Besides, the restricted willingness of medical representatives to access physicians during the lock-down resulted in a lower chance of prescription swapping. Representatives have now beencommunicating with prescribers via video conferencing to propose new releases, despite theminimal visibility of potential physical contact timelines, while physicians and hospitals tend toconcentrate on utter emergencies.Doctors are now getting diverted to digital channels like video calls, WhatsApp, and phone calls. BeforeCOVID-19 it was really difficult to divert physicians to digital channels(8)

### Doctors witnessed a decline in pharma engagement and their continued usage of digital technology could be transformational for the industry

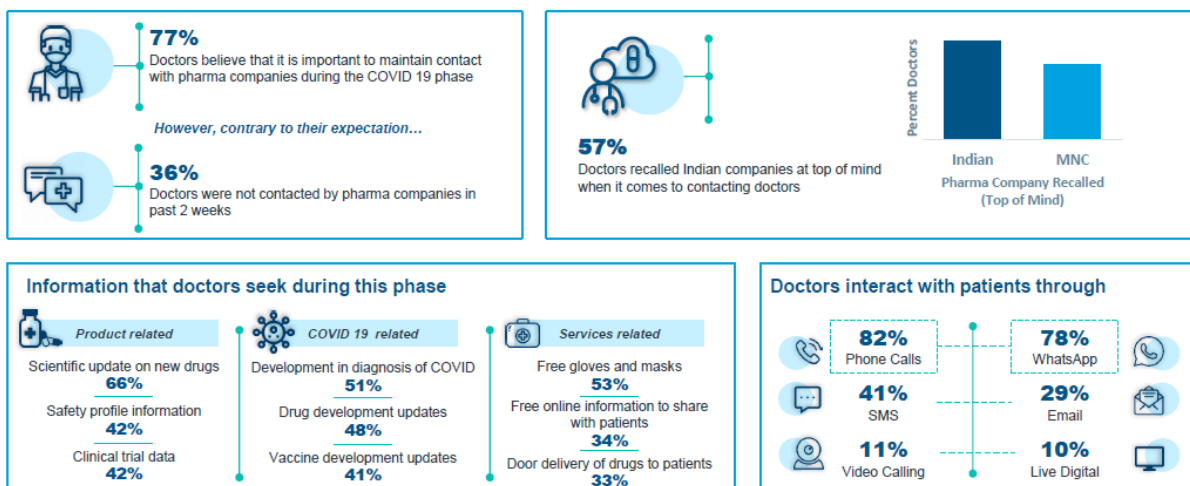


Fig 3: Report showing declining personal engagement of physicians with the pharma industry and acceptance of digital channel for interaction with them

India’s pharmaceutical market is expected to rise by 3%-5% in size during FY20-21, following the COVID-19 lock-down and monthly sales increases in June 2020, according to India Ratings and Research (Ind-Ra). Also, the rating agency says that the recovery will be aided by seasonality in the Indian domestic market. It states “Continuous elevation in the cases of COVID-19 in India will guide to further increase in associated therapies”. Moreover, the large cash reserves of pharmaceutical firms and ample headroom under debt arrangements, along with diversified financing sources, would minimize the effect of the ongoing lock-down. The effect of COVID-19 on the pharmaceutical market has been less prominent than has been reported in other markets, as pharmaceuticals fall under the main business segment and company firms are excluded from national lock-down constraints. To prevent drug shortages, the Government of India eliminated roadblocks in the flow of pharmaceuticals and ancillary products, as well as workers employed, thereby adding to increased supply. Pharmaceuticals exposed to chronic treatments would see a smaller effect than businesses subjected to acute treatments because people reduce their visits to physicians. In line with the overall slump in the market, most of the firms announced a double-digit drop in revenue growth during April-May 2020 due to low acute demand and a strong base last year. Except for cardiac and anti-diabetic treatment, all other therapies registered a reduction in sales development.(8)

The effects of the outbreak of COVID-19 and the freeze it caused were both quantifiable and unquantifiable. Yet there is also little clarification as to the wider impact it would have on India’s healthcare production industry and the global

supply chain. Initial indications are the rising prices of main materials. The price of vitamins and penicillin is double or triple the average. Likewise, the price of paracetamol has increased. If the pandemic persists, supplies of pharmaceutical products, APIs, and other chemicals will decline.(9).

As the effect of coronavirus is multifaceted. Other issues have hindered the functioning of the pharmaceutical industry. These are

- The threat of business continuity.
- Infection distributed across workers working from home and operating inside plants.
- Inadequate supply of laptops on the job-from-home design market
- Inadequacy of field power
- Data Abuse & Malware Assault
- Inadequate emphasis on regulatory compliance with FDA / CGMP guidelines, human resources and schedule maintenance.
- Risk of contamination by tourists, contractors, and third-party personnel
- Risk of activity of contaminated vehicles in the plant/warehouse
- Scarcity of raw materials / API / solvent due to reliance, limited resources to complete
- BOMS / batch size processing.
- Closure of contract manufacturers, vendor plants/sites.(10)

If the present pandemic of COVID-19 persists for a medium / long period, it may have an effect on the availability of active materials and ingredients (mainly from China) including on the import and export of pharmaceuticals. There is also a possibility for adverse effects on R& D and production practices in the short to longer-term, as well as disruptions in projects/programs not relevant to key supply chain/data processing operations. Although the full effect of the global pandemic remains uncertain, pharmaceutical firms need to adapt, rebound and survive.(10)

#### IV. POSSIBLE INTERVENTIONS TO OVERCOME THE OBSTRUCTIVE IMPACT OF COVID-19 ON PHARMA INDUSTRY

It is essential to plan out the solution to possible risks and challenges that COVID-19 may have brought in the path of industries. Some of the steps are discussed as follows-

1. **Crisis Response Team**-Establish a Crisis Management Team / PMO responsible for decision-making during a pandemic. The Crisis Management Team can:
  - Assign different sub-PMO leads to SCM, plant operations, staff, IT, administrative, banking, and business.
  - Identify scenario preparation, response prompts, and intervention time/responsibility lines (during and after lockdown).
  - Identify contact arrangements for staff, consumers, and suppliers.
2. **Human management**-Infection spread through workers employed at home and running within factories. Mitigation Steps that can be taken include
  - establish a COVID HR department to track the wellbeing of each employee in the company on the following parameters: where they are physically working
  - Their health condition
  - Their current level of employment
  - Awareness of the health conditions of their family members.
  - Daily tracking (in all locations).
3. **Compensation for temp jobs due to involuntary layoffs**- Risk reduction Steps include Available documentation from the contracting agency that the contract worker does not operate in any other company and is paid in full during the COVID situation as per the Directives of the Labour Commissioner. Non-compliance with the orders of the Labour Commissioner can result in harsh punishment.

4. **Plant and warehousing activities** – Mitigation steps
  - Identify and assign essential goods to be assembled in compliance with customer/government requirements.
  - Aim to increase capacity in plants located in states with fewer cases of COVID-19.
  - Determine the distribution of available labor during manufacturing cycles to ensure the health and well-being of workers.
  - Consider planned repair tasks such as HEPA filters. Inadequate emphasis on regulatory enforcement with FDA / CGMP guidelines, human capital, and repair plan.
  
5. **Supply Chain Management**- Assess alternative procurement for all affected materials such as availability of distributors, increased logistics costs, tariffs, expected price rises, etc. Assess investment in existing plant / new plants by optimizing the use of government support policies.
  
6. **Research and development (R&D)** –
  - Interpret the trials that may be impacted by potential shutdowns of suppliers or logistic interruptions.
  - Incorporate vulnerability and impact control of COVID-19 into trial management plans. Needed to interact with investigators to consider the particular problems COVID-19 causes at their sites (such as local laboratory testing capability, patient safety, and severe adverse event risks).
  
7. **Finance management** – Maintain payables by emphasizing main expenses, such as wages, contractual commitments, etc.
  - Focus on the cash-to-cash transfer process.
  - Study the repayment timetable of the debt and the agreement
  - Monitor and accelerate the receipts.
  - Revise the variable costs.
  - Revise capital investment strategies to ensure that your funding remains viable.
  - Focus on the management of inventory.(10)

## V. POST COVID OPPORTUNITIES FOR INDIAN PHARMACEUTICAL INDUSTRY

This pandemic has allowed everyone to turn things around with government help. With the coronavirus outbreak restricting imports from China, the government has taken measures to ensure that there is a proper supply of medicines by restricting exports of 26 APIs and medicines, which count for around 10% of pharmaceutical exports of our country. This will certainly affect the supply of these medicines in countries that rely on both India and China.(11)

### COVID 19 hints at 1 - 5% IPM growth this year, similar to other Asian economies' experience as well as our learnings previous demand & supply shocks

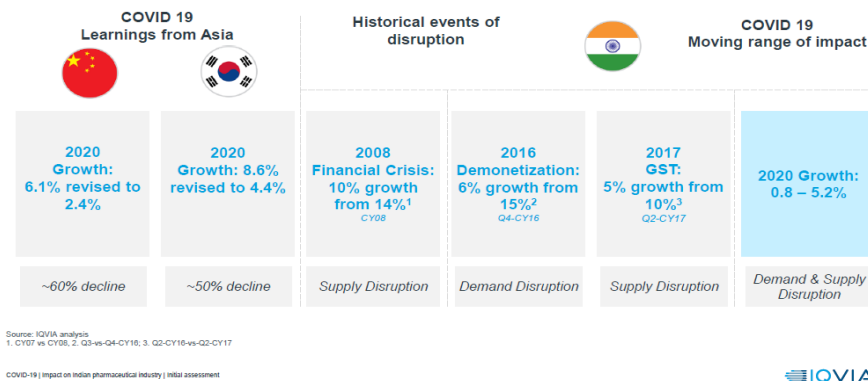


Fig 3: Growth status of Indian Pharma Industry, Report by IQVIA

India is the manufacturer of 60,000 generic products and home to 3,000 pharmaceutical firms with a large network of over 10,500 production facilities. The Dope plans to make the country a center for end-to-end drug development under its 'Pharma Vision 2020' as suggested in the 2015 McKinsey report, the Indian pharmaceutical industry will rise from

USD 12.6 billion in 2009 to USD 55 billion by 2020, with the potential to touch USD 70 billion in an ambitious growth scenario. This was last assessed at USD 40.2 billion by the N I P and the Facilitation Agency in 2019. A report from IQVIA also suggests a 1-5% growth of IPM this year.

Any of the variables that drive this ability include:

- Government funding for innovations and R&D
- infrastructure development
- Good expertise in the drug manufacturing process and affordable prices
- High domestic demand(9)

In the current situation, the Indian Government should take crucial measures to eliminate the technological and financial obstacles that will enable the pharmaceutical industry to increase the production of APIs and reduce the reliance of the pharmaceutical industry as a whole on the heavily affected Chinese market. The Indian Government has recently taken positive measures by introducing an investment package of 13.76 billion Indian Rupees (approximately \$181 million) to encourage domestic development of essential raw materials, drug intermediates, APIs, and medical devices.

The Indian pharmaceutical industry possesses great advantages, including the availability of a wide labor pool and innovative technology that require high regulatory requirements to be met in markets such as the US and European countries(6)

The Government of India declared on April 20, the INR 10000 crore of investments to promote the development of APIs in India. Pharmaceutical companies have started to re-evaluate their API approach and embracing capacity building solutions, including collaborations with CMOS.(12)

### Going ahead: Reduced human contact with rising digital interactions are expected to set new normal in post COVID world

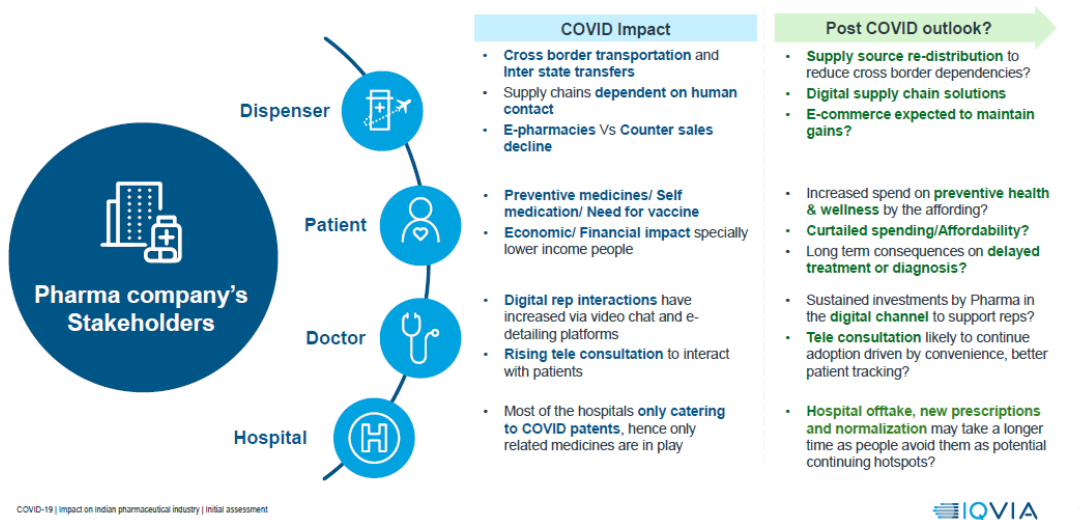


Fig 4: COVID impact & post COVID outlook, the report by IQVIA

The report by IQVIA shows the post COVID impact on different stakeholders of pharmaceutical firms. It suggests new digital interventions that can be taken, like engaging with physicians through the digital channels, e-prescriptions, increase spending on healthcare and infrastructure development, a new outlook for designing logistics networks, teleconsultation can be taken into serious considerations.

## VI. CONCLUSION

In the era of such scientific and healthcare advancements, COVID-19 has emerged as a big challenge for all of us. It has affected our daily activities, hygiene patterns, healthcare policies, and has arisen a need to revamp our whole system. Looking at its impact on the Indian pharmaceutical industry, it has affected it in both positive and negative ways as well. This pandemic has proved India in being a pharmacy of the world and at the same time it has brought out our systems dependability for API on foreign lands. It's the need of the hour to start developing our capabilities in the domain of producing API. The government should also support emerging pharmaceutical businesses and should invest more in the healthcare infrastructure of the country so that in cases of such pandemic, we are equipped with all the resources and emerge as a source of help to other nations.

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