



Covid-19 Virus – Impact Assessment – Healthcare

April 2020

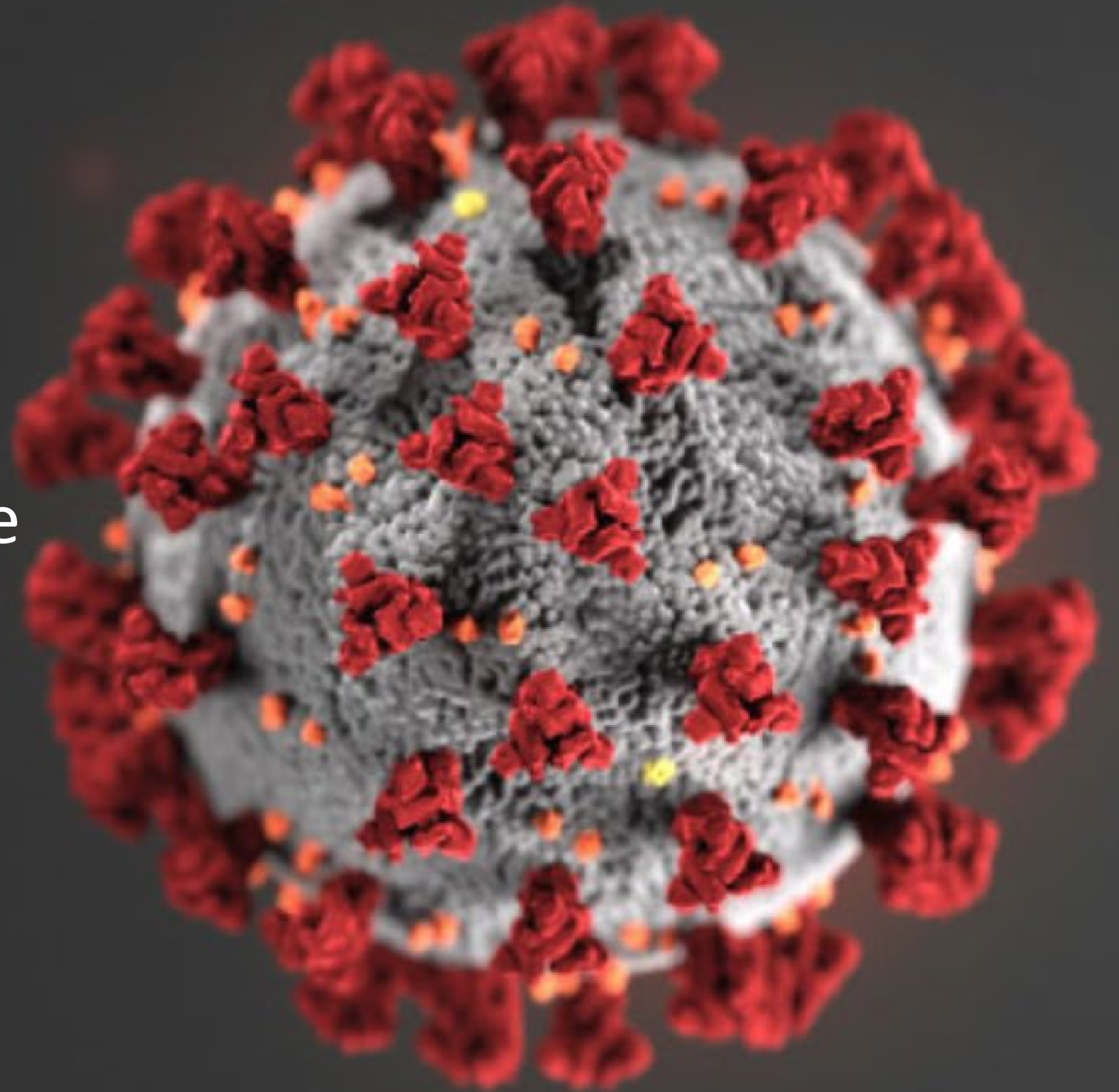


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➔ Medical Device, Masks and PPE

Summary – Industry level Impact – Medical Devices

Key Highlights:

- **Under medical devices, the essential supplies (such as masks, personal protective equipment) and critical devices (such as ventilators) have been severely impacted with their shortage's due to increased demand across regions globally.**
- **Partnerships with medical players and non core medical players and other consortiums are formed to support the COVID 19 pandemic across regions**
- **WHO calls on industry and governments to increase manufacturing by 40 per cent to meet rising global demand.**
- **The FDA issued an Emergency Use Authorization (EUA) for Coronavirus COVID-19 Diagnostic Tests and others shortages such as ventilators, Personal Protective Equipment and In Vitro Diagnostics.**

Major Risk Factors				
Industry Risk Drivers	Comments	Risk Probability		
		Almost Certain	Likely	Possible
Businesses and Operations	Can impact if it spreads or becomes a serious pandemic			
Global Medical Device Supply Chains	Can be severe for companies depending on China for raw materials and intermediates components or products			
Supply of Parts or Intermediate Components	There are alternate sources available for companies having more than one supplier other than in China			
Supply of Low Value Products, e.g., Masks And High value products e.g. Ventilators	Increased demand across global regions			

Category impact

Key Categories	Impact Level	Outlook Impact	Comments
Medical Devices Industry	Medium	Low – Long Term	The full effect of COVID19 on global value chains will become clearer in the coming months.

Risk of shortage on major critical equipment used on healthcare providers, patients and people

Masks



Sterile Gowns



Disinfectants



Hand Sanitizers



Medical Alcohol



Ventilators



Testing Kits



Gloves



Global Market Dynamics – COVID 19

Global Shortages – BASIC MASKS TO CRITICAL EQUIPMENTS SUCH AS VENTILATORS

April 01 News

1. With the surge of cases growing daily, critical equipment—from protective gear for health-care professionals and other essential workers to testing kits and ventilators for patients—is in extremely short supply.
2. Countries and Cities placed citizens on Lockdown – e.g. USA, Many European Countries and India
3. Around the world, countries and cities have placed their citizens on lockdown in an effort to slow the spread of the virus.
4. Remote working and spike in unemployment etc. have seen in countries such as US, India, China etc.
5. US Defense Production Act, which allows the government to marshal the private sector to fight the COVID-19 pandemic and every industry or manufacturer from fashion to food and beverages to taken the initiative to shift operations to combat the crisis.
6. Closing factories to protect workers during the pandemic e.g. automakers like Volkswagen, Toyota, Hyundai and Honda have done
7. Non Core companies and formation of consortiums for overcoming the shortages of Ventilators and other medical equipment across regions and countries. E.g.
 - a. Dyson and Gtech Answer UK Call for Mass Ventilator Design and Production
 - b. Rum producer Bacardi's distillery in Puerto Rico shifted to making ethanol needed to manufacture hand sanitizer.
 - c. Eight Oaks Farm, a veteran-owned craft distillery in Pennsylvania, is converting operations to make alcohol-based disinfectant.
 - d. Michigan-based office furniture company Steelcase is using its factories to make protective health-care equipment such as masks, face shields, and partitions for hospitals.
 - e. Beauty and luxury giants such as Germany-based Beiersdorf and France-based LVMH and L'Oreal are pivoting production from face creams and perfumes to medical disinfectants and sanitizer gels.
 - f. In Japan, electronics maker Sharp Corporation is making surgical masks using a plant that usually manufactures electronic displays
 - g. American Automotive Manufacturers Are Supplying Ventilators and Masks and using 3D technology to make mask components by collaborating with 3M
 - h. Partnerships such as Ford & GE, GM & Ventech Life Systems for ramping the production of ventilators
 - i. Tech Leaders (IBM, Google, Amazon and Microsoft) & consortiums (Labs, institutions, NASA etc.) with the White House to Fight COVID-19 With Data

Global Shortages:

- Medical Equipment - Personal protective equipment such as medical masks, gloves, face shields, gear,[1] sanitizing products, is also joined by potential shortage of more advanced devices such as hospital beds, ICU beds, oxygen therapy, mechanical ventilations and Extracorporeal membrane oxygenation (ECMO), also known as extracorporeal life support (ECLS) devices.
- Medical Staff
- On April 1st, US's Strategic National Stockpile was nearly emptied
- Raw materials and intermediate components used for ventilators or Masks etc.



Suppliers and Industry Comments – Expansion, Technology, Partnerships etc.

Supplier Comments on Mask demand and supply:

- **31th March:** Philips, one of the top medical equipment companies worldwide, told BBC Future that it is adding manufacturing lines and increasing the number of shifts, and hiring additional manufacturing employees and shifting current employees to support increased demand immediately. Many other big corporations are following suit, even as their production capacity already has been strained due to the crisis and lockdowns in China.
- Tesla, meanwhile, will partner with US medical technology giant Medtronic to make ventilators at its gigafactory in Buffalo, New York, which usually makes solar PV cells.
- Dyson, the vacuum cleaner company, already received an order for 10,000 ventilators.
- Smiths Medical's efforts to treat less critical patients with CPAP (Continuous Positive Air Pressure) devices, more commonly used for controlling sleep apnoea, are advancing rapidly.
- Meanwhile, engineers and researchers are coming up with other creative solutions – such as the Ventil, a new machine that, when attached to a ventilator, can allow for the ventilation of two patients simultaneously.
- Even Formula One racing teams are joining the effort i.e. engineers, doctors and the Mercedes Formula One team in conjunction with University College London has developed a breathing aid.
- Other initiatives are more ambitious. Researchers from Oxford University and King's College London set up OxVent, a project aimed at developing prototype ventilators
- 3D technology for mask components and protective gears using open sources
- Mercedes-AMG High Performance Powertrains, a division of the Daimler-owned automotive giant that makes Formula 1 engines, is aiming to make 10,000 continuous positive airway pressure (CPAP) machines – which provide oxygen before ventilators are needed. Mercedes said half the patients given CPAP in Italy have avoided the need for invasive mechanical ventilation, but have been in short supply in UK hospitals.
- Petrochemicals giant Ineos, Britain's biggest company by sales, has stepped in by drawing up plans to open a new plant just outside Middlesbrough, in north-east England, which will be capable of producing a million bottles of hand sanitiser per month. This will be replicated with another factory in Germany.

Estimates on Demand for Ventilators:

- Worldwide demand for ventilators alone would be around 880,000 machines.
- General Motors, Tesla and Ford have all pledged their support to offer resources in the US, where regulations have been relaxed by the Food and Drug Administration (FDA) to plug the shortage of an estimated 75,000 ventilator devices.
- Ford working alongside with GE, 3M would like to produce 75,000 transparent face shields used in hospitals using parts usually installed in vehicles, such as fans and batteries.



China Supply Dynamics – Masks, PPE Related Products and Testing Kits

Supply Situation in China:

Masks: A State Council press briefing on March 6 indicated that Chinese production of some key hospital supplies has increased. Daily output of protective suits in China has now reached 500,000 units, marking a surge from less than 20,000 at the beginning of the epidemic. N95 masks reached 1.6 million from 200,000, and ordinary masks reached 100 million. Guangdong Province is China's major manufacturer. Until March 21, its mask daily production has risen from less than 0.1 million to over 23 million within one month.

Export of masks and other PPE products from China:

As domestic demand eases in China, the nation has ramped up exports of the items to regions where there are shortages. On March 20, the Chinese government claimed that it has provided assistance to 89 countries and international organizations, such as the World Health Organization and the African Union.

Defective PPE supply:

Several countries have rejected medical supplies from China because they are reportedly below promised standards.

For instance,

- Spain returned 58,000 coronavirus test kits made by **Shenzhen Bioeasy Biotechnology** after finding the tests were unreliable as they had only a 30 per cent accuracy rate. The Chinese embassy has mentioned that Shenzhen Bioeasy Biotechnology was unlicensed, and clarified that donations by the Chinese government and tech company Alibaba had not included tests from the company.
- On 21st March, Netherlands received 1.3 million mask order from a Chinese manufacturer. However, the masks were found to have faulty filter membranes during inspection and hospitals are asked to send back around 600,000 masks that had been imported from China

Supplier Status:

- H&M has started protective face mask production at Chinese supplier. H&M said that it was looking into using its supply network to source personal protective equipment for hospitals to help curb the spread of the coronavirus. At this first stage, 100,000 face masks will be produced and ready for delivery on April 2. Half will go to Italy and half to Spain.
- Shenzhen-based BGI Genomics has exported 7 million test kits to 70 countries and regions and has increased its daily output to 600,000, the company said in a statement to the Global Times.



China Supply Dynamics – Masks, PPE Related Products and Testing Kits

Various companies that once manufactured other items are now in the business of making anti-coronavirus gear making it difficult for regulators in China to enforce standards while encouraging the flow.

Regulators have shut down tens of thousands of shops making fake masks, faulty thermal temperature guns and disinfectants that don't work, according to government disclosures.

Trade data for Chinese exports of PPE:

According to official Chinese customs data released on March 25, Chinese exports of PPE to the world declined by only 15 percent in the first two months of 2020, relative to the same period in 2019.

The same holds for China's PPE exports to key trading partners. China's PPE exports to the European Union declined by only 17 percent, whereas exports of all other products dropped by 20 percent.

China's PPE exports to the United States fell by only 19 percent, just slightly more than the drop in PPE exports to the EU.

Since February, there are 12,000 new companies in China that have started to produce masks and ventilators, bringing the total to 53,000, with over 17,420 of them being certified exporters, according to media reports.

Supplier Status:

- Nomad, typically known for making smartphone accessories, has reprioritized operations and is expanding its manufacturing to make medical supplies like face masks amid the ongoing spread of the novel coronavirus.
- Nomad says it will be prioritize masks first for medical professionals, then for first responders, and then for essential businesses. Its masks cost \$0.375 each

Nomad advises using the masks in "lower contact situations" until they get FDA approval



India Supply Dynamics – Masks, PPE Related Products and Ventilators

Medical device supply:

There is a 21-day lockdown across the country to curb the spread of coronavirus which is resulting in drugs and medical devices not reaching the hospitals and consumers despite them being exempted by the government.

Avoidable restrictions have been imposed by local police on the mobility of the citizens associated with the supply, distributions and transport of medicines, raw materials, components to make masks, sanitizers and other medical devices to the factories and manufacturing plants which are holding up production, adding to shortage.

Supply dynamics of ventilators:

At the moment, most countries, including India, have banned exports of ventilators as it gives patients a 90 per cent chance of survival. The number of ventilators today available in the country is a maximum of 57,000 as per industry reports.

Historically, the market for ventilators had a size of around 7,000 units. However, because of Covid-19, the government and associated joint task force committees have in recent times told manufacturers that they will need to deliver between 100,000 and 120,000 ventilators as soon as possible.

Experts say India would need 80-100 times the available number of ventilators, based on average 21-day stay on ventilator for a coronavirus patient.

The central government has asked automobile manufacturers to use their facilities to produce ventilators to boost the country's capacity of such machines in view of rising COVID-19 cases.

- For instance, SkanRay, the leading ventilator manufacturer, has created a consortium with BEL, BHEL and Mahindra to ramp up production from standard 2,000 pieces per month to currently 5,000 pieces per month and 30,000 pieces per month by May.

The ministry informed that over 14,000 existing ventilators are earmarked for COVID-19 patients in various hospitals in the country while there are 11.95 lakh N-95 masks in stock.

Supplier Status:

- Sun Pharmaceutical Industries Ltd has committed to donate Rs 25 crore worth of Hydroxychloroquine (HCQS), Azithromycin, other related drugs and hand sanitisers to support India's fight against coronavirus pandemic.
- The health ministry has asked the Bharat Electronics (BEL), a public sector undertaking, to manufacture 30,000 ventilators in the next two months in collaboration with local manufacturers.



India Supply Dynamics – PPE related products and Medical devices

PPE related supply dynamics:

There is a shortage of PPE related products amid the coronavirus pandemic. Manufacturers said the challenges to ramping up production include export and import restrictions because of the pandemic, the ongoing lockdown, and the centralized procurement process through a single government agency.

The Preventive Wear Manufacturers' Association of India (PWMAI) and the Association of Indian Medical Device Industry (AiMeD) have asked the government to allow them to self-attest products in the view of the shortage of coveralls for healthcare providers.

As per official sources, more than 60 cargo air services transported over 15 tonnes of essential medical supplies between India and China. The supplies include reagents, enzymes, medical equipment, testing kits, personal protective equipment (PPE), masks, gloves and other accessories required for fighting the novel coronavirus pandemic.

Government initiatives:

India has implemented various schemes and Rs 14,000 crore package to boost domestic production of API and medical device

On March 31st, NPPA notified all medical devices sold in the country will be treated as drugs under the Drugs and Cosmetics Act with effect from April 1, 2020. This means, all medical devices will be regulated by the government as drugs for quality control and price monitoring. Currently, 24 medical devices are regulated under the Drugs and Cosmetics Act.

The revision in ceiling price of formulations includes the revision of ceiling price of cardiac stents also now stand at ₹8,417 for bare metal stents and ₹30,647 for drug eluting stents.

Joint Secretary, Ministry of Health and Family Welfare, said that all 24 classes of medical devices have been relegated as drugs so that no manufacturer will increase their MRP beyond 10 per cent in a year.

Supplier Status:

- State-run HLL Lifecare has been designated as the government's sole procurement agency for PPE kits. It has floated a global tender for procuring PPE kits, including coveralls, goggles, N95 masks, gloves, face shields, triple-layer surgical masks, digital infrared thermometers and thermal scanners.
- To address ventilator shortage, a team of engineers at IISc is building a prototype of an electro-mechanical ventilator from scratch, using only components found or made in India, based on guidelines issued by the UK MHRA.



Regional Supply Dynamics – Masks/PPE, Respiratory support gear

Supply Situation in Other regions:

Turkey:

Turkey has limited export of respiratory support gear such as ventilators and related gear, oxygen concentrators, intubation tubes, intensive care monitors and other medical equipment, according to a decree in the Official Gazette, aimed at meeting domestic demand as the number of coronavirus cases in the country surges.

Turkey has taken several measures to stem the virus such as removing import tariffs on medical supply (ethyl alcohol, disposable medical mask and medical ventilators), scrapping the ethanol requirement in gasoline, and subjecting protective gear to export controls.

Australia:

A global shortage of Covid-19 testing kits is hitting Australia as other nations limit exports. The Therapeutic Goods Administration, which regulates medical devices, said it had given an exemption on the use of unapproved medical devices, including lab tests for Covid-19.

The Australian Federal Government is establishing 100 respiratory clinics to assess people with fever, cough, a sore throat or shortness of breath.

Hospitals are preparing to delay elective surgery to respond to any increases in COVID-19 cases.

Africa:

China has been Africa's largest trading partner for some time and the interconnectedness between these regions means that African nations could have been exposed to COVID-19.

The WHO noted that it was equipping 36 African countries with virus testing kits, and it has also helped to train and provide personal protective equipment to health workers in Africa.

Supply Situation of medical devices:

- The U.S. Food and Drug Administration (FDA) has noted that over 60% of FDA-regulated products imported from China are medical devices. Over the past 15 years, U.S. firms have invested more than \$800 million into China's medical technology sector.
- Focusing initially on China, FDA noted that it had been in contact with 63 manufacturers representing 72 facilities in China that produce "essential" medical devices and has found no reported shortages.



Regional Supply Dynamics – Masks/PPE, Respiratory support gear

Indonesia:

Indonesia is set to support manufacturers with the capacity to produce the desperately needed protective gear, test kits and ventilators that are crucial in the worldwide global fight against COVID-19 as G20 nations pledge to focus on saving lives.

- Textile factories in Indonesia are switching their production lines to produce personal protective equipment (PPE) for medical personnel, including mass-producing masks and protective coveralls. Members of the Indonesian Textile Association (API) have committed to producing 1 million washable masks, according to PT Pan Brothers deputy CEO Anne Patricia Sutanto.

Export restrictions on medical supplies:

As of 21 March 2020, a total of 54 governments have implemented some type of export curb on medical supplies and medicines associated with the COVID-19 pandemic.

- Bulgaria, France, India, Indonesia, Saudi Arabia, the Republic of Korea, Taiwan, Thailand, Turkey and the United Kingdom have implemented multiple export curbs, often widening the scope or hardening the provisions of export limits.
- China, Taiwan, and Germany have relaxed their export curbs to a certain degree. Still, the direction of travel is clear - governments are putting up obstacles to foreign buyers of vital medical supplies.
- Export bans on masks, erode the capability of trading partners to cope with the spread of COVID-19.
- Global export curbs on medical ventilators would deprive Africa, the CIS region, Latin America, the Middle East, and South Asia of access to cutting-edge medical equipment. Given the sophisticated technology found in cutting-edge ventilators, it is unlikely that there are local producers in these countries capable of meeting global standards.

Innovations:

- A college senior studying education for the deaf and hard of hearing at Eastern Kentucky University makes masks for the deaf & hard of hearing
- They're trying different things for people with cochlear implants and hearing aids who can't wrap masks around the ears by making masks that have around the head and around the neck.
- Also, for anyone who uses speech reading, lip reading the necessity for the plastic window on the masks is crucial.



Ban on Exports of PPE Related Products (Asia):

Overview of adopted COVID-19 trade measures (April 01, 2020) - APAC and Middle East



Situation of Coronavirus: Regional outlook (US, EU & UK)

Overview:

The coronavirus has continued to spread across US.

As of 01st April -

- ❑ Confirmed Cases: 214,639
- ❑ Deaths: 5,099
- ❑ Recovered: 8,878

Overview:

The coronavirus has continued to spread across Europe.

As of 01st April -

- ❑ Confirmed Cases - 464,859
- ❑ Deaths: 30,089
- ❑ Recovered: NA

Medical Device:

Shortages - Recent reporting by The Times reveals that the United States has only about 160,000 ventilators available — far fewer than what is needed to provide lifesaving treatments in the most critical cases.

- March 27: The U.S. Conference of Mayors survey, was conducted from March 20 to March 24 and includes data from 213 U.S. cities in 41 states and Puerto Rico, representing a combined population of 42 million. The cities reported a need for 28.5 million face masks, 24.4 million items of personal protective equipment such as gowns and gloves, 7.9 million test kits and 139,000 ventilators.
- President Trump said the Federal Emergency Management Agency has delivered or will soon distribute more than 9 million N95 masks, 20 million surgical masks and nearly 6,000 ventilators
- New York Gov. Andrew M. Cuomo (D) has asked for 30,000 additional ventilators, which are used to help patients in severe respiratory distress continue to breathe.
- Increased Prices - Some wholesale distributors have raised prices from 97 cents to \$5 per mask
- March 31: The UK government aims to add more than 1,200 ventilators to its system in less than two weeks, and is forecasting it will need 30,000 at the peak of the outbreak.

Fashion Companies to Support with Face Masks

- Dior and Louis Vuitton parent company LVMH, which is also helping the hand sanitiser effort, said it will supply French authorities with more than 40 million face masks sourced from China within a matter of weeks.
- Gucci has pledged to transform production lines usually reserved for luxury clothing to make more than a million masks
- Zara aims to send 40,000 surgical masks to hospitals and H&M has also pledged to offer protective equipment.



→ Active Pharmaceutical Ingredient
and Finished Drug

Drug Shortages and Export Restrictions

Drug Shortage

- US – March 24-31: New drug shortages reported in the past one week includes Chloroquine Phosphate Tablets, Hydroxychloroquine Sulfate Tablets, Nizatidine Capsules, Rifapentine Tablets. The shortage has occurred a week after FDA approved the use of Anti-Malarial drugs Chloroquine and Hydroxychloroquine for emergency Coronavirus treatment
- Australia – March 31 to April 02 : Australia has reported critical shortage of the following drugs in the past three days. Piperacillin sodium, tazobactam sodium, degarelix, phenoxymethylpenicillin potassium, guanfacine hydrochloride, phenoxymethylpenicillin

Export Restrictions

India

- On 03 March 2020, Government of India published an amendment restricting the exports of 13 APIs along with their finished dose formulations
- Most of the APIs in the list are manufactured in limited quantities in India or highly dependent on China.
- In addition to the 13 APIs, Ministry of Commerce and Industry on March 25 2020, restricted the export of Hydroxychloroquine API and formulation. Export of the API will be allowed in exceptional conditions e.g. on humanitarian grounds on case to case basis on the recommendation of Ministry of External Affairs

United Kingdom

- The UK government has banned the parallel export and hoarding of three drugs being used to treat coronavirus patients in China in anticipation of shortages in Britain following the Covid-19 pandemic.
- The export of the AbbVie's Kaletra / Aluvia, a combination lopinavir and ritonavir, the generic drug chloroquine phosphate and the generic drug hydroxychloroquine is being restricted.

List of API and Formulations with export restriction- India

- Paracetamol
- Tinidazole
- Metronidazole
- Acyclovir
- Vitamin B1
- Vitamin B6
- Vitamin B12
- Progesterone
- Chloramphenicol
- Neomycin
- Erythromycin Salts
- Clindamycin Salts
- Ornidazole
- Hydroxychloroquine

List of Formulations with export restriction- UK

- Lopinavir and ritonavir combination
- Chloroquine phosphate
- Hydroxychloroquine



Impact on API Industry

Highlights:

The Ministry of Industry and Information Technology (MIIT), China on 30 March 2020 announced that more than 80 percent of China's pharmaceutical ingredients production has resumed.

APAC:

Indian Government has set aside INR 10,000 crore (USD 1.2 billion) to support the country in shifting its reliance on China for API. Over the next five years the government also plans to finance the construction of three bulk drug parks, through an investment of INR 3,000 crore.

North America

US Government is said have discussed with India over a possible relaxation on API exports that India has posed on 13 APIs. The U.S. Department of Health and Human Services (HHS) has accepted 30 million doses of hydroxychloroquine sulfate donated by Sandoz, and one million doses of chloroquine phosphate donated by Bayer Pharmaceuticals, for possible use in treating patients hospitalized with COVID-19. Experts in pharma manufacturing business have predicted that companies will look at shifting manufacturing from impacted markets to less impacted markets in the next few months.

Impact on API Prices:

On an average, API prices have increased 10-15%. However, in some cases, the increase has been more than 50%.

Ex:

- 50% hike – Paracetamol prices were as Rs 250-300/kg in Jan 2020 to and is at 400-450/kg in March)
- 52% hike - Montelukast sodium' (an anti-asthma drug) is trading between Rs 52,000 and Rs 58,000 per kg, compared with Rs 33,000-38,000 per kg a few months ago
- 40% hike - Penicillin has increased to Rs 639 per unit against Rs 454 per unit in January

Supplier News

- Sun Pharma a key supplier has almost doubled the price of Azithromycin due to the supply shortage
- Auromedics (US subsidiary of Aurobindo Pharma) faces supply shortage of bupivacaine injection, as piperacillin, a KSMs supply is disrupted. This might affect the price of Bupivacaine shortly
- Wuxi's facility for discovery services in Wuhan has resumed production. WuXi AppTec has now resumed operations at all facilities in China post opening of its Wuhan facility
- C2 PHARMA (C2P) announced that it will open access to safety stocks of the API Digoxin. The API was listed for its potential to reduce the symptoms of COVID-19 in combination with other anti-viral drugs based on initial research in South Korea and India



Impact on the Pharmaceutical Industry

Highlights:

India: According to Industry Experts, If Covid-19 is not contained in the next three months, there would be supply disruptions in the Indian pharma sector, that is overly dependent on China for ingredients and intermediary products

Pakistan: Pakistan's pharma industry fears shortage of raw material for various medicines to combat the threat of coronavirus, due to a lockdown in several foreign countries. The country imported 95% of its raw material from Shanghai and Beijing while the rest came from Japan, Spain and Italy

US and Europe: Most healthcare industry professionals are concerned about the impact of COVID-19 on the pharmaceutical supply chain. The export ban on raw materials especially from India and China have pushed US and EU to look into bringing manufacturing back to their countries

Drugs In Research for Coronavirus

- Cobra Biologics, is working as part of a consortium led by the Jenner Institute, Oxford University to rapidly develop, scale-up and produce the potential adenoviral vaccine candidate, ChAdOx1 nCov-19 (ChAdOx1), for fast-tracked clinical trials for COVID-19
- The ChAdOx1 consortium includes the University of Oxford Jenner Institute, University of Oxford Clinical Biomanufacturing Facility, the Vaccines Manufacturing and Innovation Centre (VMIC), Advent Srl, Pall Life Sciences, Cobra Biologics and Halix BV
- A drug discovery platform powered by artificial intelligence (AI) technology has identified 18 potential treatments for COVID-19, according to an announcement from health IT company Gero. Some of the drugs found to be potentially effective include:
 - Niclosamide
 - Nitazoxanide
 - Afatinib
 - Ixazomib
 - Reserpine



Overview of adopted COVID-19 trade measures (April 01, 2020) - APAC and Middle East

S.No	Country	Type of measure	Affected products	Measures	Effect on trade	Start date
1	Bangladesh	Export prohibition	medical supply products	The commerce ministry has imposed a ban on the export of locally-made face masks and hand sanitizers as a part of precautionary measures taken in response to the growing domestic demand for the items amid the global coronavirus outbreak.	Restrictive	3/14/2020
2	China	Tariff reduction	Certain products previously affected by temporary tariffs	List of imported products from the United States exempted temporarily from the additional 10% ad valorem rate of duty tariff increase.	Liberalizing	2/28/2020
3	China	Tariff reduction	medical supplies, raw materials, agricultural products, meat	Temporary decrease of import tariffs on certain products, e.g. medical supplies, raw materials, agricultural products, meat.	Liberalizing	2/6/2020
4	Cyprus	Export prohibition	medicines	The export of all medicines from Cyprus to any other country has been banned with immediate effect.	Restrictive	3/27/2020
5	Egypt	Export prohibition	masks, gloves, disinfection alcohol	Egypt bans exports of medical masks and rubbing alcohol.	Restrictive	3/17/2020
6	India	Licensing or permit requirements to export	medicaments, drugs	India has restricted the export of 26 pharmaceutical ingredients and the medicines made from them, including paracetamol.	Restrictive	3/4/2020
7	India	Export prohibition	medical supply product, , masks, ventilators, textile raw materials for mask production	The government banned the export of certain kinds of masks, ventilators and textile raw materials for masks and coveralls.	Restrictive	3/19/2020
8	India	Tariff reduction	medical or surgical instruments and apparatus	Decrease of import tariffs (from 10% to 5%) on medical or surgical instruments and apparatus and exempted from the "health cess".	Liberalizing	4/1/2020
9	India	Export prohibition	hydroxychloroquine drugs	India has banned exports of hydroxychloroquine.	Restrictive	3/25/2020
10	Indonesia	Export prohibition	medical supply products, masks	Indonesia to ban face-mask exports.	Restrictive	3/13/2020
11	Iran (Islamic Republic of)	Export prohibition	masks	Iranian government has banned export of protective face masks for a three-month period.	Restrictive	2/3/2020
12	Kazakhstan	Export prohibition	masks	Kazakhstan bans export of masks.	Restrictive	2020/02/30

Overview of adopted COVID-19 trade measures (April 01, 2020) - APAC and Middle East

13	Kenya	Export prohibition	masks	Kenyan firms banned from exporting face masks.	Restrictive	3/3/2020
14	Korea, Republic	Export prohibition	medical supply products, masks	A new law completely bans the exports of South Korean masks and requires producers to distribute 80 percent of masks through official public channels.	Restrictive	3/9/2020
15	Kyrgyzstan	Export prohibition	medicines and medical equipment	Temporary export ban on medicines and medical equipment from the Kyrgyz Republic.	Restrictive	2/3/2020
16	Kyrgyzstan	Export prohibition	certain food products and disinfectants	Kyrgyzstan imposed temporary ban on export of some food products and essential goods. According to the Cabinet of Ministers, the list includes wheat, flour, vegetable oil, sugar, chicken eggs, rice, pasta, disinfectants and bactericides, napkins, as well as mixed fodder and bran.	Restrictive	3/23/2020
17	Libya	Export prohibition	face masks, respiratory ventilation aids, sterilizing products	The Minister of Economy and Industry of the Government of National Accord (GNA), Ali Al-Essawi, issued a decree forbidding the export of sterile and non-sterile face masks, and also that of respiratory ventilation aids along with sterilizing products of any type or size.	Restrictive	3/16/2020
18	Malaysia	Export prohibition	masks	The government imposes a temporary ban on the export of face masks to meet local demand.	Restrictive	3/7/2020
19	Morocco	Export prohibition	masks	The Moroccan Ministry of Industry and Trade has imposed an export license for medical protective masks.	Restrictive	3/5/2020
20	Oman	Export prohibition	masks, hand sanitizers	Directorate-General of Pharmacy and Drug Control bans exports of masks and hand sanitizers.	Restrictive	2/26/2020
21	Pakistan	Export prohibition	masks	Pakistan bans the exports of masks.	Restrictive	2/27/2020
22	Russian Federation	Export prohibition	medical supply products, masks	Russia bans export of masks and personal protective suits.	Restrictive	3/4/2020
23	Saudi Arabia	Export prohibition	medical supply products, masks	Saudi Arabia stops all exports of coronavirus detection and prevention products.	Restrictive	3/2/2020
24	Saudi Arabia	Export prohibition	medicines, pharmaceutical and medical devices	Export of medicines, pharmaceutical and medical devices will be halted, the Saudi Customs announced.	Restrictive	3/20/2020
25	South Africa	Licensing or permit requirements to export	face masks, hand sanitizer	The DTIC will need to be consulted prior to the export of certain selected goods including face masks and hand sanitizer.	Restrictive	3/28/2020
26	Taipei, Chinese	Export prohibition	masks	Taiwan bans to export medical supplies, such as surgical masks, until it is able to satisfy domestic demand.	Restrictive	3/24/2020
27	Thailand	Export prohibition	masks	Thailand bans the exports of masks.	Restrictive	3/4/2020
28	Turkey	Licensing or permit requirements to export	masks	Turkey regulates the export of masks and personal protective equipment.	Restrictive	2/28/2020
29	Turkey	Tariff reduction	ethyl alcohol, disposable medical mask and medical ventilators	Turkey removed import tariffs on ethyl alcohol, disposable medical mask and medical ventilators amid the coronavirus pandemic, according to the Ministry of Trade.	Liberalizing	3/25/2020
30	Viet Nam	Export prohibition	masks	Vietnam has banned the export of domestically-made face masks.	Restrictive	2/6/2020

Knowledge First

