

# India's Critical Medical Imports and the China Dependency

Amitendu Palit and Joshua Quek Hian Khun

## Summary

*The context of COVID-19 has produced two significant, occasionally overlapping anxieties about imports in India. The first of these is the concern over the high dependence on the rest of the world for products essential for tackling the pandemic. The second, and probably a deeper worry, is relying excessively on China, a country with which India's geopolitical discomfort is currently at a record high, following the recent military standoff in the Himalayas. How valid are these concerns, particularly with respect to items that are most essential for mitigating public health exigencies like COVID-19?*

*In order to obtain clearer insights, we study India's imports of 15 critical medical supplies. For almost all items, we find the imports displaying the distinct tendency of being sourced in bulk from the top three source countries. Furthermore, among the top sources, we find China to be largest source for nine groups of imports, underscoring India's high import dependence on it.*

*Our further examination reveals that, for some supplies, such as humidifiers, flow splitters, chlorine, hand sanitisers, medical masks and protective clothing, India would find it hard to reduce import dependency on China, given the latter's prominent share of imports. However, for others, like liquid soaps and gloves, it can do so relatively easily.*

## Introduction

The COVID-19 pandemic drew attention to the importance of countries having access to critical medical supplies to fight the infection. For a country like India, this has become all the more relevant, given the high incidence of cases in the country and the heavy demand for critical medical supplies. As the pandemic continues to spread across India, it becomes essential to study the nature of India's reliance on imports for critical medical supplies.

This paper reviews the nature of India's import of 15 critical categories of medical supplies. Apart from studying the volume of imports of these categories and their main sources, the paper looks closely at India's dependence on China as a major source of these imports. It reflects on the possibilities India has for reducing the dependence on China by diversifying among the sources of imports.

## Imports of Critical Medical Supplies: Some Stylised Facts

India annually imports around US\$2.7 billion (S\$3.75 billion) of critical medical supplies. The largest among these are humidifiers, non-heated; enzymes; flow-splitter for oxygen supply; bougies, catheters, drains and parts; and chlorine (Table 1). Among them, these five groups of medical supplies account for US\$2.43 billion (S\$3.4 billion) or 90.5 per cent of India's

imports of critical medical supplies. These five categories account for the bulk of India's imports.

**Table1: India's Imports of Critical Medical Supplies (\$'000)**

S/No	Item Category	Import (\$'000)	Share (%)
1.	Humidifier, non-heated	1090638.75	40.57
2.	Enzymes	481,188.22	17.90
3.	Flow-splitter, for oxygen supply	329,568.41	12.26
4.	Bougies, catheters, drains and sondes, and parts	287,691.22	10.70
5.	Chlorine	241,961.73	9.0
6.	Patient monitors and pulse oximeters	64,199.89	2.39
7.	Nitrile and Sterile gloves	56,914.24	2.12
8.	Medical Masks	39,580.13	1.47
9.	Gloves, examination, non-sterile	22,309.06	0.83
10.	Hand sanitisers	18,907.95	0.70
11.	Protective Goggles	16,597.14	0.62
12.	Apron, heavy duty and Viral transport medium	14,137.29	0.53
13.	Liquid Soap	12,522.90	0.47
14.	Other medical headwear	7,749.60	0.29
15.	Protective clothing	4,400.76	0.16
	<b>Total</b>	<b>2,688,367.29</b>	

Notes:

1. Import values are average of such values for 2017, 2018 and 2019 (wherever available). Values are rounded off to two places of decimals.
2. Shares computed by the authors.

Source: Database on COVID19 Trade Flows and Policies; The World Bank. <https://www.worldbank.org/en/data/interactive/2020/04/02/database-on-coronavirus-covid-19-trade-flows-and-policies>

Among other critical medical supply imports, patient monitors and pulse oximeters, and nitrile and sterile gloves make up for US\$121 million (S\$168 million) of imports. As a proportion of the total critical medical imports, these account for 4.5 per cent. The remaining items – medical masks, gloves, hand sanitisers, protective goggles, apron, liquid soap, other medical headwear and protective clothing – together comprise five per cent of total imports with a value of around US\$136 million (S\$189 million).

The product characters of various items imported (Annexure 1) point to these comprising mechanical appliances (humidifiers, patient monitors), machine parts (flow splitters) chemicals, used both for further processing (enzyme, chlorine) and end-use final products (hand sanitisers, liquid soaps, nitrile gloves, non-sterile gloves), textile items, for final consumption (medical masks, apron, protective clothing, medical headwear) and optical equipment (protective goggles).

A close look at the top source countries for imports points to a tendency to source imports more from a few countries (Table 2). Except two categories – flow splitter, for oxygen supply; and bougies, catheters, drains and sondes, and parts – for all others, India sources more than half of its imports from the top three source countries. The concentration of

imports among the top sources is significant for gloves (both nitrile and sterile, and non-sterile) and protective goggles (900490), for which more than 80 per cent imports are obtained from the top three sources (Table 2). On an average, across the 15 categories of medical supplies, the average share of imports from the top three sources is 66.5 per cent, reflecting sizeable concentration among the sources of imports and dependence on the leading sources.

**Table 2: India's Major Import Sources and Shares**

S/No	Item Category	Top Three Source Countries	Share (%)
1.	Humidifier, non-heated	China, Germany, Japan	0.57
2.	Enzymes	United States, Germany, Singapore	0.58
3.	Flow-splitter, for oxygen supply	Germany, China, United States	0.47
4.	Bougies, Catheters, Drains and Sondes, and parts	United States, Ireland, Netherland	0.39
5.	Chlorine	China, Japan, Korea	0.56
6.	Patient Monitors and Pulse Oximeters	China, United States, Germany	0.67
7.	Nitrile and Sterile gloves	Malaysia, Thailand, Sri Lanka	0.93
8.	Medical Masks	China, United Arab Emirates, Philippines	0.73
9.	Gloves, examination, non-sterile	Malaysia, Sri Lanka, Thailand	0.91
10.	Hand Sanitisers	China, United States, Germany	0.63
11.	Protective Goggles	China, Other Asia, nes; Malaysia	0.83
12.	Apron, Heavy Duty and Viral Transport Medium	China, United States, Hong Kong	0.67
13.	Liquid Soap	Germany, United Kingdom, Thailand	0.62
14.	Other medical headwear	China, Croatia, United States	0.67
15.	Protective Clothing	China, Vietnam, Cambodia	0.72

Note: Values are rounded off to two places of decimals.

Source: Database on COVID19 Trade Flows and Policies; The World Bank. <https://www.worldbank.org/en/data/interactive/2020/04/02/database-on-coronavirus-covid-19-trade-flows-and-policies>

The top source countries for India's imports include China, Germany, the United States (US), Japan, Korea, Ireland, the Netherlands, Singapore, Malaysia, Thailand, Sri Lanka, Hong Kong, Vietnam, the Philippines Cambodia, Croatia, the United Arab Emirates and the United Kingdom (Table 2). Among these, some are particularly prominent sources, as they are among the top three for several of the categories. These include China, Germany, and the US.

## Dependence on China

China is the most significant source country for India's critical medical supplies imports. Out of the 15 categories, it is the largest source for nine (Table 3). For the remaining, except liquid soap, China is among the top 10 sources of India's imports.

**Table 3: China's Share and Rank in India's Imports (%)**

S/No	Item Category	Share	Rank
1.	Humidifier, non-heated	22.53	1
2.	Enzymes	05.28	5
3.	Flow-splitter, for oxygen supply	13.67	2
4.	Bougies, Catheters, Drains and Sondes, and parts	09.24	4
5.	Chlorine	22.08	1
6.	Patient Monitors and Pulse Oximeters	22.97	1
7.	Nitrile and Sterile gloves	0.62	6
8.	Medical Masks	50.04	1
9.	Gloves, examination, non-sterile	01.39	5
10.	Hand Sanitisers	30.84	1
11.	Protective Goggles	68.07	1
12.	Apron, Heavy Duty and Viral Transport Medium	50.93	1
13.	Liquid Soap	01.43	12
14.	Other Medical Headwear	51.59	1
15.	Protective Clothing	38.72	1

Note: Share values are rounded off to two places of decimals

Source: Database on COVID19 Trade Flows and Policies; The World Bank. <https://www.worldbank.org/en/data/interactive/2020/04/02/database-on-coronavirus-covid-19-trade-flows-and-policies>

India's dependency on China for imports is particularly striking in medical masks, protective goggles, aprons, heavy duty and viral transport medium, and other medical headwear. In all these categories, more than 50 per cent of India's total imports are obtained from China. In some other categories, such as humidifiers (non-heated), chlorine, patient monitors and pulse oximeters, hand sanitisers and protective clothing, China's share in India's total imports is more than 20 per cent (Table 3).

### Can India Reduce the Dependency on China?

As mentioned earlier, India's import basket of critical medical supplies is dominated by some groups, such as humidifiers, enzymes, flow-splitter, bougies, and chlorine, which account for more than 90 per cent of imports (Table 1). China is the top source of imports for two of these groups – humidifiers and chlorine – while being among the top five sources for the other three. Humidifiers and chlorine belong to mechanical appliances and chemicals product groups respectively, areas where India's import dependence on China is strikingly high. Humidifiers, which are the largest critical medical imports by India, are also sourced extensively from Germany and Japan, which account for 18.7 per cent and 16.2 per cent of total imports respectively,<sup>1</sup> following China's share of 22.5 per cent (Table 3). Similarly, for imports of chlorine, China's share of 22.1 per cent is followed by Japan and Korea's shares of 17.4 per cent and 17.1 per cent respectively.

In the remaining three groups, which are among India's key medical supplies imports, India's reliance is relatively less on China for enzymes, compared with the US, Germany, Singapore and France. For flow-splitters, China and the US are India's second and third largest sources with practically similar shares in imports, after Germany. For bougies and catheters again,

<sup>1</sup> Database on COVID19 Trade Flows and Policies; The World Bank; <https://www.worldbank.org/en/data/interactive/2020/04/02/database-on-coronavirus-covid-19-trade-flows-and-policies>.

the US is the most important source of imports, with China following Ireland and the Netherlands.<sup>2</sup>

In all the five prominent groups of imports for India, reducing dependencies on China would mean locating alternative sources. This is more difficult in humidifiers and chlorine, given the significant shares that China has in these imports. For the remaining three, substitution possibilities are greater, particularly for enzymes, and bougies and catheters, where China's share in total imports of these items is less than 10 per cent.

Among other categories, India's dependence on China is particularly high in medical masks, protective goggles, other medical headwear, protective clothing, aprons and hand sanitisers. These, while not being among India's more high-value medical supplies imports, are nonetheless essential to fight pandemics like COVID-19. By having shares of more than 30 per cent of imports in these, and more than 50 per cent for some (Table 3), displacing China as a prominent source of imports is going to be exceptionally difficult. However, there are some categories such as gloves and liquid soap, where imports from China are much lower compared with other sources. These are the categories, where substitution possibilities are largest and switching to alternative sources of imports can happen nearly seamlessly.

## Final Thoughts

India's imports of critical medical supplies reflect the tendency of concentrating among the largest source countries. Among these countries, China remains the top-most source for several items, followed by Germany, the US, Korea and Japan. India's anxieties regarding high import dependence on China, while not being relevant for all categories, are certainly pertinent to many. These include imports of critical supplies such as humidifiers, flow-splitters and chlorine that are of high value, as well as low value, high volume categories such as hand sanitisers, masks and protective clothing.

Our analysis points to some imports – enzymes, and bougies and catheters among the higher value ones, and liquid soap, gloves, among the lower value ones – that can be substituted by India relatively easily from other sources, thereby reducing import sourcing from China. In most of the other items though, irrespective of the nature of the product, whether intended for further processing (for example, chlorine); components (for example, flow splitters); or for final consumption (for example, humidifiers, hand sanitisers), reducing dependence on China will be tough. India's challenge in this regard will not just be locating alternative sources, but also procuring from them by large volumes and at competitive prices, an advantage that has enabled China to be the largest source of imports for several categories.

.....

Dr Amitendu Palit is a Senior Research Fellow and Research Lead (Trade and Economic Policy) at the Institute of South Asian Studies (ISAS), an autonomous research institute at the National University of Singapore (NUS). He can be contacted at [isasap@nus.edu.sg](mailto:isasap@nus.edu.sg). Mr Joshua Quek Hian Khun is a research intern at ISAS. He can be contacted at [isasv75@nus.edu.sg](mailto:isasv75@nus.edu.sg). The authors bear full responsibility for the facts cited and opinions expressed in this paper.

---

<sup>2</sup> Ibid.

**Annexure 1**

<b>S/No</b>	<b>Item</b>	<b>HS 2017 Code</b>	<b>Product Description</b>
1.	Humidifier, non-heated	847989	Machines and mechanical appliances, n.e.s.
2.	Enzymes	382200	Diagnostic or laboratory reagents on a backing, prepared diagnostic or laboratory reagents whether or not on a backing, and certified reference materials (excl. compound diagnostic reagents designed to be administered to the patient, blood-grouping reagents, animal blood prepared for therapeutic, prophylactic or diagnostic uses and vaccines, toxins, cultures of micro-organisms and similar products)
3.	Flow-splitter, for oxygen supply	841391	Parts of pumps for liquids, n.e.s.
4.	Bougies, catheters, drains and sondes, and parts	901839	Needles, catheters, cannulae and the like, used in medical, surgical, dental or veterinary sciences (excl. syringes, tubular metal needles and needles for sutures)
5.	Chlorine	390421	Non-plasticised polyvinyl chloride, in primary forms, mixed with other substances
6.	Patient monitors and pulse oximeters	901819	Electro-diagnostic apparatus, incl. apparatus for functional exploratory examination or for checking physiological parameters (excl. electro-cardiographs, ultrasonic scanning apparatus, magnetic resonance imaging apparatus and scintigraphic apparatus)
7.	Nitrile and Sterile gloves	401519	Gloves, mittens and mitts, of vulcanised rubber (excl surgical gloves)
8.	Medical Masks	630790	Made-up articles of textile materials, incl. dress patterns, n.e.s.
9.	Gloves, examination, non-sterile	401511	Surgical gloves, of vulcanised rubber (excl. fingerstalls)
10.	Hand sanitisers	340220	Surface-active preparations, washing preparations, auxiliary washing preparations and cleaning preparations put up for retail sale (excl. organic surface-active agents, soap and organic surface-active preparations in the form of bars, cakes, moulded pieces or shapes, and products and preparations for washing the skin in the form of liquid or cream)
11.	Protective Goggles	900490	Spectacles, goggles and the like, corrective, protective or other (excl. spectacles for testing eyesight, sunglasses, contact lenses, spectacle lenses and frames and mountings for spectacles)
12.	Apron, heavy duty and Viral transport medium	392620	Articles of apparel and clothing accessories produced by the stitching or sticking together of plastic sheeting, incl. gloves, mittens and mitts (excl. goods of 9619)

13.	Liquid Soap	340130	Organic surface-active products and preparations for washing the skin, in the form of liquid or cream and put up for retail sale, whether or not containing soap
14.	Other medical headwear	650610	Safety headgear, whether or not lined or trimmed
15.	Protective clothing	621010	Garments made up of felt or nonwovens, whether or not impregnated, coated, covered or laminated (excl. babies' garments and clothing accessories)

Source: Database on COVID19 Trade Flows and Policies; The World Bank. <https://www.worldbank.org/en/data/interactive/2020/04/02/database-on-coronavirus-covid-19-trade-flows-and-policies>