

TRADE IN MEDICAL GOODS IN THE CONTEXT OF TACKLING COVID-19

INFORMATION NOTE¹

KEY POINTS:

- Germany, the United States (US), and Switzerland supply 35% of medical products²;
- China, Germany and the US export 40% of personal protective products;
- Imports and exports of medical products totalled about \$2 trillion, including intra-EU trade, which represented approximately 5% of total world merchandise trade in 2019;
- Trade of products described as critical and in severe shortage in COVID-19 crisis totalled about \$597 billion, or 1.7% of total world trade in 2019;
- Tariffs on some products remain very high. For example, the average applied tariff for hand soap is 17% and some WTO Members apply tariffs as high as 65%;
- Protective supplies used in the fight against COVID-19 attract an average tariff of 11.5% and goes as high as 27% in some countries;
- The WTO has contributed to the liberalization of trade medical products in three main ways:
 - The results of tariff negotiations scheduled at the inception of the WTO in 1995;
 - Conclusion of the plurilateral sectoral Agreement on Pharmaceutical Products ("Pharma Agreement") in the Uruguay Round and its four subsequent reviews;
 - The Expansion of the Information Technology Agreement in 2015.

1 INTRODUCTION

The COVID-19 pandemic has brought considerable attention to trade in medical products, and specifically trade in products for prevention, testing and treatment. The COVID-19 pandemic has spread to most countries and territories with hundreds of thousands of people infected, and a growing burden of fatalities. Understandably, governments are taking protective measures to stem the pandemic of the virus. Some of these measures may inadvertently impact the flow of critical medical goods across territories.

This study provides a comprehensive overview of trade and tariffs imposed on medical goods in general, many of which appear to be in severe shortage as a result of the current crisis. The purpose of this note is to provide factual information on how these goods are traded globally.

¹ This document has been prepared under the Secretariat's own responsibility and is without prejudice to the positions of Members or to their rights and obligations under the WTO.

² The values of imports and exports in this study are calculated at HS 6-digit subheading level. Those subheadings could cover products that are for non-medical use.

2 PRODUCT SCOPE

Medical products, in general, are widely spread in different Chapters of the Harmonized System (HS) classification. This note seeks to analyse a set of products that are considered relevant to COVID-19 prevention and medical treatment in general. The specific HS 6-digit subheading codes are listed in Annex 1.³ These COVID-19 relevant medical products are categorized into four main groups:

1. Medicines (Pharmaceuticals)– including both dosified and bulk medicines;
2. Medical supplies – refers to consumables for hospital and laboratory use (e.g. alcohol, syringes, gauze, reagents, etc);
3. Medical equipment and technology; and
4. Personal protective products – hand soap and sanitizer, face masks, protective spectacles.⁴

It should be noted that this note focuses solely on the final form of these products and does not extend to the different intermediate products that are used by global value chains in their production. The protective garments for surgical/medical use are not included in the analysis, because it is impossible to distinguish them from general clothing product in the HS classification.

A subset of medical products has been frequently mentioned by governments, international organizations and in news reports as in short supply for the fight against COVID-19. These include: disinfectants/ sterilization products; face masks; gloves; hand soap and sanitizer; patient monitors and pulse oximeters; protective spectacles and visors; sterilizers; syringes; thermometers; ultrasonic scanning apparatus; ventilators, oxygen masks; X-ray equipment; and other devices such as computer tomography apparatus. Trade in these products collectively amounts to 1.7% of world merchandise trade.

3 TRADE PATTERNS

Imports

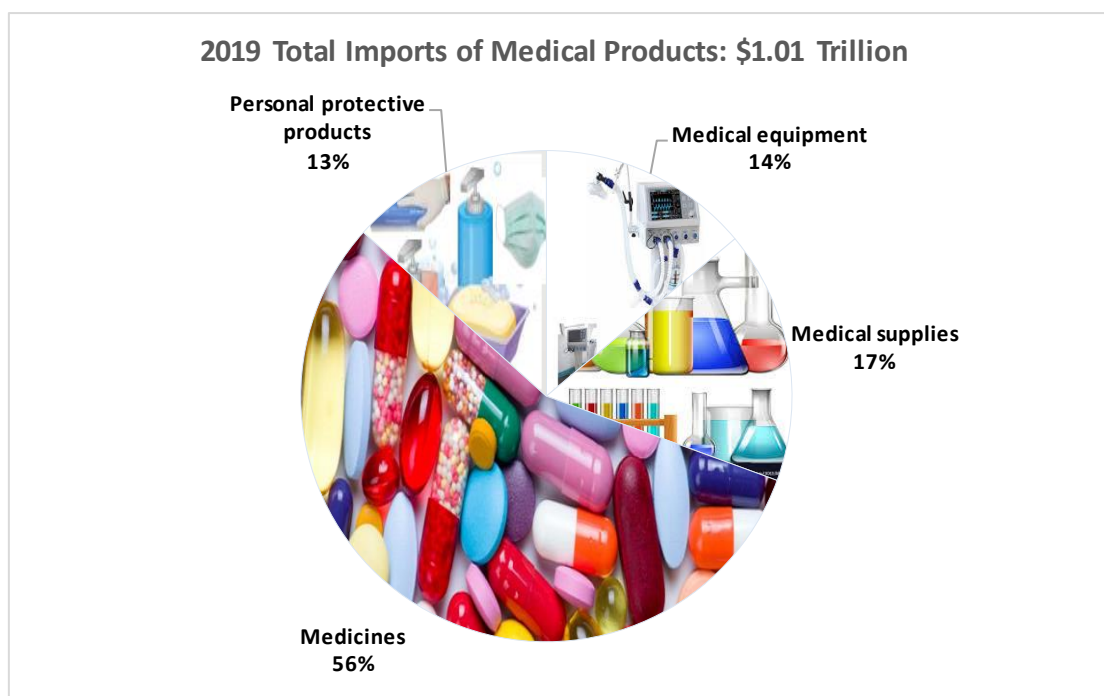
Medical products account for approximately 5% of total world trade (imports and exports); more than half of imports are medicines

World imports of medical products totalled \$1011 billion in 2019 (Table 1), a 5% increase from 2018. Together with exports, trade in these medical products amounted about \$2 trillion and accounted for 5% of the total of merchandise trade in 2019. As shown in Chart 1, the largest category by value were the "medicines", which represents 56% of the total value of medical product imports, followed in a distant second place by "medical supplies" with a share of 17%. "Medical equipment" and "personal protective equipment" have the lowest share with 14% and 13%, respectively.

³ This product list and categorization are compiled by the WTO Secretariat, partly based on the health products used in WTO Working Paper - *More Trade for Better Health? International Trade and Tariffs on Health Products* (Matthias Helble 2012).

⁴ Including the products identified by the WCO HS Classification reference for Covid-19 medical supplies (http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/activities-and-programmes/natural-disaster/covid_19/hs-classification-reference_en.pdf?la=en).

Chart 1: Imports of medical goods, by product category (2019)



Source: WTO Secretariat.

Top importers: the US, Germany, and China account for 34% of total world imports of medical goods

During the last three years, the United States was the largest importer of medical products, accounting for 19% of total world imports in 2019. The ranking and shares are consistent during the 2017-2019 period. As shown in Table 1, Germany had a share of 9%, followed by China and Belgium (6%). The other importers who make up the top 10 importers include the Netherlands, Japan, UK, France, Italy, and Switzerland.

In terms of the relative importance of medical goods vis-a-vis each country's total imports, Belgium and Switzerland's imports of medical goods represent around 13% of their total imports. Among the top 10 importers, this share is smallest for China, for which medical imports represent 3% of its total imports. Except for China, the shares of the Member in the top 10 are all higher than the global average share, 6%.

Table 1: Top 10 importers of medical goods, 2019

Country	Total imports		Share of world medical imports (%)	Share of total medical imports (%)			
	Value (\$ billion)	Share of imports of all products (%)		Medical equipment	Medical supplies	Medicines	Personal protective products
World	1,011.3	6	100	14	17	56	13
1. United States	193.1	8	19	16	16	59	10
2. Germany	86.7	7	9	12	18	57	13
3. China	65.0	3	6	23	15	46	16
4. Belgium	56.6	13	6	8	12	75	5
5. Netherlands	52.7	8	5	16	20	55	8
6. Japan	44.8	6	4	16	16	56	13
7. United Kingdom	41.1	6	4	11	15	62	12
8. France	40.5	6	4	12	20	53	15
9. Italy	37.1	8	4	9	15	66	9
10. Switzerland	36.9	13	4	6	9	80	5

Source: WTO Secretariat.

Personal protective products represent 13% of medical imports

The import value of personal protective products (hand soap and sanitizer, face masks, and protective spectacles) in 2019 was \$135 billion. The US followed by Germany are the biggest importers and together account for more than 22% of total world imports of these products.

The US and Germany are the biggest bilateral trade partners for medical products; and both the US and Germany are the main suppliers to China

The US, Germany, and China were consistently the top-three importers for the years 2017 to 2019, and their ranking did not change for the past three years. These three Members accounted for a third of world imports in 2019. The top five partner countries from where they import from are listed in Table 2 with the value of imports and share of the market.

The US imported medical products mostly from Ireland, Germany, Switzerland, China, and Mexico. Together, these five Members accounted for more than half of all US imports of medical products, with Ireland having a 17% share of the US market and Mexico 6%.

Table 2. Top 5 partners of the top 3 importers of medical products

Importer	Partner	Import values (Million US\$)				Share (%)
		2017	2018	2019	Average	
United States	1. Ireland	25,973	29,070	28,750	27,931	17
	2. Germany	16,455	20,160	22,390	19,668	12
	3. Switzerland	13,162	15,560	17,163	15,295	9
	4. China	12,499	13,921	14,182	13,534	8
	5. Mexico	9,124	9,747	10,783	9,885	6
Germany	1. Netherlands	11,356	11,804	15,863	13,008	16
	2. United States	13,067	12,604	8,004	11,225	14
	3. Switzerland	10,016	11,329	7,987	9,777	12
	4. Ireland	4,471	5,236	4,764	4,824	6
	5. Belgium	3,291	3,335	7,207	4,611	6
China	1. Germany	9,582	9,792	11,918	10,430	20
	2. United States	8,685	10,483	10,259	9,809	19
	3. Japan	4,974	5,615	5,659	5,416	10
	4. France	2,894	2,864	3,338	3,032	6
	5. Italy	2,146	2,152	2,309	2,203	4

Source: WTO Secretariat.

Germany imports medical products mostly from other European countries, except the US which accounts for a 14% share of its imports. Collectively these top 5 partners account for 54% of Germany's imports of medical products.

Germany followed by the US are the largest source of imports for China, with shares of 20% and 19% respectively. The relative shares had changed since 2018 when the US was the largest exporter to China. China imported about 10% of medical products from Japan in 2019.

Exports

Germany, the US, and Switzerland supply 35% of medical products to the world; The top 10 exporters account for almost three-quarters of world exports

World exports of medical products grew by 9% in 2018 and 6% in 2019, from \$859 billion in 2017 to around \$995.8 billion total world exports in 2019 (Table 3). Germany is the top exporter with a 14% share. The top 10 exporters account for almost three-quarters of world exports. This is a more concentrated distribution compared to imports in which the top 10 importers account for only 65% of the market.

Despite not being among the top-10 importers, Ireland ranks is the sixth largest exporter with a 7% share of exports. Medical exports of Ireland and Switzerland amounted to 38% and 29% respectively of their total goods exports, which highlights the importance of these products to their respective economies. In contrast, exports of medical products only account for less than 2% in China.

Table 3. Top ten exporters of medical products in 2019

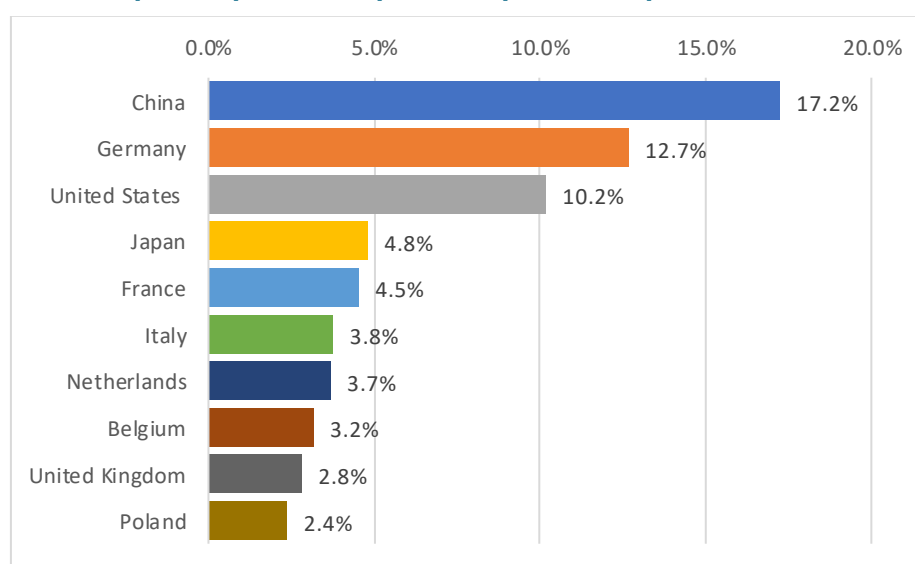
Country	Total exports		Share of world medical exports (%)	Share of total medical exports (%)			
	Value (\$billion)	Share of exports of all products (%)		Medical equipment	Medical supplies	Medicines	Personal protective products
World	995.8	6	100	14	17	55	14
Germany	136.2	9	14	15	15	57	13
United States	116.6	7	12	25	29	35	12
Switzerland	89.9	29	9	5	5	88	2
Netherlands	73.1	10	7	17	18	58	7
Belgium	65.8	15	7	7	12	74	6
Ireland	65.3	38	7	5	20	71	4
China	51.6	2	5	19	22	10	49
France	49.9	9	5	9	14	65	13
Italy	42.9	8	4	6	7	75	12
United Kingdom	38.2	8	4	11	15	64	10

Source: WTO Secretariat.

40% of personal protective products exports come from China, Germany, and the US

Total exports of protective products, including face masks, hand soap, sanitizer and protective spectacles, were valued at \$135 billion on average for the period 2017-2019. About 17% or \$23 billion came from China, the top exporter, followed by Germany and the US (see Chart 2). These three exporters account for more than 40% of world exports of protective supplies.

Chart 2: Share of top 10 exporters of personal protective products



Source: WTO Secretariat.

China is the top exporter of face masks with 25% share

China supplied 25% world exports of face masks in 2019, and together with Germany and the US, the three contribute to almost half of the world face mask supply.

Singapore, US, Netherlands, and China export more than half the world's ventilators

Breathing apparatus, including ventilators, are supplied by a small number of Members notably, Singapore which has 18% market share, followed by the US with 16%, Netherlands 10% and China 10%.

4 MFN APPLIED TARIFFS

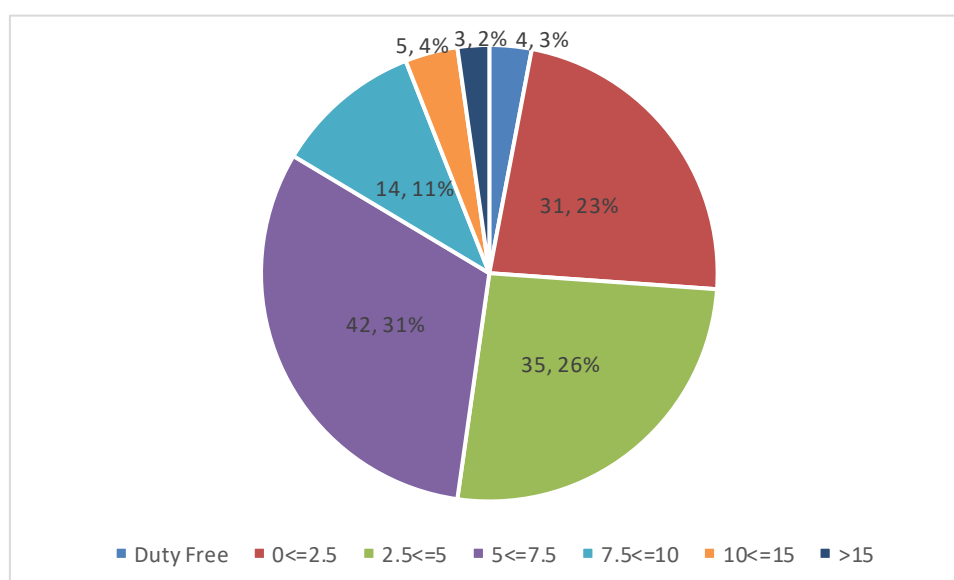
Average applied tariff on medical products is 4.8%

The tariff statistics show that the average Most-favoured-nation (MFN) applied tariff on COVID-19 relevant medical products for WTO Members is around 4.8% based on the latest data available (Annex 2) notified by Members.⁵ This is lower compared to the latest average of applied tariff for all non-agricultural products, which is 7.6%.⁶

More than half of Members impose applied tariffs lower than 5%

The frequency distribution (in terms of the number of members) of the average MFN applied tariffs for all medical products is shown in Chart 3 and Table 4. The statistics show that more than half of Members (70 of 134 Members or 52%) impose MFN tariffs of 5% or lower. Among them, four Members do not levy any tariffs at all for all medical products (i.e., these essential products enter duty-free). They are Hong Kong, China; Iceland; Macao, China; and Singapore. Thirty-one Members (23%) have average tariffs between 0 and 2.5% and 35 Members (26%) have average tariffs between 2.5% and 5%.

Chart 3: Number of Members per range of average MFN applied tariffs (number, percentage)



Source: WTO Secretariat.

In China, where the COVID-19 virus was first detected, the average MFN applied tariff is 4.5%, which is slightly below the global average. Republic of Korea (the second most affected Asian country in terms of the number of confirmed cases) applies tariffs at 5.9% on average. European Union members apply the EU common external tariff with an average of 1.5%, and Switzerland has an average applied tariff of 0.7%.⁷ The comparable applied tariff rate statistic for the US is 0.9%.

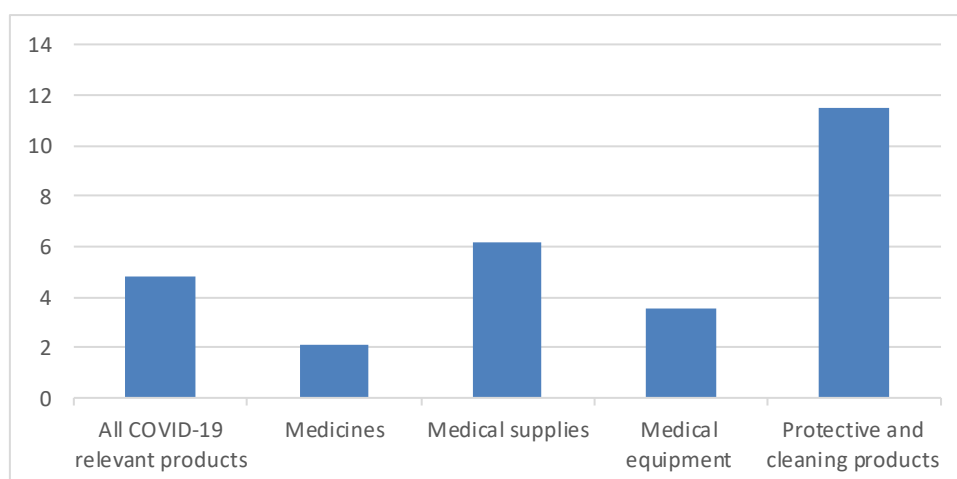
Chart 4 shows large variation in the level of tariffs applied between different product categories in this bundle of products relevant to COVID-19 prevention and medical treatment. Overall averages by product groups range from around 2.1% for medicines to 11.5% for personal protective products.

⁵ The European Union is counted as one and data for 2019 included in this report refers to EU-28. *Ad valorem* equivalents are used for non-*ad valorem* duties.

⁶ World Tariff Profiles, 2019, calculation from Summary Table for Non-Agricultural products.

⁷ The UK continues to apply the EU common external tariff during the transition period.

Chart 4: Average MFN applied duty of medical goods and its categories



Source: WTO Secretariat.

Table 4: Number of WTO Members per average MFN applied tariff band; and average MFN tariff

Duty range	All products	Medicines	Medical supplies	Medical equipment	Personal protective products
Duty Free	4	72	6	19	5
0 <=2.5	31	21	20	51	5
2.5 <=5.0	35	18	34	18	19
5.0 <=7.5	42	9	42	28	19
7.5 <=10	14	11	15	15	9
10 <=15	5	3	11	2	30
> 15	3	0	6	1	47
AVERAGE MFN TARIFF	4.8%	2.1%	6.2%	3.4%	11.5%

Source: WTO Secretariat.

Medicines subject to 2.1% tariffs, lower than other relevant products

The average MFN applied tariff on medicine is the lowest among different categories of medical products, at 2.1%. More than half of the Members have no tariff in place on medicines. Thirty-nine Members impose tariffs at 5% or below and no Member levies tariff higher than 15%.

It should be noted that during the Uruguay Round negotiations, some members concluded a so-called zero-for-zero plurilateral sectoral initiative on pharmaceutical products.⁸ This is referred to as the 1994 WTO Pharmaceutical Agreement or "Pharma". The current participants in this agreement include Canada; the European Union; Japan; Macao, China; Norway; Switzerland; and the US. The agreement covers pharmaceutical products, including active ingredients defined by the WHO International Non-proprietary Names (INNs) and other substances used in the production of these products.

3.4% is the average applied duty on medical equipment, including products covered by ITA Expansion

On average, the MFN applied tariff on medical equipment is 3.4%. Medical equipment ranges in complexity from microscopes to ultrasonic scanners, and include ventilators. Nineteen Members provide duty-free access for medical equipment and an additional half of WTO Members impose duties at 5% or below. Three Members apply tariffs higher than 10% on medical equipment.

Medical equipment is another area in which the WTO has achieved some trade liberalisation. Eighty per cent of the medical equipment covered by this category are covered by the Expansion of

⁸ https://www.wto.org/gatt_docs/English/SULPDF/91770009.pdf.

the Information Technology Agreement (ITA-Exp).⁹ ITA-Exp will eliminate the tariffs and lower the cost for imports of technology-intensive medical equipment by 2023.¹⁰ The average MFN applied tariff of all Participants to the ITA-Exp on all medical equipment is 0.4% compared to 4.1% for Members that do not participate in this initiative.

Ventilators, which are in shortage of in the current health crisis, are not covered by the ITA nor ITA-Exp. The world average tariff on this product is 3.3% but some Members apply higher rates. Among Latin American countries Brazil, Argentina, and Venezuela levy 14% applied import tariff. Among Asian economies, India's duty for ventilators is 10% while for China, the rate is 4%. Sixty-seven Members provide duty-free treatment to ventilators, including the EU, US, Republic of Korea, and Switzerland.

Relatively high tariff of 6.2% on hospital & laboratory inputs and materials

The average MFN tariff applied on medical supplies is 6.2%, the highest among the medical product categories included in this analysis.

About 11.5% tariff on COVID-19 relevant personal protective products

The World Health Organization recommends to regularly wash hands with soap and water or use hand sanitizers to disinfect and stop the spread of the virus. Protective supplies include those related to prevention like hand soap and sanitizer, hand gloves, and face masks. These protective medical supplies have an average applied tariff of 11.5%, more than five times higher than those for medicines.

The variation between Members in the tariffs they apply on personal protective products is extensive. There are 29 Members that apply an average duty of 5% or less, but there are 47 Members that apply an average tariff of at least 15% on personal protective products.

The global average applied tariff for hand soap is 17%. Seventy-two Members apply duty greater than 15%. Some tariffs could be as high as 50% (Dominica) or 56.7% (Egypt).

Hand sanitizers have an average tariff of 5%. Four Members apply a tariff higher than 10%, namely Djibouti, Bangladesh, Tonga, and Mauritania. A third of all WTO Members apply tariff for hand sanitizers in the range of 2.5% to 5% - significantly lower than for soap.

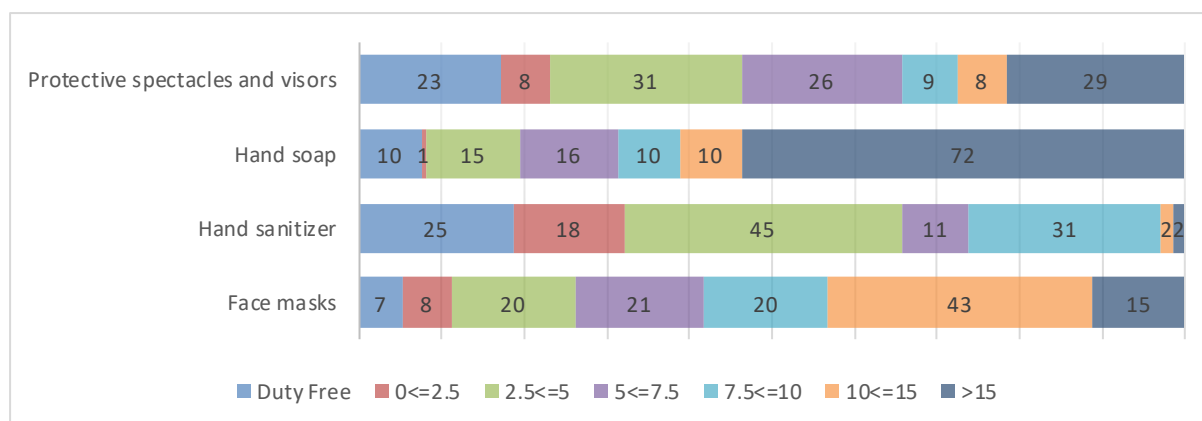
Face masks are another critical personal protective product, which are subject to 9.1% MFN applied tariff on average. Five Latin American countries (Ecuador, Bolivia, Venezuela, Brazil, and Argentina) have the highest tariffs on face masks. The average tariff for Ecuador is 19%, with some product lines levied at 55% tariff. Bolivia and Venezuela have an average applied tariff of 20% while Brazil and Argentina have 17% average tariffs. Fifteen Members maintain MFN applied duty of more than 15%. Almost a third of all WTO Members apply tariffs of between 10 to 15%.

For protective spectacles and visors, Chart 5 shows a higher number of Members without levying any duty (23 duty-free compared to 7 for face masks). It also indicates that many Members (29) have tariffs higher than 15%. Ecuador and Jordan have the highest applied tariffs for protective glasses at 30%. For almost half of the Members, this product is dutiable, but the duty is less than or equal to 7.5%.

⁹ The Information Technology Agreement (ITA) was concluded in 1996, under which 82 Members have eliminated tariffs on most IT products. In 2015, An expansion of the ITA Agreement was agreed by some ITA participants with additional products covered, including medical equipment. The original ITA also partially covered a few medical equipment HS subheadings.

¹⁰ The Information Technology Agreement expansion covers the following Members: Albania; Australia; Canada; China; Colombia; Costa Rica; European Union; Georgia; Guatemala; Hong Kong, China; Iceland; Israel; Japan; Republic of Korea; Macao, China; Malaysia; Mauritius; Montenegro; New Zealand; Norway; Philippines; Singapore; Switzerland; Chinese Taipei; Thailand; and United States.

Chart 5: Number of Members per average applied tariff band



Source: WTO Secretariat.

5 BOUND TARIFFS

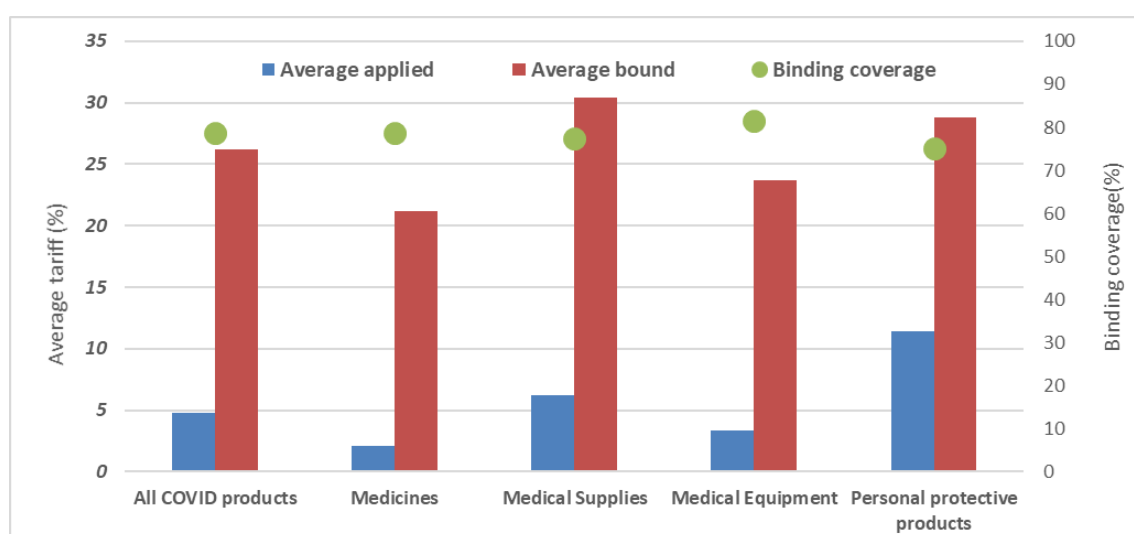
More than 75% tariffs have been bound

On average, WTO Members made commitments not to raise their applied duty above a fixed ceiling (i.e. a bound duty rate) for over three out of four medical products. There is no large difference in binding coverage among the product groups, ranging from 75% to 82%.¹¹ (Chart 6)

Large gap between bound and MFN applied tariff

Chart 6 provides an indication of by how much, on average, WTO Members could lower their committed ceilings before reaching their applied levels. In general, there is a significant policy space (water), with the average bound rates five times as higher than average applied. In terms of percentage points, the ceiling bound tariff could be reduced by some 17 percentage points in each category before it reached the average MFN applied tariff rate.

Chart 6: Average MFN applied and bound duties; binding coverage (percentage)



Source: WTO Secretariat.

¹¹ The binding coverage is the share of subheadings in the product group that are bound. Partially bound subheadings are taken into account on a pro rata basis.

Only two Members (Hong Kong, China and Macao, China) have bound all their medical products at duty-free levels. Twenty-nine Members have an average bound of 50 per cent or more. All WTO Members have made commitments in their tariff schedules on a least one medical product. While for categories "medicine" there are many more Members with binding at zero, there are also over 20 Members who have not made any binding commitments for this product category. (Table 5)

Table 5: Number of WTO Members per average bound tariff band

Average tariff bands	All medical products	Medicines	Medical supplies	Medical equipment	Personal protective products
Duty Free	2	26	2	10	2
0-5	19	16	12	27	9
5-10	16	4	16	11	15
10-20	22	19	22	21	30
20-30	19	13	16	14	18
30-50	25	27	25	29	31
>50	32	7	42	9	14
Unbound	0	23	0	14	16

Source: WTO Secretariat.

Data Sources:

- WTO, Integrated Database and Consolidated Tariff Schedules database
- World Tariff Profiles, 2019
- UN COMTRADE
- Trade Data Monitor for 2019 initial trade estimates.Data.WTO.ORG for trade balance data on manufactured goods.

ANNEX 1: LIST OF MEDICAL PRODUCTS¹²

Medicines (Pharmaceuticals)

HS 2017	Short product description	ITA-Exp	Pharma	WCO
300213	Immunological products, unmixed, ... not for retail sale		X	
300214	Immunological products, mixed, ... not for retail sale		X	
300215	Immunological products, ... for retail sale		X	X
300219	Immunological products, n.e.s.		X	
300220	Vaccines for human medicine		X	
300310	Medicaments containing penicillins ... not for retail sale		X	
300320	Medicaments containing antibiotics, ... not for retail sale		X	
300331	Medicaments containing insulin, ... not for retail sale		X	
300339	Medicaments containing hormones ... not for retail sale		X	
300341	Medicaments containing ephedrine ... not for retail sale		X	
300342	Medicaments containing pseudoephedrine "INN" or its salts, ... not for retail sale		X	
300343	Medicaments containing norephedrine or its salts, ... not for retail sale		X	
300349	Medicaments containing alkaloids or derivatives thereof, ... not for retail sale		X	
300360	Medicaments containing any of the following antimalarial active principles: ... not put up for retail sale		X	
300390	Medicaments consisting of two or more constituents mixed together for therapeutic or prophylactic uses, not for retail sale		X	
300410	Medicaments containing penicillins or derivatives thereof ... for retail sale		X	
300420	Medicaments containing antibiotics, ... for retail sale		X	
300431	Medicaments containing insulin but not antibiotics, ... for retail sale		X	
300432	Medicaments containing corticosteroid hormones, ... for retail sale		X	
300439	Medicaments containing hormones or steroids ... for retail sale		X	
300441	Medicaments containing ephedrine or its salts, ... for retail sale		X	
300442	Medicaments containing pseudoephedrine "INN" or its salts, ... for retail sale		X	
300443	Medicaments containing norephedrine or its salts, ... for retail sale		X	
300449	Medicaments containing alkaloids or derivatives thereof... for retail sale		X	
300450	Medicaments containing provitamins, vitamins,... for retail sale		X	
300460	Medicaments containing any of the following antimalarial active principles ... for retail sale		X	
300490	Medicaments consisting of mixed or unmixed products ... for retail sale		X	X

Medical Supplies

HS 2017	Short product description	ITA-Exp	Pharma	WCO
220710	Undenatured ethyl alcohol, of actual alcoholic strength of >= 80%			X
284700	Hydrogen peroxide, whether or not solidified with urea			X
300120	Extracts of glands or other organs or of their secretions, for organo-therapeutic uses		X	
300190	Dried glands and other organs for organo-therapeutic uses; heparin and its salts, ...		X	
300212	Antisera and other blood fractions		X	
300290	Human blood; animal blood ...; toxins, cultures of micro-organisms and similar products		X	
300510	Adhesive dressings and other articles ... put up for retail sale for medical, surgical, dental or veterinary purposes		X	
300590	Wadding, gauze, bandages and the like put up for retail sale for medical, surgical, dental or veterinary purposes		X	X
300610	Sterile surgical catgut, similar sterile suture materials,...		X	

¹² Columns "ITA-Exp", "Pharma", and "WCO" indicate if the HS codes are also part of the ITA Expansion, Pharmaceutical Agreement, or WCO HS Classification reference for Covid-19 medical supplies

HS 2017	Short product description	ITA-Exp	Pharma	WCO
300620	Reagents for determining blood groups or blood factors		X	
300630	Opacifying preparations for x-ray examinations; diagnostic reagents for administration to patients		X	
300650	First-aid boxes and kits		X	
300670	Gel preparations designed to be used in human or veterinary medicine ...		X	
340212	Cationic organic surface-active agents			
340213	Non-ionic organic surface-active agents			
350400	Peptones and their derivatives; other protein substances and their derivatives, n.e.s.; ...			
350790	Enzymes and prepared enzymes, n.e.s.			
370110	Photographic plates and film in the flat, sensitised, unexposed, for X-ray			
370210	Photographic film in rolls, unexposed, for X-ray			
380894	Disinfectants, put up in forms or packings for retail sale			X
382100	Prepared culture media for the development or maintenance of micro-organisms			
382200	Diagnostic or laboratory reagents on a backing, prepared diagnostic or laboratory reagents and certified reference materials			X
392620	Articles of apparel and clothing accessories produced by the stitching or sticking together of plastic sheeting			X
401490	Hygienic or pharmaceutical articles			
401511	Surgical gloves, of vulcanised rubber			X
401519	Gloves, mittens and mitts, of vulcanised rubber			X
701710	Laboratory, hygienic or pharmaceutical glassware, of fused quartz or other fused silica			
701720	Laboratory, hygienic or pharmaceutical glassware having a linear coefficient of expansion $\leq 5 \times 10^{-6}$ per kelvin within a temperature range of 0°C to 300°C			
701790	Laboratory, hygienic or pharmaceutical glassware n.e.s			
901831	Syringes, with or without needles, used in medical, surgical, dental or veterinary sciences			X
901832	Tubular metal needles and needles for sutures, used in medical, surgical, dental or veterinary sciences			X
901839	Needles, catheters, cannulae and the like, used in medical, surgical, dental or veterinary sciences			X

Medical Equipment

HS 2017	Short product description	ITA-Exp	Pharma	WCO
841920	Medical, surgical or laboratory sterilizers			X
901050	Apparatus and equipment; negatoscopes	X		
901110	Stereoscopic optical microscopes	X		
901180	Optical microscopes	X		
901811	Electro-cardiographs	X		
901812	Ultrasonic scanning apparatus	X		
901813	Magnetic resonance imaging apparatus	X		
901814	Scintigraphic apparatus			
901819	Other electro-diagnostic apparatus	X		X
901820	Ultraviolet or infra-red ray apparatus used in medical, surgical, dental or veterinary sciences	X		
901890	Instruments and appliances used in medical, surgical or veterinary sciences, n.e.s.	X		X
901920	Ozone therapy, oxygen therapy, aerosol therapy, artificial respiration or other therapeutic respiration apparatus			X
902150	Pacemakers for stimulating heart muscles	X		
902212	Computer tomography apparatus	X		X
902214	Apparatus based on the use of X-rays, for medical, surgical or veterinary uses	X		
902219	Apparatus based on the use of X-rays	X		
902221	Apparatus based on the use of alpha, beta or gamma radiations, for medical, surgical, dental or veterinary uses	X		
902229	Apparatus based on the use of alpha, beta or gamma radiations, n.e.s	X		
902230	X-ray tubes	X		

HS 2017	Short product description	ITA-Exp	Pharma	WCO
902290	X-ray generators, high tension generators, control panels and desks, screens, ...	X		
902511	Thermometers, liquid-filled, for direct reading, not combined with other instruments			X
902519	Thermometers and pyrometers, not combined with other instruments	X		X
902780	Instruments and apparatus for physical or chemical analysis, or for measuring or checking viscosity ...	X		X
903020	Oscilloscopes and oscillographs	X		
940290	Operating tables, examination tables, and other medical, dental, surgical or veterinary furniture			

Personal Protective Products

HS 2017	Short product description	ITA-Exp	Pharma	WCO
340111	Hand soap			
340130	Hand soap			
340220	Other cleaning products			
382499	Hand sanitizer			
392690	Face masks			
630790	Face masks			X
900490	Protective spectacles and visors			X
902000	Face masks			X

ANNEX 2: LATEST AVERAGE APPLIED MFN TARIFF (%) FOR MEDICAL PRODUCTS

WTO Member	All products	Medicines	Medical Supplies	Medical equipment	Personal protective products
ALL WTO Members	4.8	2.1	6.2	3.5	11.5
Albania	0.6	0.0	1.0	0.0	3.3
Angola	1.8	0.0	1.2	0.4	14.4
Antigua and Barbuda	7.0	4.8	5.2	8.6	14.5
Argentina	9.9	7.7	11.4	8.4	16.5
Armenia	3.2	0.3	6.9	1.6	2.8
Australia	1.5	0.3	2.7	0.4	3.9
Bahrain, Kingdom of	2.8	0.0	3.1	4.7	5.3
Bangladesh	5.8	3.2	7.9	1.6	19.8
Barbados	8.1	5.3	7.4	8.6	14.4
Belize	7.0	1.5	8.3	8.6	14.8
Benin	5.3	0.0	6.1	5.6	18.8
Bolivia, Plurinational State of	7.5	5.7	8.7	5.4	15.3
Botswana	2.7	0.0	5.1	0.0	10.8
Brazil	9.8	7.8	11.0	8.4	16.6
Brunei Darussalam	0.2	0.0	0.0	0.2	1.7
Burkina Faso	5.3	0.0	6.1	5.6	18.8
Burundi	2.6	0.0	2.8	0.9	15.3
Cabo Verde	3.2	1.1	2.9	0.4	20.5
Cambodia	3.6	0.0	4.2	5.2	8.6
Cameroon	6.6	0.8	7.7	6.8	20.5
Canada	2.4	0.0	5.7	0.1	4.3
Central African Rep.	8.8	5.0	9.1	6.8	21.0
Chad	8.7	5.0	9.1	6.8	20.8
Chile	6.0	6.0	6.0	6.0	6.0
China	4.5	2.1	7.4	2.5	7.2
Colombia	4.7	5.7	5.4	0.7	10.8
Congo	8.7	5.0	9.1	6.8	20.8
Costa Rica	1.9	1.7	2.1	0.1	7.6
Côte d'Ivoire	5.3	0.0	6.1	5.6	18.8
Cuba	7.8	0.8	8.7	10.4	19.6
DR of the Congo	9.1	10.5	10.2	5.2	14.2
Djibouti	20.0	8.0	19.9	26.0	26.0
Dominica	7.0	0.0	5.2	7.6	25.8
Dominican Republic	2.0	0.0	2.0	0.3	13.5
Ecuador	5.4	3.5	5.8	2.5	18.5
Egypt	5.8	1.5	5.1	4.2	27.6
El Salvador	2.5	2.2	3.4	0.1	7.0
Eswatini	2.7	0.0	5.1	0.0	10.8
European Union	1.5	0.0	3.2	0.2	3.9
Fiji	14.8	0.0	36.1	1.7	18.5
Gabon	5.6	0.0	6.6	3.0	21.0
Georgia	0.7	0.0	0.9	0.0	3.5
Ghana	5.3	0.0	6.1	5.6	18.8
Grenada	7.5	4.3	5.7	8.6	17.4
Guatemala	2.8	3.3	3.5	0.1	7.0
Guinea	5.3	0.0	6.1	5.6	18.8
Guinea-Bissau	5.3	0.0	6.1	5.6	18.8
Guyana	8.3	5.3	8.1	8.6	14.0
Haiti	2.6	0.0	1.6	1.6	14.6
Honduras	1.8	0.9	2.7	0.1	7.0
Hong Kong, China	0.0	0.0	0.0	0.0	0.0
Iceland	0.0	0.0	0.0	0.0	0.0
India	11.6	10.0	15.0	9.0	12.0
Indonesia	5.2	3.8	5.5	4.5	10.5
Israel	1.7	2.3	1.8	1.1	1.4
Jamaica	6.8	5.1	4.9	7.2	16.3
Japan	0.4	0.0	0.8	0.0	1.8
Jordan	3.6	0.0	3.9	3.4	15.1
Kazakhstan	5.3	0.2	13.0	1.1	5.2
Kenya	2.6	0.0	2.8	0.9	15.3
Korea, Republic of	5.9	6.9	8.1	1.5	7.1
Kuwait, the State of	3.1	0.0	3.1	4.6	5.0
Kyrgyz Republic	0.6	0.0	0.9	0.0	2.8

WTO Member	All products	Medicines	Medical Supplies	Medical equipment	Personal protective products
Lao PDR	7.3	9.4	6.5	5.4	12.1
Lesotho	2.7	0.0	5.1	0.0	10.8
Liberia	5.3	0.0	6.1	5.6	18.8
Macao, China	0.0	0.0	0.0	0.0	0.0
Madagascar	3.3	0.0	5.2	1.5	12.0
Malawi	3.9	0.0	5.1	0.8	17.2
Malaysia	11.7	0.0	32.0	0.3	6.0
Maldives	6.9	0.0	9.3	10.3	9.9
Mali	5.3	0.0	6.1	5.6	18.8
Mauritania	5.2	0.0	5.6	5.6	12.7
Mauritius	0.6	0.0	0.7	0.0	3.8
Mexico	4.6	5.5	5.1	2.3	8.1
Moldova, Rep	2.1	0.0	2.8	1.6	5.3
Mongolia	4.1	5.0	4.7	2.2	5.0
Montenegro	0.8	0.0	1.2	0.0	4.3
Morocco	7.1	9.0	7.7	2.5	12.3
Mozambique	4.1	0.0	4.3	5.5	12.8
Myanmar	3.1	1.2	4.1	2.9	6.0
Namibia	2.7	0.0	5.1	0.0	10.8
Nepal	9.4	12.0	9.5	4.8	14.7
New Zealand	0.8	0.0	0.9	0.8	3.0
Nicaragua	1.8	0.0	3.1	0.1	7.6
Niger	5.3	0.0	6.1	5.6	18.8
Nigeria	5.3	0.0	6.1	5.6	18.8
North Macedonia	1.3	1.2	0.9	0.2	6.9
Norway	0.6	0.0	1.7	0.0	0.0
Oman	2.7	0.0	3.0	4.6	5.0
Pakistan	10.0	10.9	13.4	3.6	13.1
Panama	1.6	0.0	2.2	1.3	5.5
Papua New Guinea	0.8	0.0	0.5	0.0	6.8
Paraguay	7.4	7.5	10.0	2.3	13.0
Peru	2.1	2.7	2.3	0.4	5.2
Philippines	2.5	2.2	3.4	0.4	7.1
Qatar	2.7	0.0	3.0	4.6	5.0
Russian Federation	3.2	2.3	4.8	1.8	4.7
Rwanda	2.4	0.0	2.8	0.9	13.8
Saint Kitts and Nevis	8.3	1.6	9.1	8.4	18.3
Saint Lucia	6.3	3.8	4.2	7.2	17.0
Saint Vincent & the Grenadines	7.3	3.6	5.6	8.6	17.7
Samoa	6.1	0.0	6.6	8.0	10.3
Saudi Arabia	4.1	0.0	4.5	4.6	8.7
Senegal	5.3	0.0	6.1	5.6	18.8
Seychelles	0.2	0.0	0.0	0.0	1.9
Sierra Leone	5.3	0.0	6.1	5.6	18.8
Singapore	0.0	0.0	0.0	0.0	0.0
Solomon Islands	16.9	5.0	30.7	9.8	9.4
South Africa	2.7	0.0	5.1	0.0	10.8
Sri Lanka	11.0	0.0	25.6	0.0	11.2
Suriname	7.9	5.3	6.5	8.6	16.5
Switzerland	0.7	0.0	0.8	0.0	5.2
Chinese Taipei	1.4	0.1	2.7	0.1	4.4
Tajikistan	17.3	4.7	36.6	4.8	6.9
Tanzania	2.6	0.0	2.8	0.9	15.3
Thailand	7.2	7.6	11.9	0.8	7.4
The Gambia	5.3	0.0	6.1	5.6	18.8
Togo	5.3	0.0	6.1	5.6	18.8
Tonga	4.7	0.0	7.6	2.7	9.4
Trinidad and Tobago	6.0	4.3	4.3	6.6	13.8
Tunisia	5.1	8.8	5.4	0.0	12.9
Turkey	2.0	0.0	3.9	1.0	4.0
Uganda	2.7	0.0	2.5	1.1	17.8
Ukraine	1.8	0.0	2.6	1.2	4.0
United Arab Emirates	3.1	0.0	3.1	4.6	5.0
United States	0.9	0.0	2.0	0.1	2.1
Uruguay	7.8	7.7	10.2	2.3	15.4
Vanuatu	3.1	0.0	4.7	0.4	15.6
Venezuela	10.8	8.8	12.0	8.5	17.7

WTO Member	All products	Medicines	Medical Supplies	Medical equipment	Personal protective products
Viet Nam	2.8	0.8	4.3	0.2	11.4
Yemen	5.4	4.7	5.4	5.0	7.7
Zambia	3.8	0.0	2.6	4.0	15.8
Zimbabwe	7.1	3.7	10.7	2.2	18.8