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Medical Devices Market Potential Index

Preface

The Market Potential Index (MPI) for specific industries intends to compare countries identified as having the highest Gross Domestic Product (GDP) globally, based on several dimensions.

In the 2016, the number of countries used for these rankings was 89, but has increased to 97 for 2017. Countries removed from the MPI rankings include Iraq, Luxembourg, Malta, Myanmar, and Papua New Guinea; while those added are Angola, Bolivia, Cameroon, the Democratic Republic of the Congo, Côte d'Ivoire, Ethiopia, Ghana, Jordan, Kenya, Lebanon, Panama, Tanzania, and Uganda.

The Index compares these 97 countries on six market dimensions: size, growth rate, capacity, openness, current logistics infrastructure, and country risk. In order to measure each of these dimensions, a different set of indicators has been identified for each industry. Secondary data that has been gathered from reputable sources is used for these indicators, as noted. The rankings of the countries are calculated by adding up the dimensions and weighing them based on relative importance.

While the MPI is a very useful tool for companies in the process of researching new markets for export, it should not be used as the single source of information in the decision. MPIs are designed to support further market research and is intended to be used for verification purposes. The information in this report can be utilized as a foundation to help identify potential countries for which more detailed research should be conducted.

The Market Potential Index is calculated with the most recent data that is available, so it is important to note that the results represent the current state of the identified 97 countries, not a forecast.

Industry specific MPIs are updated annually, and can be accessed at:

<https://globaledge.msu.edu/mpi>

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Market Overview

Asia

Asia has the fastest growing medical device market in the world due to the vast population of the region and the rapid expansion of the healthcare industry.¹ Although U.S. companies have had difficulty entering these markets in the past, government regulations are relaxing to allow more private investment and loosen regulatory hurdles. Developing Asian markets have high growth potential in the future compared to more mature markets in Europe. Many markets deemed as “developing” have highly urbanized population centers with rising expendable wealth, making certain sectors of markets attractive to U.S. companies.²

China

China, ranked 1st, has an aging population, a growing middle class and greater access to healthcare. China has made their healthcare system a national priority and they have a goal of ensuring that all citizens have access to basic healthcare services by 2020.³ Therefore, they have the second largest medical device market in the world, only behind the United States.

Chinese hospitals are very receptive to American made medical devices and view them as high quality and advanced.⁴ However, public hospitals, which make up 85% of hospitals in the country, are encouraged to purchase domestically manufactured products. Additionally, the National Health and Family Planning Commission is creating an incentive program for purchasing local products. Accordingly, U.S. companies may have to move to their manufacturing to China to be successful.⁵

Japan

Japan, ranked 2nd, is home to the world’s oldest population, creating challenges for their healthcare system.⁶ With such a large elderly population, Japan has a high demand for advanced medical technologies. Their medical device market relies heavily on imports, with U.S. advanced devices and diagnostics reaching a 60% market share. The medical device market is expected to continue to grow in the near term.

¹ Euromonitor: <http://blog.euromonitor.com/2016/02/medical-device-market-2016-opportunities-in-asia-pacific.html>

² ITA Top Markets Report Medical Devices:
http://www.trade.gov/topmarkets/pdf/Medical_Devices_Executive_Summary.pdf

³ Export.gov: <https://www.export.gov/article?id=China-Medical-Devices>

⁴ Export.gov: <https://www.export.gov/article?id=China-Medical-Devices>

⁵ Norton Rose Fulbright: <http://www.nortonrosefulbright.com/knowledge/publications/137854/tapping-into-chinas-medical-devices-industry>

⁶ Euromonitor: <http://blog.euromonitor.com/2011/09/special-report-the-worlds-oldest-populations.html>

Although Japan does not impose a tariff on medical devices, they are still highly regulated through the 2014 Pharmaceutical and Medical Device Law (PMDL). The process is an improvement from the previous Pharmaceutical Affairs Law but still poses challenges.⁷

The regulatory environment is expected to continue to improve in the future. Cost containment efforts from the Japanese government will reduce medical device reimbursement rates, causing additional challenges for U.S. companies.⁸

Singapore

Singapore, ranked 9th, offers Asia's best healthcare system. It serves as the healthcare and medical hub of the region and spends the most annually on per capita healthcare compared to its ASEAN neighbors. The World Health Organization ranked Singapore 6th in overall efficiency in 2016.⁹ U.S. medical device exports to Singapore represent a 30% market share. This number is expected to increase in the future as the government continues to push for better healthcare outcomes. Singapore, like many other countries, has a positive perception of U.S. medical devices and equipment, contributing to the predicted rise in market share in coming years.¹⁰

However, Singapore's small population limits the market size. Also, competition from low-cost neighboring countries is on the increase.¹¹ Medical devices are regulated under the Health Products Act and almost all are regulated. The Association of Southeast Asian Nations has been developing a uniform system for registering and assessing medical devices throughout the 10 member countries. When implemented, it will make it easier for U.S. medical device manufacturers to reach all of the ASEAN markets collectively.¹²

Australia

Ranked 11th, Australia is a stable economy that provides consistent prospects for U.S. medical devices. There is a high standard of medical care and a large aging population. They have one of the longest life expectancies in the world, so as the population continues to age, demand will rise. Demand for medical devices in Australia is predominately met through imports from the United States, European Union, Switzerland and Japan.¹³

There is a high level of competition in the Australian medical device market. Many major U.S. companies have a presence in Australia such as 3M, Becton Dickinson, Boston

⁷ ITA Top Markets Report: Medical Devices Japan

http://www.trade.gov/topmarkets/pdf/Medical_Devices_Japan.pdf

⁸ Maine International Trade Center: <http://www.mitc.com/wp-content/uploads/2015/04/2015-Medical-Devices-Resource-Guide-Japan-and-China.pdf?29e721>

⁹ World Health Organization: <http://www.who.int/healthinfo/paper30.pdf>

¹⁰ Export.gov: <https://www.export.gov/article?id=Singapore-Medical-Devices>

¹¹ BMI Research Medical Device Report Q3 2017

¹² Export.gov: <https://www.export.gov/article?id=Singapore-Medical-Devices>

¹³ ITA Top Markets Report: Medical Devices Australia

http://www.trade.gov/topmarkets/pdf/Medical_Devices_Australia.pdf

Scientific, Johnson & Johnson, St. Jude Medical and Stryker.¹⁴ Additionally, the growth of the medical device market is constrained by the small population size of Australia.¹⁵

Europe

The well-developed markets of Europe are great prospects for U.S. companies due to their advanced infrastructure and aging populations. Since these countries tend to be technologically advanced, innovative U.S. technology has opportunities in the European healthcare market. They also have high per capita healthcare spending so cost-saving devices are welcomed. However, these countries have low growth rates and in the future, opportunities may lessen.

Germany

Germany, ranked 3rd, has a strong healthcare system with great infrastructure. They have a large number of hospital beds and well-trained staff. The German medical technology industry is innovative and technologically advanced. One-third of sales are generated by devices that are less than three years old and there is a strong emphasis on research.¹⁶ It is by far the largest European medical device market and the third largest in the world.¹⁷

Although few direct trade barriers exist, U.S. companies may be challenged by the German reimbursement system and registration procedures. There is a high level of competition in the German medical device market and many major players have operations in Germany, but 95% of German medical device industry is characterized by small and mid-sized companies.¹⁸ Many major U.S. medical technology companies such as Medtronic and 3M use the German market as a "test lab" for the rest of Europe.¹⁹

The Netherlands

The Netherlands rose 5 places to be ranked 6th in the 2017 rankings. The Netherlands has an advanced, open economy and a well-developed healthcare system. They have one of the highest health expenditure rates in Western Europe and a high per capita income. Like other European countries, an expanding elderly population and rising healthcare needs will drive growth.

The Netherlands medical device market is constrained by hospital consolidation and staff shortages. The government is going through a series of austerity measures to restrict

¹⁴ITA Top Markets Report: Medical Devices Australia

http://www.trade.gov/topmarkets/pdf/Medical_Devices_Australia.pdf

¹⁵ BMI Research Medical Devices Report Q3 2017

¹⁶ Export.gov: http://2016.export.gov/industry/health/healthcareresourceguide/eg_main_108585.asp

¹⁷ ITA Top Markets Report: Medical Devices Germany

http://www.trade.gov/topmarkets/pdf/Medical_Devices_Germany.pdf

¹⁸ ITA Top Markets Report: Medical Devices Germany

http://www.trade.gov/topmarkets/pdf/Medical_Devices_Germany.pdf

¹⁹ Export.gov: <https://www.export.gov/article?id=Germany-Medical-Technologies>

health expenditure such as stricter reimbursement policies will constrain growth. Also, although Dutch medical device regulations are based on the EU standards, the Dutch government maintains a large oversight and often implements a more strict interpretation of the regulations.²⁰

Switzerland

Switzerland, although smaller than its European neighbors, was ranked 8th in 2017. Switzerland has a strong open economy and second highest healthcare expenditure per capita in the world. They also have the second highest medical device spending per capita.²¹ With increasing life expectancy and an expanding elderly population, demand for sophisticated medical devices is high. Demand for cardiology equipment, medical software, monitoring and intensive care equipment, home care devices, diagnostic systems, orthopedics and surgical consumables are consistently high.²²

Favorable taxation policies, free trade agreements, and political stability all make Switzerland a low-risk country. Additionally, although Switzerland is not a member of the EU, their medical device regulations are in line with EU regulations. However, the small population limits the market size of the country.

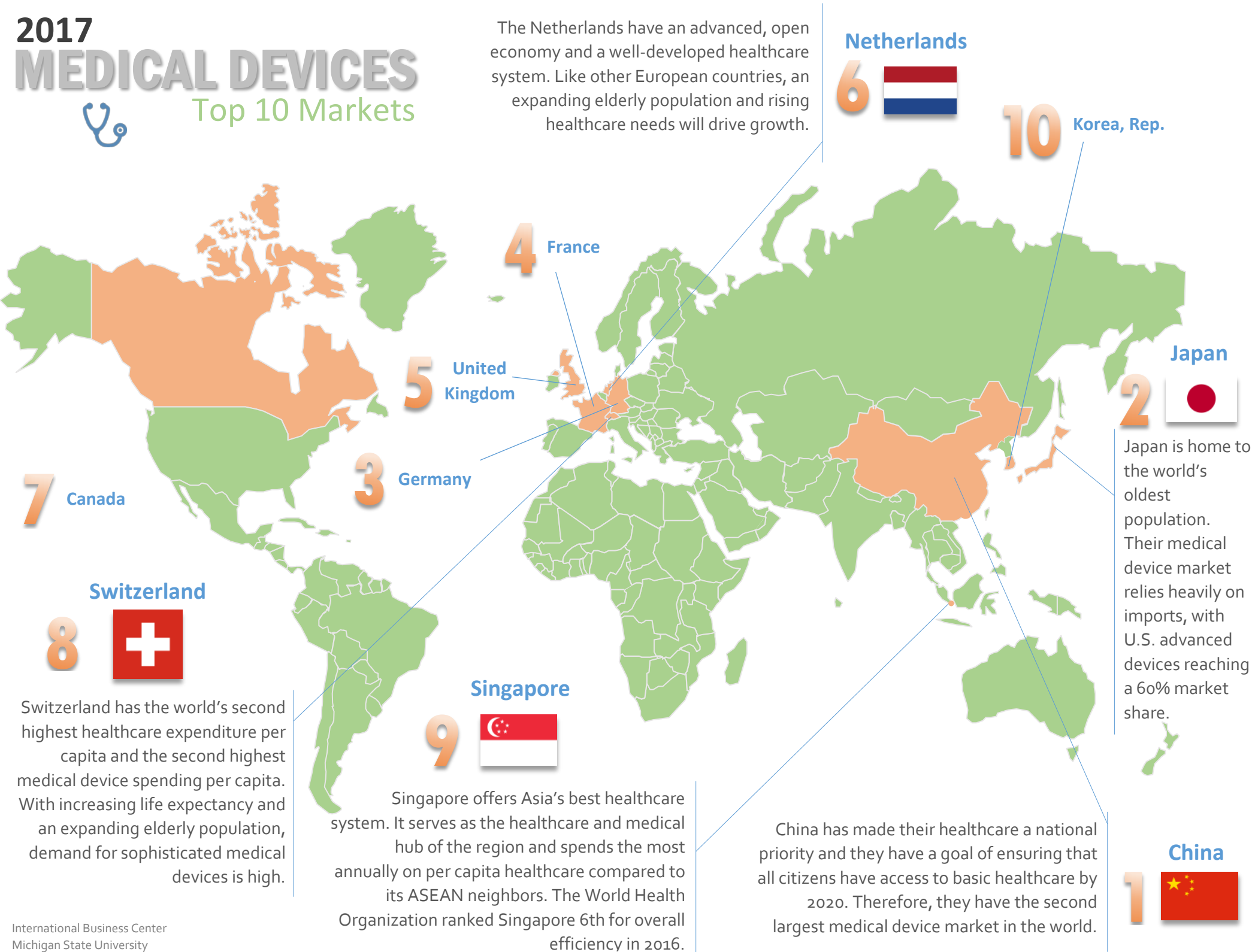
²⁰ BMI Market Research Netherlands Medical Device Report Q3 2017

²¹ BMI Research Switzerland Medical Device Report Q3 2017

²² Emergo Group: <https://www.emergogroup.com/resources/market-switzerland>

2017 MEDICAL DEVICES

Top 10 Markets



Results of the 2017 Medical Devices MPI

	OVERALL	Market Size (30/100)	Market Growth Rate (15/100)	Market Capacity (10/100)	Market Openness (15/100)	Logistics Infrastructure (15/100)	Country Risk (15/100)
	RANK	INDEX	INDEX	INDEX	INDEX	INDEX	INDEX
China	1	100	52	91	75	78	60
Japan	2	57	31	100	91	67	92
Germany	3	56	33	65	97	89	94
France	4	38	33	60	88	79	88
United Kingdom	5	27	33	54	84	89	87
Netherlands	6	14	26	57	100	100	92
Canada	7	19	32	54	84	84	88
Switzerland	8	11	44	71	83	68	100
Singapore	9	3	84	51	85	81	88
Korea, Rep.	10	13	60	56	67	71	79
Australia	11	17	43	48	79	35	91
Sweden	12	8	38	48	74	78	96
Italy	13	23	25	44	73	61	77
Belgium	14	6	28	38	89	92	89
Spain	15	16	22	42	77	80	77
Hong Kong	16	2	38	63	80	77	84
Ireland	17	6	28	65	82	59	86
Austria	18	7	31	42	76	62	94
Norway	19	5	29	48	78	56	97
Finland	20	3	25	42	81	66	90
Denmark	21	5	20	44	74	73	91
New Zealand	22	3	48	38	79	34	93
Cyprus	23	1	100	33	64	31	65
India	24	18	51	28	57	36	57
Israel	25	4	51	44	65	43	78
Malaysia	26	3	56	28	72	56	69
Mexico	27	10	37	32	79	57	51
Chile	28	3	53	35	66	47	76
United Arab E.	29	3	41	38	63	72	69
Estonia	30	1	41	30	74	48	86
Oman	31	2	89	32	60	40	55
Qatar	32	2	73	46	52	42	67
Panama	33	2	61	31	56	77	58
Brazil	34	23	42	42	49	30	39
Saudi Arabia	35	5	69	30	56	44	60

	OVERALL	Market Size (30/100)	Market Growth Rate (15/100)	Market Capacity (10/100)	Market Openness (15/100)	Logistics Infrastructure (15/100)	Country Risk (15/100)
	RANK	INDEX	INDEX	INDEX	INDEX	INDEX	INDEX
Portugal	36	3	26	34	69	62	77
Czech Republic	37	3	26	32	69	49	85
Poland	38	6	29	32	63	49	76
Turkey	39	7	56	29	63	48	44
Morocco	40	2	62	25	61	49	57
Russia	41	19	30	38	54	30	39
Peru	42	3	61	27	61	37	57
Slovakia	43	2	32	30	67	36	78
Costa Rica	44	2	46	32	75	28	59
Slovenia	45	1	26	34	64	48	76
Uruguay	46	2	55	31	58	40	59
Colombia	47	5	50	27	62	41	51
Lithuania	48	1	28	28	67	47	73
Guatemala	49	2	67	23	69	35	41
Latvia	50	1	27	27	68	44	75
Hungary	51	3	31	28	63	40	67
Ecuador	52	2	66	27	66	47	27
Indonesia	53	5	67	24	53	9	54
Thailand	54	5	37	27	66	30	54
Dominican Rep.	55	2	40	26	72	45	42
Kuwait	56	2	54	32	52	24	61
Bahrain	57	2	38	33	62	42	48
Romania	58	3	34	27	65	29	59
El Salvador	59	2	37	24	75	36	43
Vietnam	60	3	53	27	61	28	43
South Africa	61	5	35	15	62	43	49
Philippines	62	3	57	22	58	6	58
Kenya	63	2	70	15	60	26	38
Bulgaria	64	2	38	26	63	23	58
Croatia	65	2	25	29	67	43	46
Honduras	66			23	65	38	35
Sri Lanka	67	2	49	26	63	24	38
Jordan	68	2	30	25	72	29	39
Greece	69	3	1	33	66	47	50
Kazakhstan	70	3	49	25	67	12	31
Algeria	71	3	57	25	43	18	39
Egypt	72	4	55	24	36	45	25
Nicaragua	73	2	51	25	59	23	24

	OVERALL	Market Size (30/100)	Market Growth Rate (15/100)	Market Capacity (10/100)	Market Openness (15/100)	Logistics Infrastructure (15/100)	Country Risk (15/100)
	RANK	INDEX	INDEX	INDEX	INDEX	INDEX	INDEX
Paraguay	74	2	53	24	54	18	32
Tunisia	75	1	46	25	54	17	40
Serbia	76	2	28	27	66	17	38
Uganda	77	3	66	8	55	7	28
Bolivia	78	2	57	20	53	4	34
Azerbaijan	79	2	46	23	48	21	30
Uzbekistan	80	1	59	20	59	6	16
Argentina	81	4	25	30	36	32	32
Tanzania	82	2	51	15	42	12	30
Bangladesh	83	1	59	23	38	7	28
Belarus	84	2	35	25	61	22	7
Nigeria	85	2	74	8	32	15	15
Lebanon	86			33	53	26	20
Ethiopia	87	5	59	14	35	1	20
Cuba	88	1	33	30		34	1
Ukraine	89	3	12	24	60	24	12
Pakistan	90	3	36	18	32	26	21
Ghana	91			11	51	20	36
Cote d'Ivoire	92			1	50	35	28
Angola	93	1	52	9	33	4	16
Cambodia	94			18	51	4	29
Venezuela	95	3	19	25	13	18	1
Cameroon	96			5	24	6	27
Congo, Dem. Rep.	97			7	1	4	9

* **Overall Rank** is calculated by weighting the six dimension values. For **Index** values, values of the countries are converted into a 1-100 scale based on their relative magnitudes in each of the six dimensions. An index value of 100 indicates a country with the largest (or most favorable) value in a dimension whereas an index value of 1 indicates the smallest (or least favorable). While both the overall rank and index values show the rank order of the countries, the index values also indicate the magnitude of each country in relation to others in that order.

Assumptions

Medical Devices MPI covers both the medical devices (implants, stents, etc.) and medical equipment (instruments, machines, and apparatus) sectors. For this MPI, variables such as medical equipment market size, total health expenditure, and employment in health and social work are used as indicators for the market size calculation. Market growth rate is measured by calculating the Compounded Annual Growth Rate (CAGR) of each market size indicator for the last five years.

For the market capacity dimension, number of medical patent grants and life expectancy at birth are used among the other more generic market capacity indicators, assuming the level of medical advancement is a good indicator of the medical devices industry. Also it is assumed that the amount of medical devices consumed is more in older age groups when compared with younger age groups; therefore the life expectancy is also used as another indicator.

Trade and tariff data for the following Harmonized System (HS) codes is used for the measurement of the market openness dimension as well as other generic export-related indicators.

HS7 Code

DEFINITION

9018	Instruments and appliances used in medical, surgical, dental or veterinary sciences, including scintigraphic apparatus, other electro-medical apparatus and sight-testing instruments.
9019	Mechano-therapy appliances; massage apparatus; psychological aptitude-testing apparatus; ozone therapy, oxygen therapy, aerosol therapy, artificial respiration or other therapeutic respiration apparatus.
9020	Other breathing appliances and gas masks, excluding protective masks having neither mechanical parts nor replaceable filters.
9021	Orthopedic appliances, including crutches, surgical belts and trusses; splints and other fracture appliances; artificial parts of the body; hearing aids and other appliances which are worn or carried, or implanted in the body, to compensate for a defect or disability.
9022	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations, whether or not for medical, surgical, dental or veterinary uses, including radiography or radiotherapy apparatus, X-ray tubes and other X-ray generators, high tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like.

Indicators and Resources

<i>Dimension</i>	<i>Weight</i>	<i>Measures Used</i>
<i>Market Size</i>	30	<ul style="list-style-type: none"> • Employment in Health and Social Work (2016) ¹ • Medical Equipment Market Size (2016) ¹ • Total Health Expenditure (2014) ¹
<i>Market Growth Rate</i>	15	<ul style="list-style-type: none"> • CAGR of Employment in Health and Social Work (2011-2016) ¹ • CAGR of Medical Equipment Market Size (2011-2016) ¹ • CAGR of Total Health Expenditure (2009-2014) ¹
<i>Market Capacity</i>	10	<ul style="list-style-type: none"> • Foreign Direct Investment, Net Inflows (2015) ³ • GNI Per Capita (2016) ³ • Life Expectancy at Birth (2015) ³ • Medical Technology Patent Grants (2015) ¹⁰ • R&D Expenditure (2016) ¹
<i>Market Openness</i>	15	<ul style="list-style-type: none"> • Applied Tariff Rate on Medical Devices (2017) ⁴ • Burden of Customs Procedure (2016) ³ • Cost to Import, border compliance (2016) ³ • Cost to Import, documentary compliance (2016) ³ • Imports of Medical Devices from US as a Share of Global Imports (2016) ³
<i>Logistics Infrastructure</i>	15	<ul style="list-style-type: none"> • Distance of Country from US (2016) ⁵ • Linear Shipping Connectivity Index (2016) ³ • Logistics Performance Index (2016) ³ • Quality of Port Infrastructure Index (2016) ³
<i>Country Risk</i>	15	<ul style="list-style-type: none"> • Business Risk Rating (2016) ⁸ • Economic Risk Rating (2016) ⁷ • Intellectual Property Rights Protection (2017) ⁹ • Political Risk Rating (2016) ⁶

Data used are those available for most recent year. All sources were accessed in May-August 2017.

- ¹ Passport GMID, [Global Market Information Database](#)
- ² UN Comtrade, [Commodity Trade Statistics Database](#)
- ³ World Bank, [World Development Indicators](#)
- ⁴ World Trade Organization (WTO), [Tariff Database](#)
- ⁵ Happyzebra, [Distances](#)
- ⁶ Credendo, [Country Risks](#)
- ⁷ Coface, [Economic Studies](#)
- ⁸ Swiss Export Risk Insurance, [Cover Practice for Countries and Banks](#)
- ⁹ International Property Rights Index, [2016 IPRI Report](#)
- ¹⁰ World Intellectual Property Organization (WIPO), [IP Statistics Data Center](#)

Year To Year Comparison

	RANK		
Country	2017	2016	2014
China	1	1	1
Japan	2	2	2
Germany	3	3	3
France	4	5	4
United Kingdom	5	4	13
Netherlands	6	11	8
Canada	7	7	6
Switzerland	8	9	11
Singapore	9	6	7
Korea, Rep.	10	8	14
Australia	11	10	12
Sweden	12	13	15
Italy	13	17	27
Belgium	14	14	9
Spain	15	20	25
Hong Kong	16	12	10
Ireland	17	30	28
Austria	18	18	17
Norway	19	15	29
Finland	20	26	20
Denmark	21	25	21
New Zealand	22	22	22
Cyprus	23	65	61
India	24	23	5
Israel	25	32	32
Malaysia	26	19	24
Mexico	27	29	23
Chile	28	31	34
United Arab Emirates	29	28	18
Estonia	30	37	40
Oman	31	43	31
Qatar	32	24	19
Panama	33		
Brazil	34	27	26
Saudi Arabia	35	21	36
Portugal	36	41	39
Czech Republic	37	50	38
Poland	38	38	43
Turkey	39	33	37
Morocco	40	36	45
Russia	41	42	30
Peru	42	39	51
Slovakia	43	54	47
Costa Rica	44	46	41
Slovenia	45	44	42
Uruguay	46	45	50
Colombia	47	53	59
Lithuania	48	64	57

	RANK		
Country	2017	2016	2014
Guatemala	49	35	58
Latvia	50	61	74
Hungary	51	51	55
Ecuador	52	58	56
Indonesia	53	52	49
Thailand	54	40	44
Dominican Republic	55	47	48
Kuwait	56	60	33
Bahrain	57	49	35
Romania	58	59	75
El Salvador	59	55	52
Vietnam	60	56	62
South Africa	61	48	46
Philippines	62	66	67
Kenya	63		
Bulgaria	64	63	65
Croatia	65	67	64
Honduras	66	71	53
Sri Lanka	67	68	66
Jordan	68		
Greece	69	76	70
Kazakhstan	70	75	79
Algeria	71	73	76
Egypt	72	62	63
Nicaragua	73	69	60
Paraguay	74	57	71
Tunisia	75	70	54
Serbia	76	80	78
Uganda	77		
Bolivia	78		
Azerbaijan	79	78	87
Uzbekistan	80	89	89
Argentina	81	77	73
Tanzania	82		
Bangladesh	83	74	81
Belarus	84	85	86
Nigeria	85	82	85
Lebanon	86		
Ethiopia	87		
Cuba	88	84	88
Ukraine	89	86	77
Pakistan	90	81	80
Ghana	91		
Cote d'Ivoire	92		
Angola	93		
Cambodia	94	79	82
Venezuela	95	83	72
Cameroon	96		
Congo, Dem. Rep.	97		

For More Information

For the indexing methodology, please refer to:

"Measuring the Potential of Emerging Markets: An Indexing Approach" - S. Tamer Cavusgil,
[Business Horizons, January-February 1997, Vol. 40 Number 1, 87-91](#)

"Complementary Approaches to Preliminary Foreign Market Opportunity Assessment: Country Clustering and Country Ranking" - S. Tamer Cavusgil, Tunga Kiyak and Sengun Yeniyurt,
[Industrial Marketing Management, October 2004, Volume 33, Issue 7, 607-617](#)