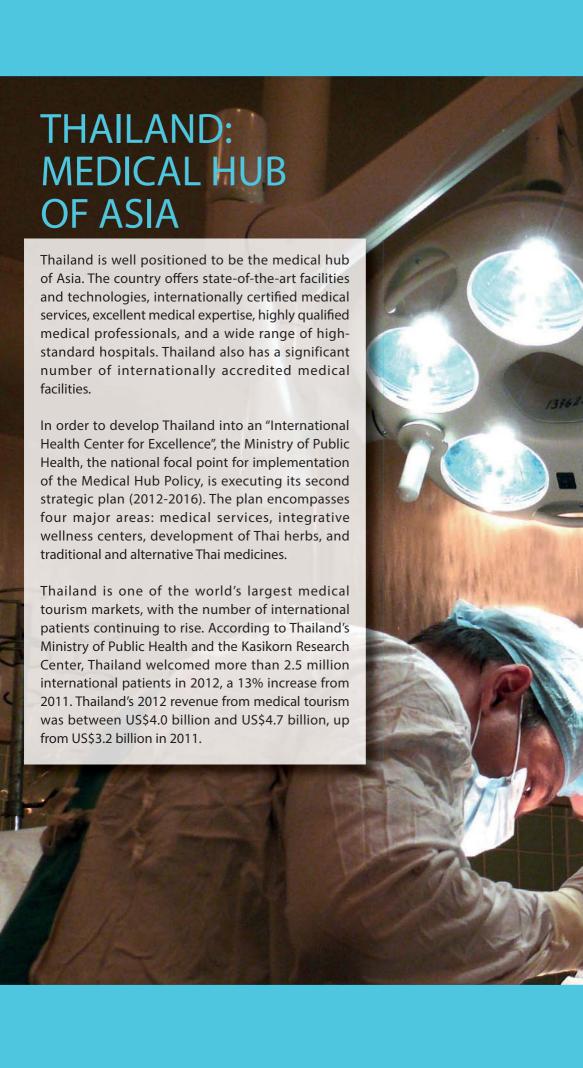
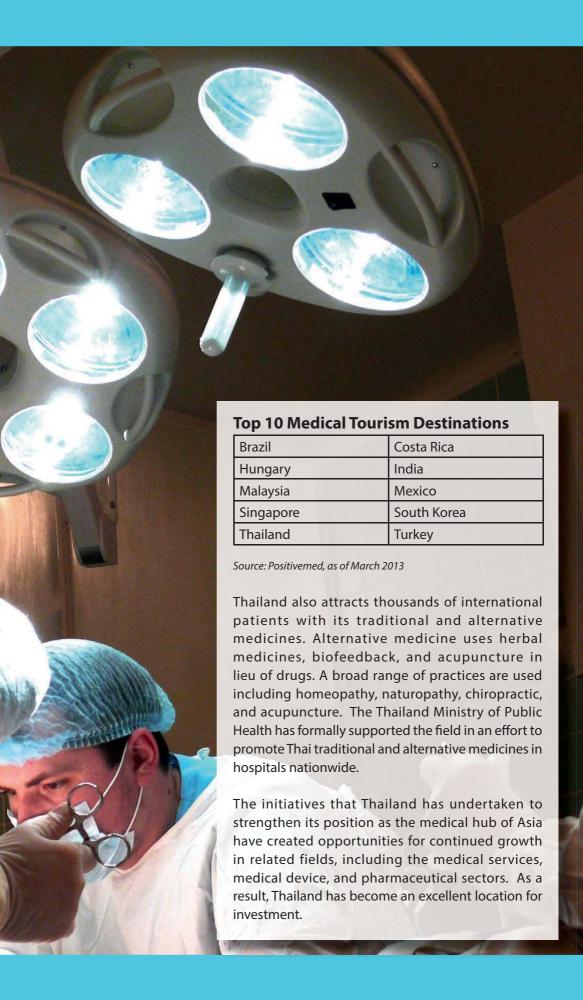


# THAILAND MEDICAL HUB OF ASIA







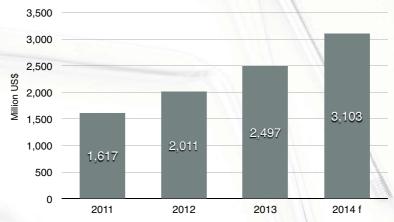


### **MEDICAL DEVICES**

The Thai government's continued efforts to develop the country into an Asian medical hub have driven demand of medical services and devices. Although a wide range of medical devices are manufactured domestically, Thailand still relies heavily on imported medical devices, especially sophisticated and higher-end devices. This backdrop creates an opportunity for new investment in high-end medical device manufacturing in Thailand.

Increased demand in the healthcare market is a key driver of the Thai medical device industry. As Thailand's universal healthcare system continues to develop, demand for medical devices and services is likely to increase as well.





Source: Country Commercial Guide for U.S. Companies, as of October 2013

As illustrated in the chart above, the market for medical devices has strongly grown. In 2012, the market for medical devices in Thailand was US\$2 billion, a 24% increase from the previous year. The market is predicted to reach US\$2.5 billion and US\$3 billion in 2013 and 2014, respectively.

Thailand's Imports and Exports of Major Medical Devices/Disposable, 2013 (Jan-Aug)

Description	Import (million US\$)	Export (million US\$)
HS9018: Instruments and appliances used in medical, surgical, dental or veterinary sciences	341.43	311.22
HS900150: Spectacle lenses of other materials	177.85	583.03
HS9022: 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	146.85	9.52

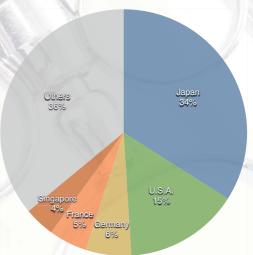
Description	Import (million US\$)	Export (million US\$)
HS3822: Diagnostic or laboratory reagents on a backing, prepared diagnostic or laboratory regents whether or not on a backing, other than those of heading 30.02 or 30.06: certified reference materials	132.38	2.06
HS9030: Oscilloscopes, spectrum analyzers and other instruments and apparatus for measuring or checking electrical quantities, excluding meters of 9028; instruments and apparatus for measuring or detecting alpha, beta, gamma, X-ray, cosmic or other ionizing radiations	98.66	60.09

Source: Thailand Ministry of Commerce

Between January and August of 2013, instruments and appliances used in medical, surgical, dental, or veterinary sciences had the industry's highest imported value at US\$341 million, a 4% year-on-year increase. Spectacle lenses of other materials performed best with an imported value of US\$178 million, a 38% year-on-year increase. Illustrated in the chart below, the largest export destinations of the Thai medical device sector were Japan (34%) and the US (15%).

Major international medical device manufacturers and distributors in Thailand include: Essilor, 3M, Bausch

### Export of Medical Tools and Devices, 2013 (Jan-Aug)



Source: Thailand Ministry of Commerce

& Lomb, Baxter Healthcare, Boston Scientific, Carl Zeiss, Diethelm, GE Medical Systems, Guidant, Johnson & Johnson, Medtronic, Philips Electronics (Medical Systems), Roche Diagnostics, Siemens (Medical Solutions) Surgical Instruments and Tyco Healthcare.

Many leading medical device companies invest in Thailand because of the country's high market growth potential, abundance of raw materials (especially natural rubber as Thailand is the world's largest producer), skilled and affordable labor, excellent infrastructure, advanced production technology, and high quality-control standards. Additionally, the government offers attractive investment incentives for investment in the medical device sector.

"The Royal Thai government has placed a greater emphasis on the medical devices sector. Recently, the Royal Thai government announced a strategic plan to promote investment, research and development for medical devices in order to increase local production and reduce reliance on imports.

The Thaimedical device sector has seen robust and consistent growth owing to national health insurance schemes, a medical tourism policy and the strategic government plan to develop Thailand as a Medical Hub of ASEAN. These factors create great opportunities for investment, R&D and the expansion of medical device production in Thailand."

- Mr. Preecha Bhandtivej, President of Thai Medical Device Technology Industry Association -

### **PHARMACEUTICALS**

According to Pacific Bridge Medical, the Thai pharmaceutical market, valued at US\$4 billion in 2012, is the largest in Southeast Asia. By 2020, this value is expected to increase to US\$9 billion.

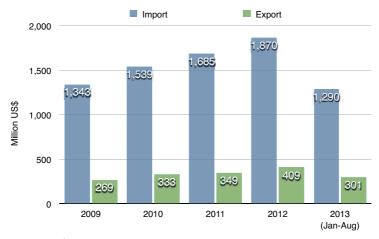
As Thailand has developed into the medical hub of Asia, its pharmaceutical market has also experienced significant growth. Thailand's cost-effective and high-quality manufacturing has been a key driver in attracting foreign pharmaceutical companies. In recent years, the increasing number of medical tourists, an aging population, and high levels of health awareness among the Thai population have boosted the country's pharmaceutical image. Thailand also currently produces 25 active pharmaceutical ingredients, including sodium chloride, camphor, and menthol. Most active ingredients are imported from manufacturers overseas, leaving sizable room for new pharmaceutical investors.

To ensure that pharmaceutical products in the country meet world-class standards, the government requires that all manufacturing companies develop standards and quality-control systems that meet Good Manufacturing Practice (GMP) standards based on the International Pharmaceutical Inspection Cooperation Scheme (PIC/S).

The Thai pharmaceutical market is dominated by foreign manufacturers and distributors. Leading multinational companies in Thailand include Meji, Baxter, Mega Lifesciences, Linaria, Otsuka, Sanofi, Pfizer, Merck, Novartis and GlaxoSmithKline.



Thailand's Imports and Exports of Pharmaceuticals, 2009-2013 (Jan-Aug)

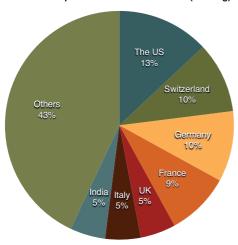


Source: Thailand Ministry of Commerce

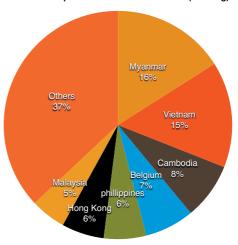
As illustrated in the chart above, Thai imports have grown steadily while exports have only increased slightly. From January to August 2013, imports were valued at approximately US\$1.3 billion while exports were valued at US\$301 million.

### Thailand's Imports and Exports of Pharmaceuticals by Countries, 2013 (Jan-Aug)

Thailand's Import of Pharmaceuticals 2013 (Jan-Aug)



Thailand's Export of Pharmaceuticals 2013 (Jan-Aug)



Source: Thailand Ministry of Commerce

As shown in the chart above, Thailand imports its pharmaceuticals from a variety of pharmaceutical leaders. From January to August 2013, the US was the largest importer of pharmaceuticals to Thailand and accounted for 13% of total imports.

Switzerland, Germany, and France were the next largest importers at 10%,



Medical food refers to food that is formulated to be consumed or administered under the supervision of a physician. It is part of a specific dietary regime intended to treat a disease or condition, and the food has distinctive nutritional requirements.

Medical food differs from regular food in that it has substantial health-promoting or disease-preventing benefits beyond the basic delivery of nutrients. It differs from nutritional supplements in that it is not designed for use by healthy persons, but rather as a therapy for a particular medical condition under the guidance of a medical practitioner. At minimum, medical food products must be:

- Food for oral ingestion or tube feeding (Nasogastric tube);
- Labeled for the dietary management of a specific medical disorder, disease or condition for which there are distinctive nutritional requirements; and,
- Intended to be used under medical supervision.

### Thailand's Import and Export of Medical foods, 2013 (Jan-Aug)

Description	Import (US\$)	Export (US\$)
HS19011030001: Food preparations of others - for infants allergic to milk or for Lactase deficient infants, not put up for retail sale	805,185	2,461,287
HS 19019090001: Food preparations of soybean powder - for infants allergic to milk or for Lactase deficient infants, put up for retail sale	693,677	1,792,554
HS 21069070001: Food preparations - for supplements for seriously ill patients	2,791,040	523,640
HS 21069093000: Other food preparations - for Lactase deficient infants	13,181,443	298,149
HS 19011091000: Medical Foods	1,566,864	3,031

Source: Thailand Ministry of Commerce

Thailand's medical food market is experiencing strong growth and has benefited from the country's medical services sector. Many leading medical food producers invest in Thailand because of the country's agricultural raw materials, skilled, affordable labor, advanced technology, and high quality-control standards. Additionally, the government offers attractive incentives to investors in this sector. As a result, Thailand is an excellent strategic location for the manufacturing of medical food.

Major suppliers of medical food are establishing facilities in Thailand, including Mead Johnson Nutrition, Abbott, Novartis and Thai Otsuka Pharmaceutical. Mead Johnson Nutrition Thailand is the company's largest manufacturing plant outside of the US and serves as its hub for Asia Pacific operations.

## QUALITY AND SAFETY OF SERVICES

Thailand has a significant number of internationally accredited hospitals. Thailand was the first country in Asia to acquire Joint Commission International Accreditation (JCIA), the international accreditation of the US Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Thailand provides overseas trained doctors that operate at international standards at extremely competitive costs. Moreover, many private hospitals employ a specialized English-speaking staff as well as staff trained in a wide variety of foreign languages.

### **Thailand's 26 JCI Accredited Hospitals**

Bangkok Hospital Hua Hin	Chaophaya Hospital	Samitivej Hospital Srinakarin
Bangkok Hospital Medical Center	Chiangmai Ram Hospital	Samitivej Hospital Sriracha
Bangkok Hospital Pattaya	Navamin 9 Hospital	Samitivej Hospital Sukhumvit
Bangkok Hospital Phuket	Nonthavej Hospital	Sikarin Hospital
Bangkok Hospital Samui	Phuket International Hospital	Synphaet Hospital
Bangpakok 9 International Hospital	Pisanuvej Hospital	Vejthani Hospital
BNH Hospital	Praram 9 Hospital	Vibbhavadi Hospital
Bumrungrad Hospital	Ramkhamhaeng Hospital	Yanhee Hospital
Central General Hospital	Saimai Hospital	

Source: Joint Commission International as of December 2013

A number of Thailand's private hospitals have partnerships with top international medical schools and healthcare institutions worldwide. Thai hospitals have also achieved international standards of Hospital Accreditation (HACC) such as ISO 9002, ISO 14001, ISO 18000 and JCIA.

Thailand's Food and Drug Administration (FDA) is in charge of:

- Pre-marketing control
- Post-marketing control
- Surveillance programs for consumer safety
- Consumer education
- Technical support and cooperation with other agencies

The FDA oversees the importation of three classifications of medical devices, which can be found at the organization's website.

"The first joint venture undertaken by Japan Otsuka Group was in Thailand and we have operated this company successfully for over the past 40 years. We are confident that Thailand's strong infrastructure, competitive labor costs and commercially sound government policy will support and strengthen our Thai operations' growth in both pharmaceutical and food products."

- Mr. Motoyuki Sakiyama, President of Thai Otsuka Pharmaceutical Co., Ltd -

## INTELLECTUAL PROPERTY RIGHTS

Thailand's 7 laws pertaining to intellectual property all meet international standards:

- 1) Copyrights Act of 1994
- 2) Patent Act of 1979, as amended by the Patent Act (No. 3) of 1999
- 3) Traditional Medicine and Practice Act of 1999
- 4) Trademark Act of 1991, as amended by the Trademark Act (No. 2) of 2000
- 5) Act for the Protection of Layout-Designs of Integrated Circuits 2000
- 6) Trade Secret Act of 2002
- 7) Protection of Geographical Indication Act of 2003

## EXCELLENT INFRASTRUCTURE

Thailand is home to many institutions and research centers that support the development of medical technological breakthroughs, including;

- Thailand's Science Park, established as a one-stop service center to assist companies engaged in scientific and technological research
- The National Center for Genetic Engineering and Biotechnology (BIOTEC)
- · National Science and Technology Development Agency (NSTDA)
- Food and Drug Administration (FDA)
- Ministry of Public Health (MOPH)
- Ministry of Science and Technology (MOST)
- National Innovation Agency (NIA)
- Health Systems Research Institute (HSRI)
- Thailand Center of Excellence for Life Sciences (TCELS)

## WONDERFUL INVESTMENT OPPORTUNITY AND ENVIRONMENT

Thailand offers a number of investment advantages for foreign investors. Thailand's economy is one of the fastest growing economies in Asia. With a strong business climate, Thailand was ranked 18th in the world and

3rd in Southeast Asia in terms of ease of doing business by the World Bank's 2014 Doing Business report. The country's experienced and qualified physicians can support a high-quality medical services sector. Thailand also provides world-class infrastructure and advanced technological equipment. These factors contribute

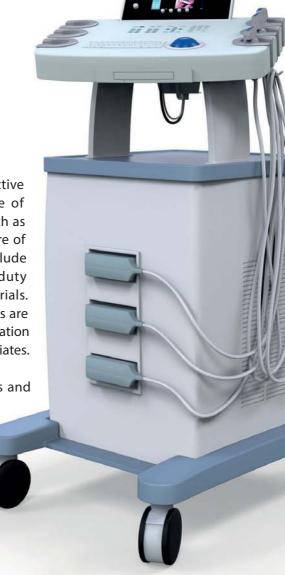
to the steady growth of Thailand's healthcare services, medical device, and pharmaceutical markets.

### BOI INVESTMENT INCENTIVES

Thailand Board of Investment offers attractive investment incentives to a wide range of activities related to the medical sector such as manufacture of medical food, manufacture of medical equipment. Major incentives include corporate income tax exemption, and duty concessions on machinery and raw materials. In addition, a number of non-tax incentives are available such as right to own land and facilitation as regards visas and work permits for expatriates.

The BOI also promotes retirement homes and care centers as well as dedicated health centers, which are facilities that can provide the processes of medical or psychotherapeutic treatment through the use of advanced technological devices and facilities.

These dedicated health centers will



serve only the patients who need further treatment to rehabilitate, so it helps them prevent injury and disease, recover function and strength, reduce pain and ultimately helps them return to a more independent and productive lifestyle.

Projects in retirement homes and care centers, as well as dedicated health centers are eligible for exemption or reduction of import duty on machinery, based on project location, provided they achieve standards set by relevant government agencies.

## OTHER GOVERNMENT SUPPORT MEASURES

Apart from BOI incentives, several types of support are provided by other government agencies and organizations, which include:

The Revenue Department

- · 40% deduction on depreciation of machinery
- 200% deduction on training expenses
- National Science and Technology Development Agency (NSTDA)
- Several research and development units to support public and private sectors.
- Industrial Technology Assistance Program (iTAP) for SMEs
- National Innovation Agency
- Innovation coupon granted for approved projects to support 90% of R&D expenses incurred by innovation service provider (in cooperation with the Federation of Thai Industries)
- Financial support of 25%-75% to be granted to prototype or pilot scale projects
- Interest free loan for up to 3 years to assist in the start-up of commercial operation of innovation projects

## FOR FURTHER INFORMATION:

The Thailand Board of Investment (BOI): http://www.boi.go.th

The Food and Drug Administration: http://www.fda.moph.go.th/eng/index.stm

Thai Medical Device Technology Industry Association (THAIMED): http://www.thaimed.co.th/index.php?page=about&lang=en

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