Thailand Medical Industry Overview

Thailand’s Healthcare Expenditure as % of GDP

[Unit in %]

<table>
<thead>
<tr>
<th>Country</th>
<th>Expenditure as % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>17.1</td>
</tr>
<tr>
<td>Germany</td>
<td>11.3</td>
</tr>
<tr>
<td>Sweden</td>
<td>9.7</td>
</tr>
<tr>
<td>UK</td>
<td>9.1</td>
</tr>
<tr>
<td>S.Korea</td>
<td>7.2</td>
</tr>
<tr>
<td>China</td>
<td>5.6</td>
</tr>
<tr>
<td>Thailand</td>
<td>4.6</td>
</tr>
<tr>
<td>Singapore</td>
<td>4.6</td>
</tr>
<tr>
<td>India</td>
<td>4.0</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: World Bank, as of 2015

Opportunities in Thailand

- Medical Services
- Medical Devices
- Pharmaceutical Sectors

THAILAND: An Asian Hub, a World of Opportunity
Thailand Strategy for Medical Hub of Asia

**Medical Services**
- Hospitals
- Excellent Center
- Thai Traditional medical Center
- Health Rehabilitation center

**Manufacturing**
- Medical Devices
- Medical Food
- Pharmaceutical
- Active Ingredients

**Logistics/Supporting industry**
- Logistics (air/water/road)
- R&D center/Lab
- Biotechnology
- Etc.
Thailand: Medical Hub of Asia

- Center of Medical Services of Asia
- Wellness Capital of Asia
- Precious Herbs for Superior Health
Thai Medical Devices Export in 2015

<table>
<thead>
<tr>
<th>Category</th>
<th>Export (Million USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubber Gloves</td>
<td>749</td>
</tr>
<tr>
<td>Sheath Contraceptives</td>
<td>153</td>
</tr>
<tr>
<td>Other needles (other than tubular metal needles and needles for sutures), Catheters, cannulae and the like</td>
<td>96</td>
</tr>
<tr>
<td>Tubular metal needles and needles for sutures</td>
<td>41</td>
</tr>
<tr>
<td>Other electro-diagnostic apparatus</td>
<td>22</td>
</tr>
<tr>
<td>Syringes, with or without needles</td>
<td>17</td>
</tr>
<tr>
<td>Artificial teeth</td>
<td>5</td>
</tr>
<tr>
<td>Other apparatus based on the use of X-rays or of alpha, beta or gamma radiations, incl, Parts &amp; accessoties</td>
<td>3,9</td>
</tr>
<tr>
<td>Other ifor medical, surgical or veterinary uses</td>
<td>1,7</td>
</tr>
<tr>
<td>Other artificial parts of the body e.g.: artificial eyes etc.</td>
<td>1,3</td>
</tr>
</tbody>
</table>

Source: Ministry of Commerce (MOC)
Thai Medical Devices Import in 2015

[In Million USD]

- Other electro-diagnostic apparatus: 96,3
- Other needles (other than tubular metal needles and needles for sutures), Catheters, cannulae and the like: 87,9
- Other X-ray apparatus, for medical, surgical or veterinary uses: 56,3
- Other artificial parts of the body: 53,2
- Other instrument & appliances, used in dental sciences: 37,8
- Ozone therapy, oxygen therapy, aerosol therapy, artificial respiration or therapeutic respiration apparatus: 34,6
- Rubber Gloves: 29,5
- Tooth brushes, including detal-plate brushes: 26,0
- Other ophthalmic instruments and appliances: 25,6
- Syringes, with or without needles: 20,6

Source: Ministry of Commerce (MOC)
ASEAN Medical Device Imports in 2011-2015

Source: Medical Devices Intelligent Unit, Exchange rate 1 Sep, BOT; 1 USD = 34.627 Baht
ASEAN Medical Device Exports in 2011-2015

[In USD]

Indonesia
Phillippines
Malaysia
Thailand
Singapore

Source: Medical Devices Intelligent Unit, Exchange rate 1 Sep, BOT; 1 USD = 34.627 Baht
In 2015, Thailand imported major medical devices about EUR 433m from USA, Japan, Germany, etc.

In 2015, Thailand mainly exported basic medical devices of about EUR 395m.

Source: Custom 2015

Note: HS9018 is used to represent medical devices
Opportunity in Medical Devices

Thailand’s Medical Devices Market: 2012-2017F

Our market for medical devices has steadily grown by **10.4%** over the past 5 years

[In Million USD]

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>948</td>
<td>1033</td>
<td>1165</td>
<td>1282</td>
<td>1410</td>
<td>1551</td>
</tr>
</tbody>
</table>

**Source:** U.S. Department of Commerce’s International Trade Administration

Export of Medical instruments and appliances: 2016

[In Million USD]

- 1. Japan (30.4%)
- 2. USA (22.1%)
- 3. Hong Kong (6.1%)
- 4. Germany (5.0%)
- 5. Others (36.4%)

Major International Companies

- Essilor
- 3M
- Bausch & Lomb
- Baxter
- Boston Scientific
- Zeiss
- Dksh
- GE Healthcare
- Johnson & Johnson
- Medtronic
- Philips
- Siemens
- Roche Diagnostics
- Tyco Healthcare
- Li & Fung
Opportunity in Pharmaceutical

Thailand’s **Exports** of Pharmaceutical Products

![Graph showing exports growth from 2011 to 2016 with 6.0% CAGR](chart1)

- Thailand’s pharmaceutical market is considered as **the largest and most developed in the region**
- **Targeting to the rank of the 8th** largest market in the Asia Pacific Region

Thailand’s **Imports** of Medicinal and Pharmaceutical Products

![Graph showing imports growth from 2011 to 2016 with 1.1% CAGR](chart2)

**Source**: Thai Medical Devices Technology Industry Association (THAIMED)

**Major International Companies**

- Baxter
- MEGA
- Linaria
- SANOFI
- Pfizer
- MERCK
- Otsuka
- Novartis
- Li & Fung
- AstraZeneca
- GSK
- GlaxoSmithKline

**THAILAND**: An Asian Hub, a World of Opportunity

XX% CAGR 2011-2016
Opportunity in Medical Services

Medical Tourism Hub of Asia

- Over millions of international patients travel to Thailand every year on medical packages

- In 2016, there were around 3.33 million foreign patients receiving treatment in Thailand

- Thailand owns several world-class medical facilities, premium healthcare services available at highly competitive prices

- With the global reputation and attentive service, Thailand is renowned as the Medical tourism hub of Asia

Estimated Foreign Patients to Thai Hospitals: 2010-2016

[In Million Persons]

- 2010: 1.78
- 2011: 1.92
- 2012: 2.03
- 2013: 2.50
- 2014: 2.35
- 2015: 3.03
- 2016: 3.33

CAGR 2010-2016: 11.0%

Source: Department of International Trade Promotion, Ministry of Commerce (Thailand), Thai Medical Devices Technology Industry Association (THAIMED)
Increasing Healthcare Expenditures in Thailand

Healthcare Expenditures in Thailand

[In Billion USD]

Source: EIC SCB, World Health Organization, BMI
## BOI Promotes Medical Industry

<table>
<thead>
<tr>
<th>Category</th>
<th>Incentive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture of medical food or food supplements</td>
<td>A2</td>
</tr>
<tr>
<td>Manufacture of high-risk or high-technology medical devices (e.g. x-ray machine, MRI machine, CT scan machine and implants) or medical devices that are commercialized from public sector research or collaborative public-private sector research</td>
<td>A2</td>
</tr>
<tr>
<td>Manufacture of other medical devices (except for medical devices made of fabrics or fibers)</td>
<td>A3</td>
</tr>
<tr>
<td>Manufacture of medical devices made of fabrics or fibers, e.g. gowns, drapes, caps, face masks, gauze and cotton wool</td>
<td>A4</td>
</tr>
</tbody>
</table>

**Source:** BOI Announcement 2557  Effective as of 1 January 2015
<table>
<thead>
<tr>
<th>Category</th>
<th>ประกาศ กฟท. ที่8/2559</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Pharmaceutical ingredients (APIs)</td>
<td>A2</td>
</tr>
<tr>
<td>Manufacturer of Medicine</td>
<td>A3/A2*</td>
</tr>
<tr>
<td>Manufacturer of Traditional medicine</td>
<td>A3/A2*</td>
</tr>
</tbody>
</table>

**Must submit the application within 30 December 2017**

Conditions:
1) For conventional medicine projects must achieve GMP standard prescribed by PIC/S within two years from full operation start-up date.
2) For traditional medicine projects, must achieve GMP standard within two years from full operation start-up date.
3) For improvement of existing projects, existing machinery can be used in the promoted project but its value shall not be included in the investment amount eligible for corporate income tax exemption.
## Investment Promotion for Medical Services (3)

<table>
<thead>
<tr>
<th>Incentives</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Heart, Cancer and Kidney Specialist Center</strong></td>
<td></td>
</tr>
</tbody>
</table>
| A2 8-year CIT exemption | 1. Must have effective plan to acquire medical personnel.  
2. Must have medical device and equipment as deemed appropriate by the Committee.  
3. Must have authorize license from related agencies and follow the regulation of professional practices or other related standards of Ministry of Public Health.  
4. Must consider the distribution of services and public access. |
| **2. Hospital** | |
| A2 8-Years CIT Exemption | 1. Must be approved by related agency and follow the regulation and standards of the related agencies in providing the patient’s transport service  
2. Must have advanced tools and equipment in accordance with Ministry of Public Health standard or other standards approved by the Board of Investment. |
<table>
<thead>
<tr>
<th>Incentives</th>
<th>Conditions</th>
</tr>
</thead>
</table>
| A3 5-year CIT exemption | 1. Must be approved by related agency and follow the regulation and standards of the related agencies in providing the patient’s transport service  
2. Must have advanced tools and equipment in accordance with Ministry of Public Health standard or other standards approved by the Board of Investment. |