Market Study: Opportunities for the Dutch Life Sciences & Health sector in Thailand

Commissioned by the Netherlands Enterprise Agency
THAILAND

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May 2019

As Thailand developed rapidly to upper middle-income country status, access to health services radically increased for its population. Thailand executed a number of reforms and pledged major investments to the development of its health financing, health workforce and health infrastructure.

The reforms eventually culminated in Thailand achieving universal health coverage (UHC) in its dual health system in 2002 through three public health insurance schemes. These schemes improved the coverage for an estimated 37 million Thai and led to large increases in the utilisation of health services and respective improvements in the health status of the population (WHO, 2017).

These developments however also led to increasing (financial) pressures on Thailand’s health system leading to a fast growth of the cost of healthcare and increasing congestion in government hospitals. These pressures are exacerbated by a growing elderly population and higher burden of non-communicable (chronic) diseases.

To maintain and improve the Thai UHC and economy in this context, Thai public and private decisionmakers are open to engage in international partnerships to implement innovative solutions which improve the quality, accessibility and affordability of its health system.

The global growing burden of lifestyle and age-related health issues, however, is not only considered a cost but also as an opportunity for Thai decisionmakers in healthcare. Under the vision of Thailand 4.0, the country aims to establish Thailand as a global medical hub by strengthening the country’s prominent medical tourism and technology industries.

This report was commissioned by the Netherlands Enterprise Agency (RVO.nl) and is produced by the Task Force Health Care (TFHC) in cooperation with the Embassy of the Kingdom of the Netherlands in Bangkok and Singapore. It aims to align the respective Life Sciences & Health sectors of the Netherlands and Thailand. In an effort to increase mutual understanding and inspire collaboration between these countries, this report provides useful insights into the Thai health system and sector and identifies potential areas of opportunity.
OUR APPROACH

TASK FORCE HEALTH
IMPROVING HEALTHCARE TOGETHER

Established in 1996, Task Force Health Care (TFHC) is a public-private not-for-profit platform that represents and supports the Dutch Life Sciences & Health (LSH) sector. Our platform has a reach of 1,200 LSH organisations in the Netherlands, with 130 dedicated and diverse partners. Our partners include government, industry, knowledge institutes, NGOs, and healthcare providers.

Our core mission is to improve healthcare and well-being internationally and in a sustainable and demand-driven manner, with the use of Dutch expertise. We are currently actively engaged with over 20 countries to stimulate and facilitate relationships on government-, knowledge- and business levels. Our partners are active around the world and provide innovative and sustainable solutions relevant to both global and local healthcare challenges.

A PROGRAMMATIC APPROACH

- Bridging Knowledge, Aligning Interests and Identifying Opportunities
- Fostering and Strengthening Networks
- Facilitating Dialogues on Health Themes and Opportunities to Collaborate

OUR FOCUS

- Mutual interests and benefits
- Developing Sustainable and Long-term Approaches
- Demand-driven & Context specific
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GROWING MARKET

Thailand is the second largest healthcare market in South East Asia (after Indonesia) and investments in health continue to grow.

See section 4

MEDICAL TOURISM

Medical tourists made over 2.5 million hospital visits in Thailand in 2018. Medical tourists make use of the excellent and affordable services of Thailand’s private hospitals. The number of visits is expected to grow in the future.

See section 3.5

RAPID AGEING

Thailand is ageing fast and the country needs to respond. The government is promoting healthy ageing and planning support functions for the elderly. The private sector is eager to invest in long-term care facilities.

See section 3.3, section 6.2 & section 6.5

HOSPITAL EFFICIENCY

To cope with a fast-increasing health demand with limited available resources, Thailand looks for innovative technologies to decrease healthcare costs and prevent an overcrowded health system.

See section 6.2

RURAL HEALTHCARE

Development of the health system in rural areas is a top priority in Thailand. The government is responsive to solutions which improve the capacity and coverage of rural health facilities. Through this approach Thailand has been successful in decreasing the inequalities between rural and urban areas.

See section 3.6, section 6.3 & section 6.5

eHEALTH

Thailand has made ambitious plans to become ‘Global Digital Leader’ in 20 years. After a period in which the Thai health system showed fragmented growth, the Ministry of Public Health leads a central effort to create an enabling environment for eHealth innovation and implementation.

See section 6.3

LARGE PRIVATE SECTOR

Thailand has a dual health system with a significant and competitive private sector. The private sector delivers excellent services (more than 60 JCI status holders). The landscape consists of primarily large international operating health providers and secondary smaller independent hospitals.

See section 4.4

MANAGEMENT

The Thai Ministry of Public Health is proactively working on smart interventions in resource management, patient flows, health financing, (continuous) medical education etc. to make the Thai health system more effective and efficient.

See section 6.4
## HOW DOES THAILAND COMPARE?

### Table 1: Geographic, Demographic, Economic, Business, and Health context in Thailand compared to other countries.

<table>
<thead>
<tr>
<th>Geography &amp; Demographics</th>
<th>Netherlands</th>
<th>Malaysia</th>
<th>Singapore</th>
<th>Thailand</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Size (km²)</td>
<td>42 058</td>
<td>329 847</td>
<td>721.5</td>
<td>513 120</td>
<td>331 212</td>
</tr>
<tr>
<td>Population (2019)</td>
<td>17 109 189</td>
<td>31 600 000</td>
<td>5 838 861</td>
<td>69 410 868</td>
<td>95 540 000</td>
</tr>
<tr>
<td>% expected annual growth rate</td>
<td>0.27</td>
<td>1.23</td>
<td>0.74</td>
<td>0.08</td>
<td>0.88</td>
</tr>
<tr>
<td>65 years and older (%)</td>
<td>20</td>
<td>7</td>
<td>15</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>expected in 2050 (%)</td>
<td>28</td>
<td>16</td>
<td>34</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Maternal Mortality Rate (100 000 births)</td>
<td>7</td>
<td>40</td>
<td>10</td>
<td>20</td>
<td>54</td>
</tr>
<tr>
<td>Life Expectancy at Birth</td>
<td>82</td>
<td>76</td>
<td>83</td>
<td>76</td>
<td>77</td>
</tr>
<tr>
<td>Life Expectancy Global Rank (2017)</td>
<td>19</td>
<td>89</td>
<td>4</td>
<td>91</td>
<td>70</td>
</tr>
<tr>
<td>Economic Context</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>GDP PPP (in bln USD) (2017)</td>
<td>826.2</td>
<td>933.28</td>
<td>528.14</td>
<td>1 236.35</td>
<td>648.74</td>
</tr>
<tr>
<td>expected growth (2020)</td>
<td>2%</td>
<td>4.8%</td>
<td>2.7%</td>
<td>3.7%</td>
<td>6.5%</td>
</tr>
<tr>
<td>GDP per capita (2017)</td>
<td>48 223</td>
<td>29 144</td>
<td>94 104</td>
<td>17 893</td>
<td>6 927</td>
</tr>
<tr>
<td>annual growth rate (%)</td>
<td>2.5</td>
<td>4.4</td>
<td>3.5</td>
<td>3.7</td>
<td>5.7</td>
</tr>
<tr>
<td>(Health) Business Context</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of Doing Business Rank</td>
<td>32</td>
<td>15</td>
<td>2</td>
<td>27</td>
<td>69</td>
</tr>
<tr>
<td>Logistics Index</td>
<td>6</td>
<td>41</td>
<td>7</td>
<td>32</td>
<td>39</td>
</tr>
<tr>
<td>Pharmaceutical Market (mln USD-2016)</td>
<td>6 000</td>
<td>3000</td>
<td>903</td>
<td>4562</td>
<td>4720</td>
</tr>
<tr>
<td>expected growth 2016-2021 (%)</td>
<td>0-0.5</td>
<td>9.5%</td>
<td>5.0%</td>
<td>7.7%</td>
<td>10%</td>
</tr>
<tr>
<td>Medical Device Market (mln USD - 2016)</td>
<td>3 486.1</td>
<td>1 233.1</td>
<td>539.4</td>
<td>1 183.2</td>
<td>981.4</td>
</tr>
<tr>
<td>projected CAGR 2016-2021 (%)</td>
<td>5.0</td>
<td>9.7</td>
<td>12.3</td>
<td>9.6</td>
<td>9.4</td>
</tr>
<tr>
<td>Medical Device Import from the Netherlands 000s USD (%)</td>
<td>n/a</td>
<td>18 208 (1.6%)</td>
<td>32 039 (1.0%)</td>
<td>23 755 (3.2%)</td>
<td>10 113 (1.2%)</td>
</tr>
<tr>
<td>Ranking</td>
<td>n/a</td>
<td>11</td>
<td>12</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Medical Device Export to the Netherlands 000s USD (%)</td>
<td>n/a</td>
<td>90 178 (4.4%)</td>
<td>283 767 (4.8%)</td>
<td>8 362 (1.0%)</td>
<td>16 736 (2.7%)</td>
</tr>
<tr>
<td>Ranking</td>
<td>n/a</td>
<td>7</td>
<td>4</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Health Context</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Expenditure (2016, bln USD)</td>
<td>81.7</td>
<td>13.2</td>
<td>17</td>
<td>25.3</td>
<td>14.9</td>
</tr>
<tr>
<td>Health Expenditure as % of GDP</td>
<td>10.69</td>
<td>4.4</td>
<td>6.1</td>
<td>6.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Health Expenditure per Capita (USD)</td>
<td>4 746</td>
<td>422.7</td>
<td>2980.6</td>
<td>371</td>
<td>157.8</td>
</tr>
<tr>
<td>Public Health Share of HE</td>
<td>86.7</td>
<td>55.4</td>
<td>46.2</td>
<td>86.8</td>
<td>55.2</td>
</tr>
<tr>
<td>Type of Health System</td>
<td>Social Health Insurance</td>
<td>Universal Healthcare System</td>
<td>Universal Healthcare System</td>
<td>Universal Healthcare System</td>
<td>Universal Healthcare System</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

AEM  Asian Economic Ministers
AMDD  ASEAN Medical Device Directive
B2B  Business to Business
BDSM  Bangkok Dusit Medical Services Plc
CD’s  Communicable Diseases
CFS  Certificate of Free Sale
CGD  Comptroller General Department
COPD  Chronic Obstructive Pulmonary Disease
CSMBS  Civil Servant Medical Benefit Scheme
CUP  Contracting Units for Primary Care
DALY  Disability-Adjusted Life Year
DDG  Deputy Director General
EEN  Enterprise Europe Network
FDA  Thailand Food and Drug Administration
FDW  Foreign Domestic Worker
FTA  Free Trade Agreement
G2G  Government to Government
GDP  Gross Domestic Product
GDP (PPP)  Gross Domestic Product (Purchasing Power Parity)
GPO  Group Purchasing Office
HDI  Human Development Index
HSA  Health Sciences Authority
HSRI  Health Systems Research Institute
IHIS  Integrated Health Information Systems
K2K  Knowledge to Knowledge
LSH  Life Sciences & Health
MOPH  Ministry of Public Health
NCD  Noncommunicable Disease
NEHR  National Electronic Health Record
NHCO  National Health Commission Office
NHSO  National Health Security Office
NIC  National Innovation Challenges
NKEA  National Key Economic Areas
NSP-NCD  National Strategic Plan for Non-Communicable Diseases
OECD  The Organisation for Economic Co-operation and Development
OOP  Out-of-pocket
PCN  Primary Care Network
PHC  Primary Health Care
PHI  Private Health Insurance
PHO  Provincial Health Office
R&D  Research and Development
RCPsych UK  Royal College of Psychiatrists United Kingdom
REMDI  Refugee Medical Insurance Scheme
RHI  Resilient Health Infrastructure
RHS  Regional Health Systems
RVO  Netherlands Enterprise Agency
SHI  Social Health Insurance
SSO  Social Security Office
TAO  Tambon Administration Organizations
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBOI</td>
<td>Board of Investment of Thailand</td>
</tr>
<tr>
<td>TCELS</td>
<td>Thailand Center of Excellence for Life Sciences</td>
</tr>
<tr>
<td>TFHC</td>
<td>Task Force Health Care</td>
</tr>
<tr>
<td>THPF</td>
<td>Thai Health Promotion Foundation</td>
</tr>
<tr>
<td>UCS</td>
<td>Universal Coverage Scheme</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>VPRS</td>
<td>Voluntary Product Registration Scheme</td>
</tr>
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1 ABOUT THIS REPORT

Background & Purpose

Aligning the interests and strengths of the Dutch Life Sciences & Health sector with the health sector dynamics and interests of Thailand

This market report was commissioned by the Netherlands Enterprise Agency (RVO) in The Netherlands. It is delivered by Task Force Health Care (TFHC), in close cooperation with the Netherlands Embassy in Thailand. It provides an analysis of the Thai healthcare sector, business opportunities for organisations active in the Dutch Life Sciences and Health sector, and recommendations for organisations in The Netherlands that see opportunities in working in Thailand and that consider it a potential growth market for their organisations.

Methodology

Step 1: Identifying and mapping Dutch interest in the Thai health sector and the barriers they perceive

In order to obtain a better understanding of the interests of the Dutch Life Sciences & Health sector in Thailand, historical data, Dutch representation in Thailand, and results of a survey were referenced. The survey was sent out to over 1200 Dutch actors within the Life Sciences & Health sector to share their activities, ambitions, and perceived opportunities and barriers in relation to Thailand. Data was classified into type of organisation, strength (e.g. Medical Devices or eHealth), current or past activity in Thailand, and the organisation’s perception of Thailand in terms of market growth. The results are presented in Chapter 2 and are used to guide the report towards aligning challenges and opportunities in Thailand with Dutch expertise and solutions.

Step 2: Desk Research

In order to obtain a better understanding of the Thai health sector and its dynamics, a literature review was conducted. A range of documentation was perused, including government documents, academic articles, and reports from various organisations and federations. The information gathered was synthesised in order to provide a thorough overview of the Thai sector.

Step 3: Fact finding visit to Thailand

An important element of the study was the fact-finding visit to Thailand, whereby a delegation from TFHC, accompanied by representatives of the Netherlands Embassy in Thailand, gained insights from key stakeholders in the Thai health sector. The fact-finding visit took place over a period of one week and included 7 meetings and 4 round table discussions with representatives from the public and private sector, operating at the national, regional and local level. The list of interviewees is presented in Annex 1.

These meetings and discussions enabled the collection of additional information and provided valuable hands-on insights into the sector. The data from these interviews allowed for cross-checking of data that had previously been obtained, resulting in the development of an objective and realistic report. These meetings also raised awareness with Thai stakeholders in terms of the available expertise and smart solutions offered by the Dutch Life Sciences & Health sector. The visit has resulted in the strengthening of existing relationships in Thailand, and initiation of new relationships that will benefit from follow-up activities.
2 MAPPING DUTCH INTEREST IN THAILAND

In order to gauge the degree to which the Dutch are interested in Thailand, an online survey was sent out to 1,200 unique Life Sciences & Health organisations and companies in the Netherlands. The survey was also shared with multiple network and cluster organisations in order to extend its reach. Combined data from the survey, Task Force Health Care, and the Netherlands representation in Thailand identified 36 unique organisations with activity and interest in Thailand. Past experience suggests that the number of identified organisations that are active and interested in Thailand will grow over time.

Figures 1-5 below shows the current data available by 'type of organisation', 'strength', 'activity in Thailand', and 'potential growth market'. The dominant perceived barriers derived from qualitative inquiry are listed in Table 2.

---

**Figure 1: Interest by Type of Organisation**

- Company
- Regional Development Agency
- University
- University Medical Center

**Figure 2: Interest by Strength**

- Medical Devices
- eHealth
- Hospital Design & Build
- Public Health
- Biopharma
- Mobility & Vitality
Are (or were) you active in Thailand? in terms of export, research, projects or otherwise

Figure 3: Are you active in Thailand?

Is Thailand a (potential) growth market for your organisation?

Figure 4: Is Thailand a Potential Growth Market for your Organisation?

Do you experience or foresee barriers in becoming active in Thailand?

Figure 3: Do you experience or foresee barriers in becoming active in Thailand?

Main barriers in becoming active in Thailand
Experienced or foreseen (n = 8)

<table>
<thead>
<tr>
<th></th>
<th>Main Perceived Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knowledge on market entry (local regulations, import duties, etc.)</td>
</tr>
<tr>
<td>2</td>
<td>Difficulty to get on preferred partners list</td>
</tr>
<tr>
<td>3</td>
<td>Language barriers and cultural differences</td>
</tr>
<tr>
<td>4</td>
<td>Finding a good distributor</td>
</tr>
<tr>
<td>5</td>
<td>Difficulty to engage with health insurers</td>
</tr>
</tbody>
</table>
3 INTRODUCING THAILAND

3.1 History & Geography

The Kingdom of Thailand is situated at the centre of the Southeast Asian Indochinese peninsula. A unified Thai Kingdom was first established in the mid-14th century and was known as Siam. Reforms in 1932 transformed the country from an absolute monarchy to a constitutional monarchy, and it was around this time that the country was renamed The Kingdom of Thailand. Thailand has a unique history in comparison to its neighbours, since it is the only Southeast Asian country not to have been colonized by European powers (Central Intelligence Agency, 2016).

Thailand’s terrain consists of high mountains, a central plain, and an upland plateau. The country is bordered by Myanmar and Laos to the North, Laos and Cambodia to the East, the Gulf of Thailand and Malaysia to the south, and the Andaman Sea and southern boundary of Myanmar to the west. It has a tropical climate, with a monsoon season between the middle of May and September, and another between November to mid-March (Central Intelligence Agency, 2016).

Thailand (score of 83 on World Risk Index) has low to medium exposure to natural disasters with a relative low frequency of storms, floodings and earthquakes (Bündnis Entwicklung Hilft, 2017).

<table>
<thead>
<tr>
<th>Geographical indicator</th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface (km²)</td>
<td>513,120</td>
<td>42,058</td>
</tr>
<tr>
<td>Urbanisation (%)</td>
<td>49.9</td>
<td>91.5</td>
</tr>
<tr>
<td>Climate</td>
<td>Tropical</td>
<td>Temperate</td>
</tr>
<tr>
<td>Risk index</td>
<td>83rd</td>
<td>50</td>
</tr>
</tbody>
</table>

Source: (Central Intelligence Agency, 2016; Bündnis Entwicklung Hilft, 2017)

Thailand is divided into 76 provinces and 1 municipality. Rural areas are inhabited by villagers, with their primary occupation relating to wet-rice cultivation, plantations producing fruit, rubber and palm oil, and fishermen in the coastal settlements. However, rural-urban migration is on the rise. The World Bank recently reported that in 2017, 51% of the total Thai population lived in rural areas. This is a significant and rapid change, for 50 years ago this figure was at 80% (World Bank, 2018). The majority of the urban population inhabit the cities of Bangkok, Samut Prakan, Chiang Mai, Songkla, Notaburi, and Pathum Thani. The largest and capital city is Bangkok, which is also a special administrative area. Although Thailand remains a constitutional monarchy and parliamentary democracy, a coup in 2014 established a de facto military dictatorship (Phasuk, 2018).

3.2 Economy

Thailand has moved from a low-income country to an upper-income country in 40 years. The economy is highly dependent on international trade and with its well-developed infrastructure, free-enterprise economy and pro-investment policies the government is taking strides in achieving further growth. Thailand’s GDP (at purchasing power parity) in 2017 was estimated at 1.236 trillion USD, with agriculture, industry, and the services sectors contributing 8.2%, 36.2%, 55.2% respectively (Central Intelligence Agency, 2016). Thailand’s main exports are electronics, agricultural commodities, automobile parts, and processed foods (International Monetary Fund, 2018).

The distribution of wealth remains highly unequal Thailand’s, which scores a Gini coefficient of 0.36, which is relatively high by Asian standards (Central Intelligence Agency, 2016). The government has made an effort to reduce poverty by implementing a minimum wage policy (roughly 10 USD per day) and tax reforms.
The prosperity and well-being of the Thai population is rising as indicated by the country slowly but steadily rising through the ranks of the Human Development Index (currently 83rd place) out of 157 countries (United Nations Development Programme, 2018).

The longer-term risks to the Thai economy are associated with, political uncertainty, household debt levels and an aging population.

Table 4: Economic Indicators for Thailand

<table>
<thead>
<tr>
<th></th>
<th>Netherlands</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP PPP (bn USD)</td>
<td>972.45</td>
<td>1 167.71, 1 236.35</td>
</tr>
<tr>
<td><strong>real growth (%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.8</td>
<td>3.3, 3.9</td>
</tr>
<tr>
<td><strong>per capita PPP (000)</strong></td>
<td>56.57</td>
<td>16.92, 17.89, 19.58, 20.26, 21.39, n/a</td>
</tr>
<tr>
<td>Inflation rate (%)</td>
<td>1.4</td>
<td>0.2, 0.7, 0.9, 0.9, 1.1, 1.4</td>
</tr>
<tr>
<td>Unemployment (%)</td>
<td>3.9</td>
<td>0.8, 0.7, 0.7, 0.7, 0.7, 3.9</td>
</tr>
<tr>
<td>Government net lending / borrowing (% of GDP)</td>
<td>0.6</td>
<td>0.6, -0.9, -0.6, -0.5, -0.9, 0.6</td>
</tr>
<tr>
<td>Government gross debt (% of GDP)</td>
<td>53.1</td>
<td>41.8, 41.9, 41.9, 41.3, 41.2, 41.3</td>
</tr>
</tbody>
</table>

Source: (International Monetary Fund, 2018)

3.3 Socio-demographic Trend

Thailand’s fertility rate is decreasing rapidly. In the 1950’s the crude birth rate was 42.5 births per 1000 people, and in 2017 this number reduced to 10 births per 1000 people. This number is projected to drop to around 9.1 births per 1000 people by the year 2030. This is largely due to smaller sized families, as Thai women choose to have fewer children (an average of 6.14 children in the 1950’s compared to 1.53 in 2017). Life expectancy continues to increase, from an average life expectancy of 50 at birth in the 1950’s, to a life expectancy of 75 at birth in 2017. The population is currently growing very slowly and is expected to start decreasing from year 2025 (United Nations, 2017). The overall population is aging as fertility rates drop and life expectancy climbs. The population of Thailand is expected to grow by 123 000 in 2019 and reach a total of 69 411 000 in 2020. Migration (including immigration and emigration) increases population by roughly 19 444 people annually (United Nations, 2017). Thailand’s population density is at 134.4 persons per square km.

Figure 5: Thailand’s 2017 Population Pyramid (United Nations, 2017)
Thailand is one of the fastest aging populations in the region and is expected to have the highest share of elderly people of any developing country in East Asia by 2040 (United Nations, 2017). The World Bank projects that by 2040, around a quarter to one third of the Thai population will be 65 years or older (The World Bank, 2016).

Table 5: Key Demographic indicators for Thailand

<table>
<thead>
<tr>
<th></th>
<th>Thailand</th>
<th></th>
<th></th>
<th></th>
<th>Netherlands</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017</td>
<td>*2020</td>
<td>*2025</td>
<td>*2030</td>
<td>2017</td>
<td>*2020</td>
<td>*2025</td>
<td>*2030</td>
</tr>
<tr>
<td>Population (million)</td>
<td>69.0</td>
<td>69.4</td>
<td>69.6</td>
<td>69.6</td>
<td>17.0</td>
<td>17.1</td>
<td>17.4</td>
<td>17.6</td>
</tr>
<tr>
<td>65 years or older (%)</td>
<td>10.6</td>
<td>12.9</td>
<td>16.0</td>
<td>19.4</td>
<td>17.9</td>
<td>20.0</td>
<td>22.1</td>
<td>24.5</td>
</tr>
<tr>
<td>Life Expectancy at birth</td>
<td>75.6</td>
<td>75.6</td>
<td>76.6</td>
<td>77.5</td>
<td>82.1</td>
<td>82.9</td>
<td>83.6</td>
<td>84.4</td>
</tr>
<tr>
<td>Crude birth rate per 1,000</td>
<td>10.0</td>
<td>10.0</td>
<td>9.0</td>
<td>9.1</td>
<td>10.6</td>
<td>10.6</td>
<td>10.5</td>
<td>10.3</td>
</tr>
<tr>
<td>Infant mortality per 1,000</td>
<td>9.0</td>
<td>9.0</td>
<td>8.0</td>
<td>7.0</td>
<td>3.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Source: (United Nations, 2017)

3.4 Thailand’s disease burden

Looking at risk factors for non-communicable diseases (NCD’s), the Thai and Dutch population show comparable behaviour in terms of alcohol use, smoking and physical inactivity. What however is striking is the differences in obesity rates which overall are higher in the Netherlands than in Thailand but in the age group 10-19 years old are significantly higher in Thailand, foreshadowing large increases in NCD’s in the future (Institute for Health Metrics and Evaluation, 2018).

Table 6: Estimated Risk factors for health in Thailand and the Netherlands

<table>
<thead>
<tr>
<th>Risk factors total population (2017)</th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol consumption (litres pure alcohol)</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Tobacco smokers 15+ (%)</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>Physical inactivity 18+ (%)</td>
<td>25</td>
<td>29</td>
</tr>
<tr>
<td>Obesity 18+ (%)</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Obesity 10-19 (%)</td>
<td>10</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: (Institute for Health Metrics and Evaluation, 2018)

Thai decisionmakers anticipated on this trend by putting NCD’s high on the public health agenda by launching the 5-Year National NCDs Prevention and Control Strategic and Action Plan (2017 – 2021) to combat and control the burden of NCDs. The plan stresses the importance of controlling and preventing four diseases, specifically those which have caused the most premature deaths in Thailand in recent years: cerebrovascular disease, Ischemic heart disease, diabetes, and chronic obstructive pulmonary disease (COPD) (Ministry of Public Health, 2017).

Communicable (infectious) diseases (CD’s) remain a burden to Thailand. The Ministry of Public Health (MOPH, 2017) in Thailand’s National strategic plan for emerging infectious diseases lists (re-)emerging diseases already present in Thailand such as Avian Influenza, ZIKA and MERS, potential emerging diseases such as Ebola and diseases originating from animals and challenges such as Antimicrobial resistance.

A full list of Thailand’s leading causes of death is presented in Annex 2.
### Table 7: Key indicators on Thailand’s disease burden

<table>
<thead>
<tr>
<th>Disease Burden (2017)</th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of death by NCD</td>
<td>74</td>
<td>90</td>
</tr>
<tr>
<td>Risk of premature death (between 30-70)</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>NCD burden</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cardiovascular diseases (%)</strong></td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td><strong>Cancers (%)</strong></td>
<td>18</td>
<td>32</td>
</tr>
<tr>
<td><strong>Other NCDs (%)</strong></td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td><strong>Chronic Respiratory diseases (%)</strong></td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td><strong>Diabetes (%)</strong></td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Suicide per 1 000</td>
<td>0.14</td>
<td>0.13</td>
</tr>
<tr>
<td>Total CD burden in DALY’s (per 1 000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Infectious and parasitic diseases</strong></td>
<td>1 695.1</td>
<td>5.9</td>
</tr>
<tr>
<td><strong>Neonatal conditions</strong></td>
<td>458.8</td>
<td>53.6</td>
</tr>
<tr>
<td><strong>Respiratory infectious</strong></td>
<td>1 016.9</td>
<td>88.1</td>
</tr>
<tr>
<td><strong>Nutritional deficiencies</strong></td>
<td>102.8</td>
<td>15.7</td>
</tr>
<tr>
<td><strong>Maternal conditions</strong></td>
<td>12.5</td>
<td>1.3</td>
</tr>
</tbody>
</table>


### 3.5 Medical Tourism

Thailand is known as a top destination for medical tourism since the 1980s, first for cosmetic procedures and later for a growing range of curative care. Thailand saw large growth in medical tourists visiting the country since then, leading to an expected growth in 2017 - 2018 from 2.4 to 2.5 total hospital visits (IMTJ, 2018).

Since 2003 the Thai government has been working to make Thailand a global centre for medical tourism. Efforts at patient recruitment have included international road shows and tax exemptions for investment in new health facilities that target medical tourists (Pachanee & Wibulpolprasert, 2006).

Medical tourism as an industry continues to be a key sector for the Thai economy and is as ‘Affluent Medical and Wellness Tourism’ has been targeted as first industry to achieve the goal of establishing ‘Thailand as medical hub’ within the economic model Thailand 4.0. The government is furthermore looking to support development in the industry through the Second National Tourism Development Plan (2017 - 2021).

### 3.6 Vulnerable populations

Thailand has a strong commitment to offer universal healthcare coverage to its population. However, some inequalities do persist in access to health quality health services between mainly the urban and rural areas (Prasert, 2017).

**Undocumented migrants, stateless populations and refugees.**

More than 3.9 million migrants, mostly from neighbouring Cambodia, Lao People’s Democratic Republic, Myanmar and Viet Nam work in Thailand. An estimated 75% of these are undocumented migrants, which are not covered by the Thai Universal Coverage Scheme (Tangcharoensathien et al., 2017). Unfortunately, due insecure living and working conditions which are more common in this group, undocumented migrants are more prone to health issues. The Thai government has made an effort to provide healthcare to all by opening up the migrant health insurance scheme to both documented and undocumented migrants. However, migrants’ experiences of poorly responsive
services and fear of litigation by authorities has resulted in low utilisation rates for both outpatient and inpatient services. Find more in the United Nations Thailand Migration Report 2019.

Thailand furthermore has around 480,000 stateless people living in Thailand. Many of these are from Thailand’s northern hill tribes, namely the Akna, Lanu, Lisu, Yao, Shan, Hmong, and Karen ethnic communities. These populations often lack documentation of birthplace and parentage, since they are often born in remote mountainous areas. In 2010 the Thai Cabinet launched a policy called "Health Insurance for People with Citizenship Problems", with the aim of alleviating financial difficulties of public hospitals in border areas and increase access to care among stateless people. However, this policy is only aimed at helping Thai ethnic minorities and people who are born in Thailand who lack documentation.

The estimated 100,000 refugees and asylum seekers from Myanmar and undocumented/illegal migrants are excluded from this policy (Suphanchaimat, et al., 2016).

Rural Populations

Some inequalities in the access to health services between rural and urban Thailand, persist until today. A significant indicator which highlights the unequal access to health services is the distribution of health professionals across the country. One third of all doctors work in the capital city, Bangkok, while the poorest region of Thailand, the Northeast regions, have the fewest number of doctors in the whole country (World Health Organization, 2017).

The elderly population living in rural Thailand is especially vulnerable to this unequal access. A particular challenge for them is that they depend on caretakers and relatives to bring them to health facilities. This can be extremely challenging as they become too frail to travel far distances and cannot do so independently. A lack of public transportation in rural areas is also a huge barrier facing many poor elderly people in their ability to access healthcare services (World Health Organization, 2016).

To resolve the inequalities in access to quality health services between rural and urban areas, the Thai government adopted a pro-rural approach in the 1970s by investing in rural district hospitals and health centres and by requiring graduates from medical schools to serve periods of time in rural areas and through programmes such as the Collaborative Project to Increase Rural Doctors (CPIRD). View an overview of developments in Thai rural healthcare here.
4 THE THAI HEALTH SYSTEM

4.1 Historical Background

The development of public health in Thailand first began in 1888, when the Ministry of Education established the Department of Nursing. The next half century saw this department grow and evolve to become the modern Ministry of Public Health in 1942. A major reform in 2002 resulted in the introduction of universal health coverage, and it was agreed that the Universal Health Coverage Scheme would be financed through general taxation, without the reliance on contributions of members. This also resulted in a reduction in levels of out-of-pocket payments, the incidence of catastrophic health spending, and medical impoverishment. In 2009 a major public sector reform to improve efficiencies in the government sector resulted in the downsizing and restructuring of various departments. This included the delegation of tasks and budgets to local government organizations (Tangcharoensathien, et al., 2018) (World Health Organization, 2015).

4.2 National Governance

Public sector health services in Thailand are organized centrally through two central agencies with different functions: The National Health Security Office (NHSO) which is the purchaser, managing the health budget, whilst the Ministry of Public Health (MOPH) is responsible for service provision.

The NHSO manages the Universal Coverage Scheme (UCS), while the Comptroller General Department (CGD) of the Ministry of Finance manages the Civil Servant Medical Benefit Scheme (CSMBS), and the Social Security Office (SSO) of the Ministry of Labour manages Social Health Insurance (SHI) (World Health Organization, 2015). More details on the different schemes can be found in section 4.3.

The MOPH is the core organization responsible for health promotion, preventative measures, disease control, treatment and rehabilitation, as well as other official functions as dictated by law. The MOPH is supported by a complex interdependent system of governing structures, which includes several autonomous health agencies, non-state actors, and civic groups. These include the Health Systems Research Institute (HSRI), Thai Health Promotion Foundation (ThaiHealth), the National Health Commission Office (NHCO), and the Healthcare Accreditation Institute (HAI) (World Health Organization, 2015). For an organisational chart see Annex 3. For a full overview of health financing and service provision in Thailand after achieving Universal Coverage see Annex 4.

Subnational Governance

Most public health-care facilities (exceptions include military hospitals, police hospitals and prison hospitals) in Thailand are devolved to local elected government units as per 1999 when the decentralization Act was passed. Health centres were devolved to Tambon Administration Organizations (TAOs), district hospitals to municipalities, and provincial hospitals to Provincial Administration Organizations (World Health Organization, 2015).

The provincial administration is the responsibility of the Provincial Health Office (PHO), which oversees and supports the regional or general hospitals, district hospitals and district health offices within each province. The district health office oversees all health centres in the district and coordinates with district hospitals for managing the district health system (World Health Organization, 2015).

Private sector Governance

The MOPH is responsible for overseeing all private health-care providers. Private health medical institutions are licensed and relicensed annually under the Sanatorium Act 1998 (Medical Premises License Act) in line with stipulated quality and standards (World Health Organization, 2015).
4.3 Healthcare Expenditure and Financing

The Thai health system is predominantly financed through general taxes and social insurance contributions and to a lesser extent, by private insurance premiums and direct out-of-pocket (OOP) payments. Universal coverage was fully implemented by 2002, and this significantly increased the public share in total health expenditure, while household OOP payments were significantly reduced (World Health Organization, 2015). For an overview of finance streams within the Thai health system see Annex 4.

Table 8: Total health expenditure between 2015-2018 in Thailand and the Netherlands

<table>
<thead>
<tr>
<th>Total Health Expenditure (2017)</th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE 2015 (billion USD)</td>
<td>24.6</td>
<td>92.9</td>
</tr>
<tr>
<td>Gov budget (billion USD)</td>
<td>21.2</td>
<td>16.7</td>
</tr>
<tr>
<td>THE 2016 (billion USD)</td>
<td>25.3</td>
<td>95.5</td>
</tr>
<tr>
<td>Gov budget (billion USD)</td>
<td>21.9</td>
<td>16.7</td>
</tr>
</tbody>
</table>


Health Financing

Three public health financing schemes cover the entire population. These health insurance schemes cover all services, diseases and health conditions with a few exceptions, such as cosmetic surgeries, and services of unproven effectiveness, such as stem-cell treatment. For a detailed overview of funding schemes see Annex 5.

The Social Health Insurance (SHI) scheme covers private-sector employees (without dependants except for maternity benefits). The SHI is part of the comprehensive social security system and is managed by the Social Security Office of the Ministry of Labour manages. The SHI protects 9-10 million private-sector employees in firms having more than one employee, for non-work-related conditions. The Workmen’s Compensation Fund covers work-related injuries, illnesses or deaths. It is a mandatory tripartite payroll-tax financed scheme equally contributed to by employers, employees and the government (World Health Organization, 2015).

The CSMBS is the scheme which is a benefit to government employees and covers civil servants, pensioners and their dependents (including spouses, children under 20 years and parents). This is a tax-financed non-contributory scheme. The Comptroller General Department of the Ministry of Finance manages the CSMBS (World Health Organization, 2015).

The remaining population is covered by the Universal Coverage Scheme (UCS). All schemes have been established by specific laws. UCS is mandated by the National Health Security Act (2002). Therefore, by law, the NHSO is responsible for managing the UCS (World Health Organization, 2015).

Private health insurance covers individuals on a voluntary basis, but this is a minority of 2.2% of the population (National Statistical Office of Thailand, 2006).

4.4 Healthcare Infrastructure

Thailand’s health delivery system is dominated by the public sector, with public hospitals accounting for 75% and 79% of total hospitals and beds respectively. The bulk of private hospitals (69%) consist of facilities having fewer than 100 beds. The rest is formed by a number of large private hospitals including hospital chains that are registered on the stock market. Most of the private hospitals offer services to international patients and have wards with English-speaking doctors. Private non-profit charity-run hospitals account for a negligible share of beds hospital. For an overview of the distribution of hospitals in Thailand view Annex 6. Find a comprehensive list of hospitals here.
Table 9: Health Facilities in Thailand and Netherlands

<table>
<thead>
<tr>
<th>Type of Health Facility</th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>General/specialist hospitals</td>
<td>1 410</td>
<td>84</td>
</tr>
<tr>
<td>Public</td>
<td>1 056</td>
<td>-</td>
</tr>
<tr>
<td>Private</td>
<td>354</td>
<td>84</td>
</tr>
<tr>
<td>General practitioner clinics</td>
<td>35 383</td>
<td>7 917</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>18 153</td>
<td>1 994</td>
</tr>
</tbody>
</table>


Primary health care (PHC) in Thailand is delivered mostly through the country’s private General Practitioner Clinics. A part of these, as is the case with public general practitioners, are contracted by the public health system and as such designated as Contracting Units for Primary Care (CUP), which have minimum staffing requirements and consist of networks of several health centres and a hospital. In the private sector, a CUP is often a single unit and located in urban areas. Find out more about primary healthcare in Thailand here.

Secondary and tertiary care services are provided by district level community hospitals which have between 30 to 120 beds and cover a population of approximately 50 000. The majority of community hospitals only provide basic medical care and inpatient services through general practitioners. However, community hospitals with 90 to 120 beds provide more complicated services like those offered by specialists in major areas such as internists, general surgeons, obstetricians and paediatricians.

At the provincial level, which covers a population of approximately 600 000, a general hospital is allocated with 150–500 beds. General hospitals typically provide secondary and tertiary care and are the referral centre within the province. Regional hospitals provide tertiary care and some of them have been upgraded to centres of excellence for particular services, e.g. cardiac, cancer and trauma.

Private sector

Almost all private hospitals in Thailand are for profit and a significant number of them are active on the stock market. Private hospitals primarily target high-end populations and foreign patients. The majority of the private hospitals are located in big cities, like Bangkok and district capitals in the provinces. Private hospitals are a driving force behind Thailand’s sector and market for construction and technologies. Find a list of private hospitals here. More follows in Chapter 6.5.

Elderly care

Long-term care is traditionally and culturally a family responsibility (children and grandchildren do the caregiving) in Thailand. Increasing numbers seniors, in mainly rural areas, however find themselves with no or limited access to family-based care as their children migrate to urban areas (Section 3.4 & Section 3.6). Furthermore, a growing group of more frail seniors with more extensive medical needs challenge the traditional model of ageing at home. In response to these trends the Thai government and private investors are developing more long-term care institutions and are exploring a variety of ways to provide home-based support. This development forms a large drive for Thailand’s sector and market for construction and technologies. More follows in Chapter 6.

Mental health

Mental health services are provided through a network 122 outpatient facilities and 25 community-based units. The Thai mental health system is described in detail in this WHO-AIMS report.

4.5 Healthcare capacity and utilisation

The utilisation of healthcare services, especially amongst low-income groups in Thailand grows rapidly. Causes for this growth are the launch of Thailand’s Universal Coverage Scheme and the ‘pro-rural’ expansion of the Thai health infrastructure (Paek et al., 2016; (WHO, 2017).
The growing utilisation of health services leads to increased congestion and waiting times in Thai public hospitals (Valdmanis et al., 2004; Wattanapisit & Saengow, 2018). This trend has gained worrisome proportions with overcrowded hospitals and overworked staff becoming increasingly common.

### 4.6 Healthcare Professionals

Several agencies are involved in the planning and management of human resources for health. The Ministry of Public Health is the main employer of the health-care workforce whilst the Ministry of Education oversees the training institutions, the National Economic and Social Development Board for macro-economic policy, the Civil Service Commission on public-sector employment, and postgraduate training. The Bureau of Budget oversees the annual budget proposal, whilst the professional councils are responsible for licensing of professionals.

Thailand is self-sufficient in building and supplementing its health workforce, which has grown rapidly in the last years. In general, there are no large shortages of personnel in Thailand (Fernquest & Charoensuthipan, 2017). Some groups in which the Thai health system should invest are specialists, primary care physicians and pharmacists. Maldistribution of doctors and nurses used to be an issue in Thailand. Due to extensive health infrastructure development and rural retention policies over the past four decades, maldistribution issues are steadily being resolved. (Witthayapipopsakul, 2019)

<table>
<thead>
<tr>
<th>Type of professional</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians per 1 000</td>
<td>25 317</td>
<td>26 269</td>
<td>27 256</td>
<td>28 281</td>
<td>29 344</td>
<td>30 448</td>
</tr>
<tr>
<td>Nurses per 1 000</td>
<td>128 784</td>
<td>135 16</td>
<td>141 851</td>
<td>148 874</td>
<td>156 244</td>
<td>163 979</td>
</tr>
<tr>
<td>Dentists per 1 000</td>
<td>5 708</td>
<td>6 073</td>
<td>6 461</td>
<td>6 874</td>
<td>7 314</td>
<td>7 782</td>
</tr>
</tbody>
</table>

Sources: (BMI, 2017)

### 4.7 Further Reading

If you would like to expand your understanding of the Thai health system, the following publications provide excellent overviews.

- National Strategic Plan for Public Health (2017-2036)
- 12th National Health Development Plan (2017–2021)
- Thailand’s eHealth Strategy 2017 – 2026
- 2nd National Plan for Older Persons 2001 - 2020
- Thailand’s Medical Tourism strategy
- 5-Year National NCDs Prevention and Control Plan (2017-2021)
- Thailand’s National strategic plan for emerging infectious diseases
5 MARKET STRUCTURE

5.1. Business Climate

Thailand is ranked 27th place in the World Bank Ease of Doing Business Index, scoring higher than Vietnam (69th) but lower than other countries in the region such as Malaysia (15th) and Singapore (2nd). The Netherlands is ranked 36th place in this index.

Thailand is determined to improve its business climate and has made progress in 2018. Firstly, starting a business has become less costly by the introduction of fixed registration fees. Secondly, obtaining electricity has become easier since the process has been streamlined, and thirdly the introduction of the e-matching system for electronic cargo control has reduced the time required for border compliance.

The business culture in Thailand is open and courteous and compared to Dutch culture, relatively hierarchical. Not only senior ranking but also lower ranking contact are important in building the relation with a specific stakeholder. In Thai business culture, meetings are formal, and business is never discussed immediately. The Thai are also conscientious when it comes to being on time. Due to the congested traffic in Bangkok it is important to carefully plan travel time.

In order to register products and enter the Thai health market, it is required to establish a legal entity or appoint a distributor/local partner (Section 5.2). Most importers therefore appoint a well-connected local partner. Local partners can assist in connecting directly with government procurement agencies hospitals as well as deliver aftersales support and maintain partnerships/customer relations. Most distributors and agents are based in Bangkok’s metropolitan area. Many distributors and agents offer nationwide coverage.

Text box 1: Key Characteristics of the Thai Business Culture and Market

- Openness to foreign expertise and business.
- Warm and friendly communication.
- It is not considered polite to criticise the Kingdom in any way; utmost respect should be paid at all times.
- The public and private health sectors are separated, with vastly different KPI’s (social versus profit driven).
- Quality and price are important considerations in procurement.
- Strong relationships and personal trust are of utmost importance when doing business.
- After-sale support is valued.

5.2. Market Access

Product Registration

Registration of medical devices with the Thailand FDA is required to enter the Thai market. Registration is based on a risk classification system, whereby devices are classified as Class I, II or III. Class I devices are the riskiest and require a full registration and Product Licence from the FDA. Class II and Class III devices are referred to as “notification” and “general” devices and the application process for these are less strict. The Thai FDA provides easier access to
products which have received a certificate of free sale (CFS) from either the United States (US FDA), European Union (CE mark), Japan (Pharmaceutical Affairs Bureau), Australia (Therapeutic Good Administration) or China (State Drug Administration).

In an effort to compete at the international scale, companies that register their medical devices under the Medical Device Act of 2008 are now required to submit reports to the Thai Food and Drug Administration should any malfunction occur. This relates to any medical device that the company might manufacture, import or sell. These new requirements have been put into place in order to improve the standards in Thailand’s medical device market.

The approval process takes around three to six months for Class I & II devices and up to ten days for Class III devices. Find more information at the Medical Devices Control Division of the FDA Thailand.

Pharmaceuticals
Market authorization is required for all pharmaceuticals, either locally manufactured or imported. Exceptions are made for the importation and production managed by public agencies, including MOPH departments, the Government Pharmaceutical Organization (GPO), the Defence Pharmaceutical Factory and the Thai Red Cross Society. Production of medicines in hospitals and freshly prepared products for individual patients are also exempt from the regulation as stated in the Drug Act (Drug Act B.E. 2510 [1967]). However, the production of psychotropic substances and narcotics for any purposes has to follow the provisions in respective laws.

Preclinical and clinical studies are required for new drug products, i.e. products containing new chemical entities, new combinations or those with new routes of administration. Find more information at the Bureau of Drug Control of the FDA Thailand.

Text box 2: Tips for Market Entry
- Connect with Key Opinion Leaders, Medical Associations, Medical Societies, and professors of well-known universities in order to get feedback on the market potential. This can be achieved via meetings, tests, or pilots (while protecting your knowledge carefully).
- Conduct in-depth market research (prior to product registration).
- Conduct a proactive partner search that validates the pre-qualifications of the partner needed.
- Proposals for government procurement should reflect a vision of how your export facilitates the growth and development of local knowledge and industries.

5.3. Medical Supply Chain & Government Procurement

Government procurement is decentralised among more than 200 government agencies and state enterprises (Export.gov, 2018). Public sector procurement is governed by the Prime Minister’s Office’s Procurement Regulations. Although the system aims to be non-discriminatory and open competition is accorded to all potential bidders, the system is opaque. Thailand is not a signatory to the WTO Agreement on Government Procurement and the country has received criticism in terms of showing favouritism in matters of procurement. The “Buy Thai” policy encourages the use of domestic suppliers. The key to successful bidding on Thai government contracts and supply tenders is therefore to have a reputable local representative with good access to the procuring agency and knowledge of specific procurement requirements.

In terms of the private sector, most hospitals have their own procurement divisions, or use external consultants. Hospital managers tend to be decision-makers in terms of procurement in the private sector, although many hospital chains purchase certain items centrally. One of the most successful ways in which foreign businesses have penetrated the Thai private health care sector is through an agent or distributor.
Overview of Thai tender and procurement portals
Stay up to date on upcoming projects on:

- Healthcare Procurement (only available in Thai)
- Asian Development Bank

5.4. EU – Potential Free Trade Agreement

The EU and Thailand launched negotiations for an EU-Thailand Free Trade Agreement (FTA) in March 2013. The negotiations aimed to conclude a comprehensive Free Trade Agreement, however, no agreement has yet to be finalised. Since the military takeover in Thailand in May 2014 no further FTA rounds have been scheduled.

5.5. Useful Organisations for Market Entry and Further Information

Useful organisations to explore and enter the Thai health system and market are listed in Annex 7. Key events are listed in Annex 8.

- The Embassy of the Kingdom of the Netherlands in Thailand, promotes and supports cooperation between Thailand and the Netherlands.
- The Netherlands Enterprise Agency (RVO.nl) encourages entrepreneurs in sustainable, agrarian, innovative and international business. It helps with grants, finding business partners, know-how and compliance with laws and regulations.
- Thailand Center of Excellence for Life Sciences (TCELS) promotes and support innovations, research and knowledge related to the commercialization of life sciences products and services in Thailand.
- European Association for Business and Commerce: A platform representing interests of the European business community in Thailand.
- Netherlands-Thai Chamber of Commerce
- The Board of Investment of Thailand (TBOI): helps foreign organisations to establish in Thailand.
6 ALIGNING DUTCH STRENGTHS WITH THAI OPPORTUNITIES

Whilst Chapter 2 of this report shows the interest of the Dutch Life Sciences and Health sector in Thailand, Chapter 6 aligns Dutch strengths in the sector with Thai opportunities.

6.1. Medical Devices

The strength ‘Medical Devices & Supplies’ encompasses solutions which improve health delivery. Organisations within this strength offer solutions for diagnostics, treatment and related processes, and typically partner with providers of primary, secondary and tertiary care services and/or intermediate organisations.

Trends

With an estimated market value of USD 1.18 billion in 2016 (BMI, 2017), Thailand’s medical device market is the largest market of the ASEAN 4 countries (Singapore, Malaysia, Thailand and Vietnam). Thailand’s medical device market, as seen in figure 7 shows a fast growth rate with a CAGR of 8.1% (ref. US 5.0%, China 3.9% and Netherlands 3.5%). This trend is expected to continue in and beyond 2019, reaching a value of USD 1.7 billion by 2020 (BMI, 2017).

Currently around 87% of medical devices on the Thai market is imported. The Netherlands is a relatively small player in Thailand’s medical device market ranking as 8th biggest exporter with 2.3% of Thailand’s market compared to the US (23.9%), China (11.8%) and Japan (11.8%) (BMI 2017).

Thailand is not a major producer of advanced medical equipment, although there are a large number of manufacturers of basic items, such as bandages, sutures, hospital furniture and medical supplies such as syringes (BMI, 2017). The number of Thai manufacturers or more sophisticated medical devices is expected to grow due to Thailand’s favourable investment climate under Thailand 4.0 (Krungsri, 2018).

![Figure 6: Thailand Medical Device Sales (BMI 2017)](image)
Major trends which drive the stable growth of imports and Thai manufacturers are (Krungsri, 2018):

- A growing burden of lifestyle and age-related diseases (Section 3.3 & Section 3.4)
- An increasing number of incoming medical tourists (Section 3.5)
- Expansions in Thailand’s health infrastructure (Section 4.4 & Section 6.5)

A factor which may possibly constrain growth in Thailand’s medical device sector are plans of the Thai government to add drugs, medical supplies and medical services to the Price Control list. A committee has been set up to set appropriate measures to ensure fairness for both patients and operators of private hospitals.

Opportunities
Thailand is open to cooperate on:

- Increasing the efficiency of Thailand’s extensive health infrastructure through innovative technologies.
- Increasing the capacity of the Thai health system (primary, secondary and tertiary care) to treat lifestyle and age-related conditions.
- Implementing cutting-edge technologies in Thailand’s advanced private health facilities to improve the quality, accessibility and affordability of their health services.
- Improving the customer experience in Thai’s private hospital through technologies such as non-invasive diagnostics.
- Strengthening the surveillance, monitoring and treatment of infectious diseases such as the (re)emerging antimicrobial resistant bacteria, vector borne diseases and vaccine preventable diseases.

Market Entry Considerations

- The Thai medical devices market is consolidated and competitive, leaving options for mainly highly innovative technologies which are new to the Thai market.
- Local partners are essential in entering public competitive bidding procedures. Next to domestic suppliers, a number of large international distributors such as Zuellig Pharma Thailand Ltd are potential partners for Dutch organisations.
- The medical device industry is targeted by Investment promotion strategies of the Thai government. Learn more about local incentives from the Thailand Board of Investment.
- Some suppliers donate to Thai hospitals to enter the Thai market and build their brand value. An example of an supplier is LEO Pharma which donated to the hospitals Ramathibodi, Siriraj and Thammasat.
- To make a first connection with the Thai market, a number of local organisations are listed under Annex 2. Specifically, the Thailand Center of Excellence for Life Sciences (TCELS) can serve as a linking pin to reach many Thai health stakeholders. Please connect to the Netherlands Embassy in Bangkok to review options.
- Stay up to date on upcoming tenders - see Section 5.3.
6.2. Mobility & Vitality

Mobility & Vitality encompasses solutions which help people live and age healthily. Dutch organisations within this strength offer solutions in areas such as mobility aids and monitoring systems and typically partner with organisations which deliver elderly care, primary health care, rehabilitation services and care to vulnerable groups, such as mental health and special needs patients.

Trends

The health status of the Thai population has shown a large progression since the 1980s to a life expectancy of 75.5 and healthy life expectancy of 66.8. Due to the increasing life expectancy of the Thai population, a number of trends are prevalent in Thailand:

- **Preparing for an ageing population.** The current trend of ageing in Thailand (Section 3.3) has been unprecedented. Traditionally, the Thai population aged at home. As Thailand urbanises and the ageing population grows rapidly, more and more persons opt to age outside of the home. Thailand has launched a number of policies of which the latest, the Second National Plan for Older Person (2002–2021), aims to achieve well-being in old age. Under the plan, the Thai public sector offers financial and logistic support for the elderly population to access health services. Furthermore, the plan details to grow elderly clinics at government hospitals, home health care (HHC) and long-term care institutions (Wivatvanit & Jitapunkul, 2009).

- **Preventing and treating non-communicable diseases (NCDs).** The burden of NCDs is rising (Section 3.4). In the 12th National Health Development Plan (2017–2021) and 5-Year National NCDs Prevention and Control Plan (2017–2021) the Thai government details strategies to combat the challenge of NCDs. These strategies emphasise health promotion, disease prevention and consumer and environmental protection.

- **Addressing mental health issues.** Recent surveys found 14% of the Thai population to be affected by some sort of mental health issue (Thanaudom, Jampathong & Udomratn, 2018). However, major barriers to further develop Thai mental health services are capacity problems of hospitals and a stigma on mental health issues and related structural under-diagnoses of patients. Thailand addresses these challenges through efforts to build up the mental health workforce and by setting-up campaigns to decrease the stigma attached to mental health (Sharan, et al., 2017). Furthermore, all severe mental illnesses and a few common mental disorders, including depression, are covered in the different Thai social insurance schemes. As a result, more than 90% of Thai people have free access to essential psychotropic medications, if required, including antidepressants. More initiatives can be found in the ASEAN Mental Health systems publication.

- **Growing private sector involvement.** The private sector in Thailand sees a business opportunity in the growth of lifestyle, age and psychological related health issues as these are most prevalent in their primary target groups, high income groups and medical tourists. As a result, Thailand sees a growth in mainly senior housing, private nursing homes and retirement communities (Section 6.5 & Text box 4). Learn more about Thailand’s Elderly Care Business.

**Text box 4: Investments in Thailand for luxury facilities for the elderly**

Two new retirement home projects with a combined value of 10 billion baht (USD 301 million) target the elderly population in Greater Bangkok and Kamala Beach. The first, Jin Wellbeing County has partnered with the Thonburi Hospital to realise 1 400 condo-units which surround a hospital an elderly-care centre, a nursing home, a clubhouse, a wellness centre and a mall. The second, Kamala Senior Living, will develop a luxury retirement residential project of 191 low-rise condo units and 29 villas. Learn more.
Opportunities
Thailand is open to cooperate on:

- Equipping upcoming special housing facilities for the elderly.
- Equipping the upcoming industry of (private) long-term care facilities/nursing homes.
- Strengthening the ability and capacity of Thailand’s public health facilities (specifically primary healthcare facilities) to provide health services to an ageing population with an increasingly higher burden of non-communicable (chronic) diseases.
- Furthering quality home care provision in Thailand through funding schemes, support of caregivers and the implementation of technology. The home care market is currently in a preliminary stage of development but is expected to grow through the Thai government’s efforts. Thailand’s private health providers do see a solid business case in providing health to the upcoming lifestyle-related and age-related diseases especially amongst Thailand’s higher income groups. This group with a relative higher health literacy is willing to invest in homecare solutions, fitness programmes etc. to age healthy and vital.

Market Entry Considerations

- The Thai mobility and vitality market are made up of a large public sector which procures equipment both directly and through government tenders, as well as large private hospital groups, which procure directly and through group purchasing organisations.
- Health insurers in Thailand are very responsive to the needs of the Thai people and look to increase the quality and affordability of health services. Health insurers can therefore form key partners in setting-up pilots with Thai public and private health providers.
- To make a first connection with the Thai market, a number of local organisations are listed under Annex 2. Specifically, the Thailand Center of Excellence for Life Sciences (TCELS), can serve as a linking pin to reach many Thai health stakeholders. Please connect to the Netherlands Embassy in Bangkok to view options.
- Other organisations which could help engaging with Thai stakeholders are:
  - Ministry of Public Health (MOPH)
  - Ministry of Social Development and Human Security
  - Thai General Insurance Association (TGIA)

6.3. eHealth

The Dutch have strengths in the eHealth sphere, which encompasses solutions which help connect actors in health systems, often through the exchange and storage of health information. Organisations within this strength offer solutions in health information exchange, interoperability, telemedicine, serious gaming and personal health monitoring. These organisations typically partner with health care providers and consumers.

Trends

Thailand’s overall health information infrastructure is still in a preliminary stage. Recently most hospitals in Thailand have implemented various degrees of electronic health records by creating their own IT-systems. These systems are currently primarily serving to register administrative data, used mainly for reimbursement (Thit et al., 2016). Data collection in most of health facilities is not integrated into clinical processes and workflows (Narkpaichit & Bongerd, 2015).

Barriers for the development of Thailand’s health information system are a lack of coordination, insufficient communication between the private and public sector and a shortage of human resources in health informatics (Ibed.). Furthermore, many health facilities still partially rely on paper administration (MOPH, 2017).

Thailand aims to solve these barriers by providing central coordination and support the digitalisation of its health system through Thailand’s eHealth Strategy (2017 – 2026) published by the MOPH. The strategy aims to improve the national eHealth environment by mobilising all related stakeholders in the Thai health system to build up the
health information and eventually create ‘eHealth Leadership’ where digital technology contributes to the health and economy of Thailand.

Progress Thailand made to accomplish this vision is the implementation of health data standards, such as the citizen ID system, the health provider facility ID system, standard data sets for reporting and insurance reimbursement systems, and the International Classification of Diseases (ICD). Find more developments here.

After multiple pilot projects which have been executed since the early 2000s, telemedicine is starting to be implemented on a larger scale in Thailand. Telemedicine now serves as a prominent solution to increase the capacity and extend the reach of Thailand’s rural health infrastructure (Textbox 6). In urban areas, hospitals such as the Siriraj Hospital and the King Chulalongkorn Memorial Hospital, which have partnered with the Japanese Telemedicine Development Center of Asia (TEMDEC), are very active in piloting projects.

Telemedicine is also implemented increasingly in Thailand’s private hospitals, to improve the efficiency of services and increase the convenience for patients (Textbox 7).

eLearning programmes are becoming more prominent due to the efforts of the Thailand Cyber University Project in which the Thai Office of the Commission on Higher Education stimulates eLearning tools to improve the access to higher education. At the national level, the use of eLearning to teach health sciences students was estimated at medium level (between 25% and 50% of institutes and/or courses).

Text box 5: **Bumrungrad International Hospital pilots AI in pathogen resistance detection**

Thailand’s leading hospitals seek to experiment with innovative technologies. Bumrungrad International Hospital has partnered with the American company Biotia to pilot artificial intelligence (AI), sequencing-based technology to revolutionize pathogen and drug resistance detection. The technology has the potential to cut costs by drastically shortening the time needed to identify pathogens, antimicrobial resistance markers, and virulence factors. Learn more.

Text box 6: **State launches telemedicine in rural areas**

The government has launched a telemedicine programme to enable 32 hospitals in rural areas to offer telemedicine services. The hospitals are expected to become operational by the fourth quarter of 2019. The project will focus on patients four illness types: high blood pressure, diabetes, eye disease and skin disease. The programme, a joint effort of the Public Health Ministry and the National Broadcasting and Telecommunications Commission (NBTC) Learn more.

Text box 7: **Samitivej debuts virtual hospital in Thailand**

Thailand’s private sector capitalises on the digitalisation of healthcare. The private hospital brand Samitivej has joined forces with six telehealth corporations to launch the Samitivej Virtual Hospital: offering teleconsultations, home testing and medicine delivery services. Learn more.

**Opportunities**

The Thai health system shows to be very proactive in piloting eHealth solutions and the government has set ambitious plans to make use of health information technologies to increase the quality, accessibility and affordability of its health system. Thailand is open to cooperate on:
Developing the Thai health information infrastructure. As Thailand has started major efforts to improve the regulatory environment, eHealth organisations now are able to engage with decisionmakers in an early stage of development.

Implementing telemedicine solutions in both urban areas with high population densities and remote rural areas with a developing digital infrastructure.

Increasing the competitiveness of Thailand’s private hospitals, which have started to capitalise on the high mobile subscription rates in Thailand by implementing telemedicine solutions to help their tech-savvy potential clients browse for doctors and health services, as well as book appointments and contact medical professionals.

Developing eLearning tools in (continuous) medical education.

Market Entry
The Thai eHealth market is a developing market with many barriers such as an underdeveloped infrastructure and shortage of professionals which complicate the implementation of eHealth. Technologies which surpass/nullify these barriers are welcomed by Thai decisionmakers.

- The eHealth market is fragmented especially in Thailand’s private sector in which individual hospital groups have created IT-systems independently from each other.
- The Thai Ministry of Public Health is the central actor in Thailand’s eHealth development as the driver of digital technology and innovation in Healthcare.
- Organisations which could help engaging with Thai stakeholders are:
  - Ministry of Public Health (MOPH)
  - Office of The National Broadcasting and Telecommunications Commission
  - National Electronics and Computer Technology Center (NECTEC)

6.4. Public Health
The Netherlands has key strengths in the sphere of Public Health. This refers to the identification and implementation of policy and practice in the health system which improves access, coverage, quality, or efficiency (health system strengthening). Organisations within this strength offer solutions in health financing, supply chain management, and emergency responses. Organisations typically partner with government, public health agencies and NGOs.

Trends
To make its extensive universal health care system more affordable, Thailand is looking to intervene in a number of actions which enable better management of its health system.

- **Concerns regarding the affordability of universal health coverage:** The Thai health system sees a trend of increasing costs after approximately 37 million Thai gained coverage under UCS in 2002 (Section 4.3). To sustain UCS Thailand looks at a wide array of possible adjustments such as higher co-payments (Antos, 2007; WHO, 2017; United Nations Development Programme, 2018 #2).

- **Future shortages and maldistributions of health professionals:** Thailand experiences health workforce shortages in particular pharmacists, primary care physicians and specialists. Thailand is also looking to increase the long-term care health workforce in anticipation of an ageing population, specifically in rural areas. Another minor but developing trend is public hospitals which increasingly struggle to retain doctors who resign for better paying jobs in the private sector (Sringammuang, 2017). Thailand addresses these challenges in ‘strategy 3’ of the Thai 12th National Health Development Plan (2017–2021). Thailand looks to develop and create a mechanism to increase the efficiency in managing human resources for health and increase the ratio of human resources for health (World Health Organization, 2017) (Sringammuang, 2017).

- **Underutilisation of primary healthcare:** The Thai population is accustomed to skip primary health care facilities to access secondary or tertiary care. This has led to overcrowding in many government hospitals, where many of the patients have relatively simple health issues (Prugsiganont & Jensen, 2017). Thailand
looks to better allocate patients across the Thai health system through smart referral approaches. A key strategy is to incentivise patients to utilise primary healthcare facilities (Fernquest & Charoensuthipan, 2017; Sringammuang, 2017). Recent data shows that the Thai population finds its way to primary care (family doctors) more and more (Tejativaddhana et al., 2018).

Opportunities
In order to increase the effectiveness and efficiency of its health system, Thailand is open to cooperate on:

- Improving its health financing models to make it more sustainable and enable it to better serve an ageing population.
- The management of hospitals, particularly regional and district hospitals and primary care facilities.
- Developing its health workforce to prepare it for future health challenges. Specific growth segments are pharmacists, specialists, primary care physicians, geriatricians and long-term care workers in the health workforce.

Market Entry Considerations
It is recommended to approach the Ministry of Public Health (MOPH) to engage with the Thai health system.

- An overview of medical schools can be found here: Geneva Foundation for Medical Education and Research

6.5. Hospital Design & Build

The strength ‘Hospital Design and Build’ encompasses solutions which help public and private health systems to expand and improve health infrastructure. Organisations within this strength offer solutions in design (architecture), engineering, building, planning of operations and maintenance, and project management. Providers of such solutions typically partner with public or private hospital project developers and assigned project managers.

Trend

Government hospitals show limited growth beyond 2018 (Krungsri, 2018). After years of large expansions, Thailand seems to prioritise smart upgrades and improvements in the management of hospitals over large-scale investment in expanding the health infrastructure (12th National Health Development Plan (2017–2021) & National Strategic Plan for Public Health (2017–2036)).

In the private sector some growth takes place as around 2,700 beds were expected to be added between 2018 and 2020 (Krungsri, 2018). Most of these beds have been added to international wings in hospitals in order to provide better quality service to foreign patients.

Projects which are currently being started or are in progress are mentioned in table 11.

A growth segment of the Hospital Design and Build market is the elderly care industry. Private Thai and foreign developers see the market potential of the ageing higher income groups in Thailand and neighbouring countries (Thepgumpanat & Setboonsarng, 2018) (Krungsri, 2017). Project developers have build medical cities, retirement communities, private nursing homes and assisted-living facilities (Text box 4).

The current demand for construction seems to be filled by a strong local sector and larger foreign companies. Please view Annex 9 for a number of larger players in Thailand.
Opportunity

Thailand’s large health infrastructure is of relatively good quality but has varying degrees of coverage across the country. As Thailand seeks to sustain the capacity of its universal health coverage, the country’s open to cooperate on:

- Upgrading existing facilities health facilities to expand their scope of services and efficiency.
- Upgrading the private sector’s high-end facilities to attract medical tourists and the Thai upper income groups.
- Developing nursing homes and assisted living facilities.

Find a number of ongoing/recent projects below:

Table 11: List of Thai Hospitals and Elderly Care projects

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Recent Expansions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospitals</strong></td>
<td></td>
</tr>
<tr>
<td>Bangkok Dusit Medical Services Plc (BDMS)</td>
<td>Wellness clinic and trauma centre</td>
</tr>
<tr>
<td>Vimutti Hospital</td>
<td>New hospital</td>
</tr>
<tr>
<td>Thonburi Hospital Group</td>
<td>Medical Centre</td>
</tr>
<tr>
<td>Vibhavadi Hospital</td>
<td>Five hospitals</td>
</tr>
<tr>
<td>Siriraj Hospital</td>
<td>Navamindrapobitr 84th Anniversary Building</td>
</tr>
<tr>
<td>Rangsit University</td>
<td>RSU International Hospital</td>
</tr>
<tr>
<td><strong>Elderly care facilities</strong></td>
<td></td>
</tr>
<tr>
<td>Thonburi Healthcare Group Pcl</td>
<td>Jin Wellbeing County, a ‘medical city’ for senior Thai and foreigners</td>
</tr>
<tr>
<td>Magnolia Quality Development Corporation</td>
<td>Wellness center offering elderly care services with specialists in areas such as dementia</td>
</tr>
<tr>
<td>SC Asset Corporation Pcl</td>
<td>Luxury residences</td>
</tr>
<tr>
<td>Care Resort Chiang Mai</td>
<td>Nursing home</td>
</tr>
<tr>
<td>Meesuk Society</td>
<td>Luxury residences</td>
</tr>
</tbody>
</table>
Market Entry Considerations

- Thailand’s hospital build market is strong on the supply side, leading to a competitive sector.
- The two main channels for foreign companies Thailand to enter the hospital build markets are through government procurement or directly engaging with hospitals.
- Foreign hospital build organisations are recommended to find a reputable local representative with good access to the procuring agency and knowledge of specific procurement requirements to serve as an intermediary in government and private sector projects.
CONCLUSIONS

This report has highlighted the top reasons for Dutch companies and organizations to take a closer look at the Thai healthcare market. The report also spelled out trends, opportunities, and market entry considerations in five main areas of interest of the Dutch health sector: Medical Devices (& Supplies), Mobility & Vitality, eHealth, and (to a lesser extent) Public Health and Hospital Build.

The challenges of rapid increasing costs and an overcrowded health infrastructure are present since an estimated 37 million Thai entered the health system in 2002. The pressure of these challenges is growing as the Thai population ages rapidly and the burden of chronic diseases increases. Thai decision makers in healthcare seek to reform the health system and implement innovative technologies to keep Thailand’s universal health system affordable and accessible.

The priority of the public sector in Thailand is improving the efficiency of health services. To achieve this, Thailand invests in smart management of hospitals and patient flows, the productivity of public hospitals through innovative technologies, the building of health services to better accommodate elderly patients, the development of a national health information infrastructure and health promotion initiatives.

Thailand’s large and developed private sector meanwhile looks to establish/strengthen its position as regional medical hub. ASEAN is a competitive region for private (elderly) healthcare providers, which target high-income groups within their own countries and aim to attract more medical tourists. The private sector therefore has a high incentive to improve the quality and affordability of its services to appeal to these target groups.

Furthermore, both public and private Thai decisionmakers are very receptive to international expertise and especially welcome partners which are willing to invest in Thailand. This attitude, in combination with recent developments, make the Netherlands Life Sciences & Health sector a logical partner, as the Netherlands is a frontrunner in the digitalisation of healthcare, renowned for its long-term care and primary healthcare system and related innovative approaches, and home to multiple high-ranked university medical centres and (related) research infrastructures and spin-off companies.

Next steps

This report marks an important step to strengthen the bilateral healthcare relation between Thailand and The Netherlands. Together with the Netherlands Embassy in Bangkok and the Embassy in Singapore, future steps and activities will be identified to further connect Thai and Dutch healthcare stakeholders and build towards sustainable healthcare relationships. Please get in touch with the Netherlands Embassy and TFHC for more information.
Annex 1 – List of Interviewees

An important element of the study was the fact-finding visit to Thailand, whereby a delegation from TFHC, accompanied by representatives of the Netherlands Embassy in Thailand gained insights from key stakeholders in the Thai health sector. The fact-finding visit took place over two separate visits totalling a period of one week and included 7 meetings and 4 round table discussions with representatives from the public and private sector, operating at the national, regional and local level. These organisations are listed in chronological order below:

1. Ministry of Public Health (MOPH)
2. Thailand Center of Excellence for Life Sciences (TCELS)
3. Faculty of Medicine Ramathibodi Hospital, Mahidol University
4. Bangkok Hospital
5. Roundtable ‘Latest Health Trends & Developments in Thailand’
   A. Health Systems Research Institute
   B. Faculty of Medicine, Chulalongkorn University
   C. Thailand Institute of Scientific and Technological Research
   D. National Science and Technology Development Agency
   E. Faculty of Medicine, Thammasat University
   F. Thailand Center of Excellence for Life Sciences
7. Roundtable ‘Adoption of Innovation and eHealth in Thailand’
   A. Thai Health Tech Trade Association
   B. Thai Medical Device Technology Industry Association
   C. Thai Business Incubators and Science Parks Association (Thai-BISPA)
   D. National Science and Technology Development Agency
   E. Thailand Center of Excellence for Life Sciences
8. Netherlands-Thai Chamber of Commerce
9. Center for Medical Genomics
10. Excellence Centre for Drug Discovery
11. Roundtable European Association for Business and Commerce
   A. Bayer
   B. B.Braun
   C. Zuellig Pharma
   D. Pfizer
## Annex 2 – Leading causes of Death in Thailand

<table>
<thead>
<tr>
<th>Health indicators (2017)</th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy</td>
<td>75.5</td>
<td>82.1</td>
</tr>
<tr>
<td>Healthy life expectancy</td>
<td>66.8</td>
<td>72.1</td>
</tr>
</tbody>
</table>

### Leading causes of:

#### Death

<table>
<thead>
<tr>
<th></th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ischemic heart disease</td>
<td>1. Ischemic heart disease</td>
</tr>
<tr>
<td>2.</td>
<td>Lower respiratory infection</td>
<td>2. Alzheimer's disease</td>
</tr>
<tr>
<td>4.</td>
<td>Road injuries</td>
<td>4. Stroke</td>
</tr>
<tr>
<td>5.</td>
<td>Alzheimer's disease</td>
<td>5. COPD</td>
</tr>
<tr>
<td>6.</td>
<td>COPD</td>
<td>6. Colorectal cancer</td>
</tr>
<tr>
<td>7.</td>
<td>Chronic kidney disease</td>
<td>7. Lower respiratory infection</td>
</tr>
<tr>
<td>10.</td>
<td>Cirrhosis</td>
<td>10. Falls</td>
</tr>
</tbody>
</table>

#### Premature death

<table>
<thead>
<tr>
<th></th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Road injuries</td>
<td>1. Lung cancer</td>
</tr>
<tr>
<td>2.</td>
<td>Stroke</td>
<td>2. Ischemic heart disease</td>
</tr>
<tr>
<td>3.</td>
<td>Ischemic heart disease</td>
<td>3. Stroke</td>
</tr>
<tr>
<td>5.</td>
<td>Lower respiratory infection</td>
<td>5. COPD</td>
</tr>
<tr>
<td>7.</td>
<td>Cirrhosis</td>
<td>7. Breast cancer</td>
</tr>
<tr>
<td>8.</td>
<td>Chronic kidney disease</td>
<td>8. Self-harm</td>
</tr>
<tr>
<td>9.</td>
<td>Lung cancer</td>
<td>9. Lower respiratory infection</td>
</tr>
</tbody>
</table>

#### Disability

<table>
<thead>
<tr>
<th></th>
<th>Thailand</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low back pain</td>
<td>1. Low back pain</td>
</tr>
<tr>
<td>2.</td>
<td>Headache disorders</td>
<td>2. Headache disorders</td>
</tr>
<tr>
<td>3.</td>
<td>Other musculoskeletal</td>
<td>3. Diabetes</td>
</tr>
<tr>
<td>4.</td>
<td>Age-related hearing loss</td>
<td>4. Neck pain</td>
</tr>
<tr>
<td>5.</td>
<td>Diabetes</td>
<td>5. Depressive disorders</td>
</tr>
<tr>
<td>6.</td>
<td>Depressive disorders</td>
<td>6. Anxiety disorders</td>
</tr>
<tr>
<td>7.</td>
<td>Neck pain</td>
<td>7. Age-related hearing loss</td>
</tr>
<tr>
<td>8.</td>
<td>Blindness and vision impairment</td>
<td>8. Falls</td>
</tr>
<tr>
<td>9.</td>
<td>Anxiety disorders</td>
<td>9. COPD</td>
</tr>
<tr>
<td>10.</td>
<td>COPD</td>
<td>10. Oral disorders</td>
</tr>
</tbody>
</table>

Source: (World Health Organization, 2018); (Institute for Health Metrics and Evaluation, 2018)
Annex 3 – Organizational Structure of the Thai Health System

Source: (World Health Organization, 2015).
Annex 4 – Health Financing and Service Provision in Thailand after Achieving Universal Coverage

Source: (World Health Organization, 2015).

CSMBS: Civil Servant Medical Benefit Scheme; DRG: diagnosis-related group; IP: inpatient; OP: outpatient; SHI: Social Health Insurance; UCS: Universal Coverage Scheme. 
Source: Synthesis by the Author
### Annex 5 – Health Funding Schemes in Thailand

<table>
<thead>
<tr>
<th></th>
<th>Universal Coverage Scheme (UCS)</th>
<th>Social Health Insurance (SHI)</th>
<th>CSMBS</th>
<th>Private insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
<td>Capitation for outpatients and global budget plus DRG for inpatients plus additional payments for accident and emergency and high-cost care.</td>
<td>Inclusive capitation for outpatient and inpatient services plus additional adjusted payments for accident and emergency and high-cost care, utilisation percentile and high-risk adjustment.</td>
<td>Fee for service, direct disbursement to mostly public providers and diagnosis-related group for inpatient care.</td>
<td>Several options for deductibles, coinsurance and co-payments. Retrospective Reimbursement.</td>
</tr>
<tr>
<td><strong>Eligibility</strong></td>
<td>Remaining population</td>
<td>Private-sector employees (excludes dependents and maternity benefits)</td>
<td>Civil servants, pensioners and their dependents</td>
<td>Additional health insurance scheme for those who can afford the high premiums.</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td>Ambulatory and inpatient care including accident and emergency and rehabilitation services, and preventive and health promotion services</td>
<td>Both ambulatory and inpatient care, including accident and emergency and rehabilitation services</td>
<td>Both ambulatory and inpatient care, including accident and emergency and rehabilitation services at public hospitals (more limited options in private hospitals)</td>
<td>Free choice of healthcare providers, either public or private. Service coverage depends on the plan chosen by the beneficiary.</td>
</tr>
</tbody>
</table>

Source: (Tangcharoensathien et al., 2018.)
Annex 6 – Distribution of Health Facilities in Thailand

Source: (Asia Actual, 2019)
## Annex 7 – Key Players in Thailand’s Health system

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Function</th>
<th>Website</th>
<th>Contact details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASEAN Federation of Medical Device Industry</td>
<td>ASEAN Federation of Medical Device Industry represents a come together among Medical Device Industry Associations in the Southeast Asia Region, and it comprises of 8 trade associations.</td>
<td>URL</td>
<td>Email</td>
</tr>
<tr>
<td>Association of Medical Device Industry (AMDI)</td>
<td>Regional medical technology association. Chulabhorn Research Institute is a biomedical and chemistry research institute in Bangkok.</td>
<td>URL</td>
<td>T: +65 6816 3180 M: <a href="mailto:info@apacmed.org">info@apacmed.org</a></td>
</tr>
<tr>
<td>Chulabhorn Research Institute</td>
<td></td>
<td>URL</td>
<td>T: +66 2553 8555</td>
</tr>
<tr>
<td>European Association for Business and Commerce</td>
<td>A platform representing interests of the European business community in Thailand. Accreditation body.</td>
<td>URL</td>
<td>T: 02 2528751 52 M: <a href="mailto:office@eabc-thailand.org">office@eabc-thailand.org</a></td>
</tr>
<tr>
<td>Healthcare Accreditation Institute (HAI)</td>
<td></td>
<td>URL</td>
<td>-</td>
</tr>
<tr>
<td>Health Systems Research Institute</td>
<td>An autonomous state agency responsible for promoting research that assists in the formulation of a national health policy and the coordinator for mobilising health systems reform in Thailand.</td>
<td>URL</td>
<td>T: 66 2832 9200, Email. M: <a href="mailto:hsri@hsri.or.th">hsri@hsri.or.th</a></td>
</tr>
<tr>
<td>Medical Council of Thailand</td>
<td>Thailand’s professional regulatory body of the medical profession.</td>
<td>URL</td>
<td>-</td>
</tr>
<tr>
<td>National Health Commission Office (NHCO)</td>
<td>The NHCO fosters cooperation between government, civil society, and the private sector to build health policies.</td>
<td>URL</td>
<td>T: +66 2 832 9124 M: <a href="mailto:nationalhealth@nationalhealth.or.th">nationalhealth@nationalhealth.or.th</a></td>
</tr>
<tr>
<td>National Health Security Office (NHSO)</td>
<td>Manages the Thai health budget.</td>
<td>URL</td>
<td>-</td>
</tr>
<tr>
<td>National Innovation Agency</td>
<td>A public organisation that undertakes a broad-based and systematic approach in facilitating innovation development in Thailand.</td>
<td>URL</td>
<td>-</td>
</tr>
</tbody>
</table>
National Science and Technology Development Agency

Research HUB with four affiliated research: The National Centre for Genetic Engineering Biotechnology, Metal and Materials Technology Centre, the National Electronics and Computer Technology and Nanotechnology Centre (NANOTEC: www.nanotec.or.th).

Thai Business Incubators and Science Parks Association (Thai-BISPA)

Association of 60 business incubators and science parks.

Thailand Center of Excellence for Life Sciences

Promotes and supports innovations, research and knowledge related to the commercialization of life sciences products and services in Thailand.

Thai Health Information Standards Development Center (THIS)

An affiliated agency of the Health Systems Research Institute (HSRI) which researches HIE standards.

Thai Health Promotion Foundation (ThaiHealth)

Health promotion agency.

Thailand Incentive and Convention Association (TICA)

A non-profit organisation established in 1984 to help the growth of Thailand as a preferred destination for meetings, incentives, conventions and exhibitions.

Thailand Institute of Scientific and Technological Research

Promotes R&D and transfer technology and innovation to industry.

Thai Medical Device Suppliers Association

Medical technology association.

Thailand Nursing and Midwifery Council

Thailand's professional regulatory body for nurses and midwives.

The Dental Council Thailand

Thailand's professional regulatory body for dentists.
## Annex 8 – Key Events: Trade Fairs, Exhibitions and Forums

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Main function</th>
<th>Upcoming date(s)</th>
<th>Country</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmatech Asia</td>
<td>Exhibition on pharmaceutical, nutraceutical and cosmetics technology</td>
<td>12 – 15 Jun 2019</td>
<td>Thailand</td>
<td>Bangkok International Trade &amp; Exhibition Centre (BiTEC)</td>
</tr>
<tr>
<td>Medical Devices ASEAN</td>
<td>Exhibition on medical technology</td>
<td>10 – 12 July</td>
<td>Thailand</td>
<td>Impact Exhibition Center Bangkok</td>
</tr>
<tr>
<td>Intercare Asia</td>
<td>International expo for healthcare and wellness</td>
<td>11-13 July</td>
<td>Thailand</td>
<td>Bangkok International Trade &amp; Exhibition Centre</td>
</tr>
<tr>
<td>OS+H</td>
<td>Regional occupational safety and health exhibition / conference</td>
<td>26 – 28 Aug. 2020</td>
<td>Singapore</td>
<td>Singapore</td>
</tr>
<tr>
<td>Medical Fair Asia</td>
<td>Regional hospital, medical and pharmaceutical exhibition</td>
<td>11 – 13 Sept. 2019</td>
<td>Singapore or Thailand</td>
<td>Takes place in Bangkok and Singapore</td>
</tr>
<tr>
<td>Thailand Lab International</td>
<td>Exhibition on Laboratory Equipment &amp; Technology, Biotechnology &amp; Life Sciences (co-organised by jaarbeurs Utrecht through VNU Exhibitions Asia Pacific Co., Ltd)</td>
<td>– 27 Sept 2019</td>
<td>Thailand</td>
<td>Bangkok International Trade &amp; Exhibition Centre (BiTEC)</td>
</tr>
</tbody>
</table>
Annex 9 – Prominent Hospital Build companies

Thailand's local Hospital Design & Build sector houses some major domestic players.

<table>
<thead>
<tr>
<th>Examples of major organisations</th>
<th>Country of origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sino-Thai Engineering &amp; Construction</td>
<td>Thailand</td>
</tr>
<tr>
<td>Pre-Built Public Co. Ltd.</td>
<td>Thailand</td>
</tr>
<tr>
<td>Nawarat Patanakarn Public Co. Ltd.</td>
<td>Thailand</td>
</tr>
<tr>
<td>Archetype Group</td>
<td>Vietnam</td>
</tr>
<tr>
<td>KTECH Construction Public Limited</td>
<td>Thailand</td>
</tr>
</tbody>
</table>
REFERENCES


Sharan, P., Sagar, R. & Kumar, S., 2017. Mental health policies in South-East Asia and the public health role of screening instruments for depression. WHO South-East Asia J Public Health, 6(1), pp. 5-11.


Agenda

For more information on upcoming activities:

www.tfhc.nl/agenda/

www.rvo.nl/actueel/evenementen

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