General Information

Singapore is ranked number 6 on the WHO’s list of 191 countries with the best healthcare system. It is generally acknowledged as having one of the most successful healthcare systems in the world in terms both efficiency in financing and the results achieved in community health outcomes.

The Singaporean healthcare system comprises of public and private healthcare. It is complemented by rising standards of living, housing, education, medical services, safe water supply and sanitation, and preventive medicine. Good, affordable basic healthcare is available to Singaporeans through subsidized medical services at public hospitals and clinics. Singapore’s healthcare system is a mix of public and private care financing, which requires individuals to take responsibility for their own health and for much of their spending on medical care. 80% of the primary healthcare services are provided by private practitioners while the government polyclinics provide the remaining 20%. However, the opposite is true for more costly hospitalization care, whereby 80% of it is provided by the public sector and 20% by the private sector. There are 16 private hospitals, 15 public hospitals, 18 polyclinics as well as upcoming medical centres in Singapore. All healthcare facilities are required to comply with the standards under the Private Hospitals and Medical Clinics (PHMC) Act/Regulations.

Singapore has developed a healthcare system that achieves positive health outcomes with a relatively low expenditure. The healthcare system is largely privately funded with about one-third financed by the government through taxation.

<table>
<thead>
<tr>
<th>GOVERNMENT HEALTH EXPENDITURE</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12 ¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Expenditure (SGD million)</td>
<td>3258</td>
<td>2,920</td>
<td>3,458</td>
</tr>
<tr>
<td>Development Health Expenditure (SGD million)</td>
<td>485</td>
<td>453</td>
<td>617</td>
</tr>
<tr>
<td>Government Health Expenditure (SGD million)</td>
<td>3846</td>
<td>4079</td>
<td>4802</td>
</tr>
<tr>
<td>Government Health Expenditure (as percentage of total government expenditure %)</td>
<td>8.2</td>
<td>8.2</td>
<td>9.6</td>
</tr>
<tr>
<td>Government Health Expenditure per person ² (SGD)</td>
<td>1020</td>
<td>1077</td>
<td>1300</td>
</tr>
</tbody>
</table>

Source: Ministry of Health Singapore
¹ Estimated
Singapore benefits from the support and encouragement which authorities have expressed and various advantages of location, such that many international companies have settled and invested in Research and Development (henceforth R&D) here. According to the EDB Biomedical factsheet updated in 2013, there are more than 7,100 researchers carrying out biomedical sciences R&D in more than 50 companies and 30 public-sector institutes, with more than S$1.51 billion dedicated to R&D annually.

**Research and Development**

Singapore has established its position as a global hub for pharmaceutical and medical technology manufacturing. Leading companies, including 8 of the top 10 pharmaceutical (i.e. Bayer Schering Pharma, Pfitzer, GlaxoSmithKline, Roche, Merck and Novartis) and all of the top 10 medical technology companies, have established their regional headquarters in Singapore as a bridge head to the Asian markets.

According to the Ministry of Health Singapore in 2013, total expenditures for R&D in 2008 accounted for SGD 7.13bn, whereof the Biomedical and Related Sciences amounted to SGD 1.06bn. Singapore has also invested S$3.7 billion to the improvement of biomedical infrastructure and further R&D projects in this field. The 12% increase in R&D spending from 2006 to 2011 is a clear sign of the importance this industry is regarded with. The main reason for this growth originates from higher R&D expenditures in the private sector. However, that of the public sector has also risen considerably.

### R&D EXPENDITURE BY AREA OF RESEARCH 2011

<table>
<thead>
<tr>
<th>Area of Research</th>
<th>Total</th>
<th>Private Sector</th>
<th>Higher Education Sector</th>
<th>Government Sector</th>
<th>Public Research Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>7,448.5</td>
<td>4,628.2</td>
<td>1086.4</td>
<td>758.3</td>
<td>975.6</td>
</tr>
<tr>
<td>Agriculture &amp; Food Science</td>
<td>155.2</td>
<td>137.0</td>
<td>2.1</td>
<td>16.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Engineering &amp; Technology</td>
<td>4,675.1</td>
<td>3,520.0</td>
<td>340.6</td>
<td>360.2</td>
<td>454.3</td>
</tr>
<tr>
<td>Biomedical &amp; Related Science</td>
<td>1,372.8</td>
<td>517.2</td>
<td>288.0</td>
<td>179.7</td>
<td>387.9</td>
</tr>
<tr>
<td>Natural Science (excl. Biological Sciences)</td>
<td>843.4</td>
<td>372.3</td>
<td>292.4</td>
<td>107.6</td>
<td>71.0</td>
</tr>
<tr>
<td>Energy</td>
<td>81.0</td>
<td>7.7</td>
<td>72.4</td>
<td>0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>Others</td>
<td>321.0</td>
<td>73.9</td>
<td>90.9</td>
<td>94.0</td>
<td>62.2</td>
</tr>
</tbody>
</table>

Source: Yearbook of Statistics Singapore, 2013

As Singapore’s government aims for state-of-the-art innovation, a biomedical sciences initiative was launched in 2000 and several new research facilities have been established in the last few years to promote continued and high standards of research.

**Biopolis** was conceived as the cornerstone to a vision to build up the biomedical sciences as a key pillar of Singapore’s economy. Home to public as well as corporate research laboratories, Biopolis brings together over 2,000 scientists, researchers, technicians and administrators in one location. Singapore grows in the medtech
sector in the areas of cardiovascular, eye care, diagnostic, imaging, research tools, scientific instruments and orthopedics by building up the necessary capabilities and providing support for outsourcing options and exploiting synergies with the biomedical sector research cluster.

As stated in the Biomedical Sciences Factsheet (last updated in 2013), the Government has invested more than SGD 5 billion in building up industrial, human and intellectual capital thus far, and remains fully committed to developing this sector.

**Medical Technology Industry**

The Medical Technology sector is an important part of Singapore’s developing Biomedical Sciences (BMS) industry. In 2011, Singapore’s medical technology sector accounted for SGD 4.3 billion in output while creating around 9000 jobs. The industry’s output has reflected great progress as it almost tripled from SGD 1.5 billion in 2000 to the aforementioned 4.3 billion. With regard to the future success, Singapore’s medical technology sector is expected to grow to SGD 5 billion by 2015 as more international players invest in Singapore.

The leading international firms which have set up manufacturing, R&D centres and headquarters in Singapore include **AB SCIEX**, **Baxter International**, **Becton Dickinson**, **BIOTRONIK**, **Hoya Surgical Optics**, **Life Technologies**, **Medtronic** and **Siemens Medical Instruments**. As a result, Singapore produces 10% of the world’s contact lenses, more than 70% of microarrays and accounts for around half the global output of thermal cyclers and mass spectrometers. Singapore also offers excellent intellectual property protection and enforcement, thereby assuring investors of reliable, continued support for process development and outsourced manufacturing activities. Coupled with the city-state’s global logistics capability, connectivity, comprehensive network of Free Trade Agreements (FTAs) and competitive tax environment, manufacturers are well positioned to achieve operational cost-competitiveness and enhanced outreach to Asia-Pacific markets.

**Good Distribution Practice for Medical Devices (GDPMDS)**

This GDPMDS is initiated by the Centre for Medical Device Regulation, Health Products Regulation Group and Health Sciences Authority of Singapore (HSA). GDPMDS is applicable to all companies that import and supply by wholesale medical devices in Singapore. GDPMDS requires the organisation to demonstrate its ability to maintain quality of medical device products throughout the supply chain.

Companies that are involved in distribution or importing medical devices in Singapore are required to obtain the GDPMDS certificate prior to applying for Importer or Wholesaler’s License. In order to be certified by the certification body, companies are required to have implemented a quality management system that adheres to current good distribution practices. Since May 2010 there has been a prohibition against manufacture, import and wholesale of medical devices by unlicensed parties. Moreover, the supply of unregistered medium and high-risk medical devices is prohibited. Likewise, the supply of unregistered low-risk medical devices will be banned from
May 2011 onwards as well.

The HSA only recognises SAC-accredited GDPMDS certification of importers and wholesalers of medical devices.

Outlook

iN2015

The goal of the iN2015 Healthcare and Biomedical Sciences plan is to improve access to the patients’ medical history through an infocomm-enabled personalised healthcare delivery system to achieve high quality clinical care, service excellence, cost-effectiveness and strong clinical research. The project facilitates the hassle-free handing over of patients from one physician to another by ensuring the availability of such information so that they can be treated holistically. The plan aims to achieve the following outcomes:

• A common information network and data standards that enable integration and coordination of care such that patients are treated at the most appropriate point of care;
• Linkages to outsourced clinical services or clinical decision support systems to reduce duplicate tests, costs and medical errors;
• Allowing individuals greater ease to access health information to manage their own health;
• Linkages between biomedical and healthcare to apply new biomedical discoveries to come up with novel healthcare applications and treatments.

In addition, this scheme also aims to work on and improve Singapore’s role as a healthcare infocomm centre while also promoting it as a biomedical sciences and medical hub. For the former, this involves connecting with foreign patients via tele-medicine while they are abroad and attracting talent to develop related research in Singapore for the latter.

Medical Tourism

The healthcare system is a dynamic market and expected to further develop in the coming years. This forecast is not only based on the “greying” of the city’s population but also the government’s intensive investment in Health Tourism. Singapore is reputed for its excellent medical services and institutes. Singapore has seen a rise in the number of tourists seeking medical care and treatment here. Medical tourism, in 2011 alone, accounts for more than S$900 million. The most sought after treatments are kidney transplants, liver transplants, and that for diseases associated with blood disorders. The presence of such great demand entails that Singapore is a viable market for health and medical tourism and that there is potential for further development.
Sources:

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- GTAI: Medizintechnik Singapur Dezember 2009
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- My MED Holiday www.mymedholiday.com/country/singapore
- GDPMDS gdpmds.com/
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- http://www.eclareon.eu

DATE: December 2013