

6. INFORMATION ON OUR GROUP *(cont'd)*

6.3.30 Subsidiary of Pantai Diagnostics

6.3.30.1 PT Pantai Bethany

(i) History and business

PT Pantai Bethany was incorporated in Republic of Indonesia under the laws of Republic of Indonesia on 17 January 2009 as a limited liability company and commenced its operation in August 2009.

The principal activities of PT Pantai Bethany are the provision of medical diagnostics laboratory testing and analytical services.

(ii) Share capital

As at the LPD, the authorised share capital of PT Pantai Bethany is USD1,200,000.00 comprising 1,200 shares of USD1,000.00 each. The issued and paid-up share capital of PT Pantai Bethany is USD300,000.00 comprising 300 shares of USD1,000.00 each.

There has been no change to the issued and paid-up share capital of PT Pantai Bethany since its incorporation on 17 January 2009 up to the LPD.

(iii) Shareholder*

As at the LPD, PT Pantai Bethany is a 65.0%-owned subsidiary of Pantai Diagnostics, whilst PT Bethany Karya Medika Internasional owns the remaining 35.0% in PT Pantai Bethany.

Note:

* *In 27 April 2012, Pantai Diagnostic, Mr. Aswin Tanuseputra, PT Bethany Karya Medika Internasional and PT Pantai Bethany, executed a Conditional Sale and Purchase Agreement according to which, Pantai Diagnostic shall sell its shares constituting 65.0% of the issued and paid up capital in PT Pantai Bethany to Mr. Aswin Tanuseputra. However the share transfer has not yet been executed as at the LPD. The share transfer is expected to be executed within 2012.*

(iv) Subsidiary and associate

As at the LPD, PT Pantai Bethany does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP *(cont'd)*

6.3.31 Subsidiaries of Parkway Healthtech

6.3.31.1 Goldlink Investments (Company No. 200201947Z)

(i) History and business

Goldlink Investments was incorporated in Singapore under the Singapore Companies Act on 12 March 2002 as a private company limited by shares.

Goldlink Investments is currently dormant.

(ii) Share capital*

As at the LPD, the issued and paid-up share capital of Goldlink Investments is SGD2.00 comprising two ordinary shares.

Note:

* Under the Singapore Companies Act, there is no requirement to have an authorised share capital and par value for shares.

There has been no change to the issued and paid-up share capital of Goldlink Investments for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Goldlink Investments is a wholly-owned subsidiary of Parkway Healthtech.

(iv) Subsidiary and associate

As at the LPD, Goldlink Investments does not have any subsidiary or associate.

6.3.31.2 Drayson Investments (Company No. 200201945W)

(i) History and business

Drayson Investments was incorporated in Singapore under the Singapore Companies Act on 12 March 2002 as a private company limited by shares.

Drayson Investments is currently dormant.

(ii) Share capital*

As at the LPD, the issued and paid-up share capital of Drayson Investments is SGD2.00 comprising two ordinary shares.

Note:

* Under the Singapore Companies Act, there is no requirement to have an authorised share capital and par value for shares.

There has been no change to the issued and paid-up share capital of Drayson Investments for the past three years preceding the LPD.

6. INFORMATION ON OUR GROUP *(cont'd)*

(iii) Shareholder

As at the LPD, Drayson Investments is a wholly-owned subsidiary of Parkway Healthtech.

(iv) Subsidiary and associate

As at the LPD, Drayson Investments does not have any subsidiary or associate.

6.3.32 Subsidiaries of Gleneagles International

6.3.32.1 Gleneagles Development (Company No. 199102466Z)

(i) History and business

Gleneagles Development was incorporated in Singapore under the Singapore Companies Act on 29 May 1991 as a private company limited by shares and commenced its business on 29 May 1991.

The principal activities of Gleneagles Development are developing and managing turnkey hospital projects and as a holding company. Gleneagles Development has a joint venture with Apollo Hospitals Enterprise Ltd to operate Apollo Gleneagles Hospital.

(ii) Share capital*

As at the LPD, the issued and paid-up share capital of Gleneagles Development is SGD2.00 comprising two ordinary shares.

Note:

* *Under the Singapore Companies Act, there is no requirement to have an authorised share capital and par value for shares.*

There has been no change to the issued and paid-up share capital of Gleneagles Development for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Gleneagles Development is a wholly-owned subsidiary of Gleneagles International.

(iv) Subsidiary and associate

As at the LPD, Apollo Gleneagles is a joint venture of Gleneagles Development, details of which are set out in Section 6.3.46.1 of this Prospectus, and Gleneagles Development does not have any subsidiary.

6.3.32.2 Gleneagles UK (Company No. 2835180)

(i) History and business

Gleneagles UK was incorporated in the UK under the Companies Act 1985 on 12 July 1993 as a private company limited by shares and commenced its business on 12 July 1993.

The principal activity of Gleneagles UK is as a holding company.

6. INFORMATION ON OUR GROUP *(cont'd)*

(ii) Share capital

As at the LPD, the authorised share capital of Gleneagles UK is GBP2,000.00 comprising 2,000 shares (600 "A" Shares and 1,400 "B" Shares) of GBP1.00 each. The issued and paid-up share capital of Gleneagles UK is GBP2,000.00 comprising 2,000 ordinary shares of GBP1.00 each.

There has been no change to the issued and paid-up share capital of Gleneagles UK for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Gleneagles UK is a 65.0%-owned subsidiary of Gleneagles International and the remaining 35.0% in Gleneagles UK are owned by minority shareholders.

(iv) Subsidiary and associate

As at the LPD, The Heart Hospital is a wholly-owned subsidiary of Gleneagles UK, details of which is as set out in Section 6.3.46.1. As at the LPD, Gleneagles UK does not have any associate.

6.3.33 Subsidiaries of Medical Resources International

6.3.33.1 Shanghai Rui Xin (Company No. 310000400138637)

(i) History and business

Shanghai Rui Xin was incorporated in Shanghai under PRC Law on 31 January 1996 as a sino foreign joint venture limited liability company and commenced its business on 31 January 1996.

The principal activities of Shanghai Rui Xin are providing medical services.

(ii) Total investment and registered capital

As at the LPD, the total investment of Shanghai Rui Xin is USD5,000,000.00 and the registered capital of Shanghai Rui Xin is USD2,500,000.00. The paid-up capital of Shanghai Rui Xin is USD2,500,000.00.

There has been no change to the registered and paid-up capital of Shanghai Rui Xin for the past three years.

(iii) Shareholder

As at the LPD, 70.0% of the equity interests of Shanghai Rui Xin are held by Medical Resources while the remaining 30.0% is held by Shanghai Alliance Investment Ltd and Shanghai Guangci Medicine High-Tech Co Ltd at 15.0% each.

6. INFORMATION ON OUR GROUP (cont'd)

(iv) Subsidiary and associate

As at the LPD, Shanghai Rui Xin entrusts Shanghai International Trust Co., Ltd to hold 70.0% equity interests of Shanghai Rui Pu and Shanghai Rui Xin is the beneficiary of such 70.0% equity interests of Shanghai Rui Pu, details of which are set out in Section 6.3.47.1 of this Prospectus.

Other than the above, Shanghai Rui Pu is, for the purposes of Singapore Companies Act and Malaysian Companies Act, a subsidiary of Shanghai Rui Xin. As at the LPD, Shanghai Rui Xin does not have any other subsidiary or associate.

6.3.33.2 Shanghai Xin Rui (Company No. 310000400350413)

(i) History and business

Shanghai Xin Rui was incorporated in Shanghai under PRC Law on 29 July 2003 as a sino foreign joint venture limited liability company and commenced its business on 29 July 2003.

The principal activities of Shanghai Xin Rui are providing medical services.

(ii) Total investment and registered capital

As at the LPD, the total investment of Shanghai Xin Rui is RMB20,000,000.00 and the registered capital of Shanghai Xin Rui is RMB14,000,000.00. The paid-up capital of Shanghai Xin Rui is RMB14 million.

There has been no change to the registered and paid-up capital of Shanghai Xin Rui Healthcare Co Ltd for the past three years.

(iii) Shareholder

As at the LPD, 70.0% of the equity interest of Shanghai Xin Rui is held by Medical Resources while the remaining 30.0% is held by Shanghai Alliance Investment Ltd and Rui Jing Hospital of Medical School of Shanghai Jiao Tong University at 15.0% each.

(iv) Subsidiary and associate

As at the LPD, Shanghai Xin Rui does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP (cont'd)**6.3.33.3 Shanghai Rui Hong (Company No. 310000400348638)****(i) History and business**

Shanghai Rui Hong was incorporated in Shanghai under PRC Law on 11 July 2003 as a sino foreign joint venture limited liability company and commenced its business on 11 July 2003.

The principal activity of Shanghai Rui Hong is providing medical services.

(ii) Total investment and registered capital

As at the LPD, the total investment of Shanghai Rui Hong is RMB20,000,000.00 and the registered capital of Shanghai Rui Hong is RMB14,000,000.00. The paid-up capital of Shanghai Rui Hong is RMB14,000,000.00.

There has been no change to the registered and paid-up capital of Shanghai Rui Hong for the past three years.

(iii) Shareholder

As at the LPD, 70.0% of the equity interests of Shanghai Rui Hong is held by Medical Resources while the remaining 30.0% is held by Shanghai Alliance Investment Ltd and Rui Jing Hospital of Medical School of Shanghai Jiao Tong University at 15.0% each.

(iv) Subsidiary and associate

As at the LPD, Shanghai Rui Hong entrusts Shanghai International Group Assets Management Co. Ltd and Shanghai International Trust Co., Ltd to hold 100% equity interests of Shanghai Rui Xiang while Shanghai Rui Hong is the beneficiary of all equity interests of Shanghai Rui Xiang, details of which are set out in Section 6.3.48.1 of this Prospectus.

Other than the above, Shanghai Rui Hong does not have any other subsidiary or associate as at the LPD.

6.3.33.4 Shanghai Gleneagles (Company No. 310115400272551)**(i) History and business**

Shanghai Gleneagles was incorporated in Shanghai under PRC Law on 21 September 2011 as a wholly foreign owned limited liability company and commenced its business on 21 September 2011.

The principal activities of Shanghai Gleneagles are provision of hospital management service, consulting on hospital management & hospital investment.

6. INFORMATION ON OUR GROUP *(cont'd)*

(ii) Total investment and registered capital

As at the LPD, the total investment of Shanghai Gleneagles is USD1,400,000.00 and the registered capital of Shanghai Gleneagles is USD1,000,000.00. The paid-up capital of Shanghai Gleneagles is USD200,000.00.

There has been no change to the registered and paid-up capital of Shanghai Gleneagles since its incorporation.

(iii) Shareholder

As at the LPD, Shanghai Gleneagles is a wholly-owned subsidiary of Medical Resources.

(iv) Subsidiary and associate

As at the LPD, Shanghai Gleneagles does not have any subsidiary or associate.

6.3.34 Subsidiaries of Parkway Shanghai

6.3.34.1 Shanghai Shu Kang (Company No. 310103000207385)

(i) History and business

Shanghai Shu Kang was incorporated in Shanghai under PRC Law on 17 September 2010 as a domestic limited liability company and commenced its business on 17 September 2010.

The principal activities of Shanghai Shu Kang are related to healthcare industry investment management and providing consulting services.

(ii) Registered capital

As at the LPD, the registered capital of Shanghai Shu Kang is RMB30,000.00. The paid-up capital of Shanghai Shu Kang is RMB30,000.00.

There has been no change to the registered and paid-up capital of Shanghai Shu Kang since its incorporation.

(iii) Shareholder

As at the LPD, the equity interests of Shanghai Shu Kang Hospital Investment Management Co Ltd is held equally by two nominees. Each of the nominees has executed a power of attorney pursuant to which Parkway Shanghai is entitled to exercise the voting rights in relation to all of their shareholdings in Shanghai Shu Kang.

(iv) Subsidiary and associate

As at the LPD, Chengdu Rui Rong is the subsidiary of Shanghai Shu Kang while Shanghai Rui Pu is the associate of Shanghai Shu Kang, details of which are set out in Sections 6.3.49.1 and 6.3.50.1 of this Prospectus respectively.

6. INFORMATION ON OUR GROUP *(cont'd)*

6.3.35 Joint venture of Parkway Healthcare Mauritius

6.3.35.1 Apollo PET (Company No. U85110TN2004PLC052796)

(i) History and business

Apollo PET was incorporated in India under the (Indian) Companies Act, 1956 on 24 March 2004 as a public company and thereafter obtained a new certificate of incorporation on 11 October 2006 as a private company and commenced its business on 20 April 2004.

The principal activity of Apollo PET is the operation of a PET-CT radio imaging centre.

(ii) Share capital

As at the LPD, the authorised share capital of Apollo PET is Rs.200,000,000 comprising 20,000,000 equity shares of Rs. 10.00 each. The issued and paid-up share capital of Apollo PET is Rs. 170,000,000 comprising 17,000,000 equity shares of Rs. 10.00 each.

There has been no change to the issued and paid-up share capital of Apollo PET for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Apollo PET is a 50.0%-owned joint venture of Parkway-Healthcare Mauritius, whilst Apollo Hospitals owns the remaining 50.0% in Apollo PET.

6.3.36 Subsidiaries of Mount Elizabeth Medical

6.3.36.1 East Shore Medical (Company No. 197902757Z)

(i) History and business

East Shore Medical was incorporated in Singapore under the Singapore Companies Act on 15 September 1979 as a private company limited by shares.

East Shore Medical is currently dormant.

(ii) Share capital*

As at the LPD, the issued and paid-up share capital of East Shore Medical is SGD50,000,000.00 comprising 50,000,000 ordinary shares.

Note:

* *Under the Singapore Companies Act, there is no requirement to have an authorised share capital and per value for shares.*

There has been no change to the issued and paid-up share capital of East Shore Medical for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, East Shore Medical is a wholly-owned subsidiary of Mount Elizabeth Medical.[#]

Note:

Based on the information available to our Group as the LPD.

6. INFORMATION ON OUR GROUP *(cont'd)*

(iv) **Subsidiary and associate**

As at the LPD, East Shore Medical does not have any subsidiary or associate.

6.3.36.2 **Mount Elizabeth Ophthalmic (Company No. 198702767K)**

(i) **History and business**

Mount Elizabeth Ophthalmic was incorporated in Singapore under the Singapore Companies Act on 5 September 1987 as a private company limited by shares.

Mount Elizabeth Ophthalmic is currently in the process of undergoing members voluntary liquidation.

(ii) **Share capital***

As at the LPD, the issued and paid-up share capital of Mount Elizabeth Ophthalmic is SGD704,002.00 comprising 704,002 ordinary shares.

Note:

* *Under the Singapore Companies Act, there is no requirement to have an authorised share capital and par value for shares.*

There has been no change to the issued and paid-up share capital of Mount Elizabeth Ophthalmic for the past three years preceding the LPD.

(iii) **Shareholder**

As at the LPD, approximately 66.48% of the shares of Mount Elizabeth Ophthalmic are held by Mount Elizabeth Medical. Each of Dr Leong Seek Kee, Dr Lim Kuang Hui, Dr Low Cze Hong, Dr Piyah Phongprapatana, Dr Lee Chin Piaw and Dr Cheah Way Mun holds approximately 5.11% of the shares of Mount Elizabeth Ophthalmic while each of Dr Yow Choi Sin, Dr Tan Soo Leng David, Dr Khoo Chong Yew and Dr Voon Gone Lin holds approximately 0.71% of the shares of Mount Elizabeth Ophthalmic.

(iv) **Subsidiary and associate**

As at the LPD, Mount Elizabeth Ophthalmic does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP (*cont'd*)**6.3.37 Joint ventures of Shenton Family****6.3.37.1 Shenton Family Bukit Gombak****(i) History and business**

Shenton Family, Dr Alvin Lum Wai Mun and Dr Wee Liang Yuen, George, the partners of Shenton Family Bukit Gombak, have carried out the business of a medical clinic in partnership with effect from 1 June 2000 pursuant to a partnership deed dated 18 August 2000 which was superceded by a partnership deed dated 31 October 2005 which was in turn amended by a deed of variation dated 30 December 2005.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership is held by Shenton Family, 25.0% of the shares of the partnership is held by Dr Alvin Lum Wai Mun and 25.0% of the shares of the partnership is held by Dr Wee Liang Yuen, George.

6.3.37.2 Shenton Family Serangoon**(i) History and business**

Shenton Family and Gregory Leong Pte Ltd, the partners of Shenton Family Serangoon, have carried out the business of a medical clinic in partnership with effect from 1 January 2010 pursuant to a partnership deed dated 1 March 2010. Prior to this, Shenton Family and Dr Gregory Leong Goh Han had carried out the business of the medical clinic in partnership since 17 July 2000.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family and the remaining 50.0% of the shares of the partnership is held by Gregory Leong Pte Ltd.

6.3.37.3 Shenton Family Bedok Reservoir**(i) History and business**

Shenton Family, Dr Teoh Tsu Ping, Kieron and Dr How Chong Jeng, the partners of Shenton Family Bedok Reservoir, have carried out the business of a medical clinic in partnership with effect from 16 November 2002 pursuant to a partnership deed dated 11 March 2004.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family, 25.0% of the shares of the partnership are held by Dr Teoh Tsu Ping, Kieron and 25.0% of the shares of the partnership are held by Dr How Chong Jeng.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.37.4 Shenton Family Jurong East**(i) History and business**

Shenton Family and Dr Michael Ha, the partners of Shenton Family Jurong East, have carried out the business of a medical clinic in partnership with effect from 1 January 2003 pursuant to a partnership deed dated 27 January 2005.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family and the remaining 50.0% of the shares of the partnership is held by Dr Michael Ha.

6.3.37.5 Shenton Family Tampines**(i) History and business**

Shenton Family and Dr Lee See Chung, the partners of Shenton Family Tampines, have carried out the business of a medical clinic in partnership with effect from 1 January 2005 pursuant to a partnership deed dated 31 December 2004.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family and the remaining 50.0% of the shares of the partnership is held by Dr Lee See Chung.

6.3.37.6 Shenton Family Yishun**(i) History and business**

Shenton Family and Dr Seah Heap Yong, the partners of Shenton Family Yishun, have carried out the business of a medical clinic in partnership with effect from 16 October 2006 pursuant to a partnership deed dated 28 December 2006.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family and the remaining 50.0% of the shares of the partnership is held by Dr Seah Heap Yong.

6.3.37.7 Shenton Family Ang Mo Kio**(i) History and business**

Shenton Family, Dr Alvin Tan Swee Yen and Dr Gregory Leong Goh Han, the partners of Shenton Family Ang Mo Kio, have carried out the business of a medical clinic in partnership with effect from 22 February 2010 pursuant to a partnership deed dated 1 March 2010.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family, 40.0% of the shares of the partnership are held by Dr Alvin Tan Swee Yen and 10.0% of the shares of the partnership are held by Dr Gregory Leong Goh Han.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.37.8 Shenton Family Duxton**(i) History and business**

Shenton Family and Phua & Family Medical Consultancy Pte. Ltd., the partners of Shenton Family Duxton, have carried out the business of a medical clinic in partnership with effect from 1 May 2012 pursuant to a partnership agreement dated 26 April 2012. Prior to this, Shenton Family and Dr Phua Ling Yaw had carried out the business of the medical clinic in partnership since 16 March 2010.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family and the remaining 50.0% of the shares of the partnership is held by Phua & Family Medical Consultancy Pte. Ltd..

6.3.37.9 Shenton Family Clementi**(i) History and business**

Shenton Family and Dr Jason So Teck Beng, the partners of Shenton Family Clementi, have carried out the business of a medical clinic in partnership with effect from 1 April 2010 pursuant to a partnership deed dated 24 May 2010.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family and the remaining 50.0% of the shares of the partnership is held by Dr Jason So Teck Beng.

6.3.37.10 Shenton Family Towner**(i) History and business**

Shenton Family and Dr. Willix Pte. Ltd., the partners of Shenton Family Towner, have carried out the business of a medical clinic in partnership with effect from 1 April 2012 pursuant to a partnership agreement dated 30 March 2012. Prior to this, Shenton Family and Dr Tan Wee Lin had carried out the business of the medical clinic in partnership since 25 August 2011.

(ii) Shareholder

As at the LPD, 50.0% of the shares of the partnership are held by Shenton Family and the remaining 50.0% of the shares of the partnership are held by Dr. Willix Pte. Ltd..

6. INFORMATION ON OUR GROUP *(cont'd)*

6.3.38 Subsidiary of Parkway Shenton International

6.3.38.1 Parkway Shenton Vietnam (Investment Certificate No. 411043000886)

(i) History and business

Parkway Shenton Vietnam was incorporated in Vietnam under the laws of Vietnam on 27 January 1997 as a foreign-invested joint venture company.

Parkway Shenton Vietnam is currently dormant.

(ii) Share capital

As at the LPD, the total investment of Parkway Shenton Vietnam is USD11,000,000 and the legal capital is USD3,500,000.

There has been no change to the legal capital of Parkway Shenton Vietnam for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Parkway Shenton Vietnam is a wholly-owned subsidiary of Parkway Shenton International.

(iv) Subsidiary and associate

As at the LPD, Parkway Shenton Vietnam does not have any subsidiary or associate.

6.3.39 Subsidiaries of Acibadem

6.3.39.1 Acibadem Poliklinik (Company No. 4784)

(i) History and business

Acibadem Poliklinik was incorporated in Istanbul, Turkey pursuant to TCC on 16 March 1993 as a private joint stock company and commenced its business on 16 March 1993.

The principal activity of Acibadem Poliklinik is provision of outpatient and surgical services. Acibadem Poliklinik holds the license for all the clinics and medical centres operated by Acibadem Group in Turkey except Levent Medical Centre, Konur Surgical Medical Center and Gemtip Medical Center.

(ii) Share capital

As at the LPD, the issued and paid-up share capital of Acibadem Poliklinik is TL8,000,000.00 comprising 8,000,000 shares of TL1.00 each.

There has been no change to the issued and paid-up share capital of Acibadem Poliklinik for the past three years preceding the LPD.

6. INFORMATION ON OUR GROUP (cont'd)

(iii) Shareholder

As at the LPD, Acibadem Poliklinik is a 99.99%-owned subsidiary of Acibadem, whilst Mehmet Ali Aydinlar, Hatice Seher Aydinlar, Zeynep Aydinlar Erogut, Etem Erhan Aydinlar, Emin Gokalp Bas, Tahir Arslan, Ali Fuat Guven, Murat Yalcin Nak, Ibrahim Unsal, Armagan Ozel, Kamil Uluc Ayrar, Mehmet Bas and Filiz Oktay own 1 share each.

(iv) Subsidiary and associate

As at the LPD, Acibadem Mobil is a 82.22%-owned subsidiary of Acibadem Poliklinik and Konur Saglik is a 94.95%-owned subsidiary of Acibadem Poliklinik, details of which are set out in Section 6.3.51.1 and 6.3.51.2 of this Prospectus. As at the LPD, Acibadem Poliklinik does not have any associate.

6.3.39.2 Acibadem Labmed (Company No. 462047)

(i) History and business

Acibadem Labmed was incorporated in Istanbul, Turkey pursuant to TCC on 28 August 2001 as a private joint stock company and commenced its business on 28 August 2001.

The principal activity of Acibadem Labmed is provision of laboratory services and research and development activities.

(ii) Share capital

As at the LPD, the issued and paid-up share capital of Acibadem Labmed is TL3,000,000.00 comprising 3,000,000 shares of TL1.00 each.

The changes in the issued and paid-up share capital of Acibadem Labmed for the past three years preceding the LPD are as follows:

Date of allotment	No. of shares	Par value TL	Consideration	Purpose of issue	Cumulative issued and paid-up share capital TL
03.12.2009	2,150,000	1.00	Cash, at TL1.00 per share	Cash injection	3,000,000.00

(iii) Shareholder*

As at the LPD, amongst the Group B shareholders, Labmed Dortmund GmbH owns 45.0% in Acibadem Labmed, Arno Fraterman and Friedhelm Kissing own 2.5% in Acibadem Labmed each, whilst Acibadem holds 1 Group B share. Amongst the Group A shareholders, Acibadem owns 50.0% in Acibadem Labmed which corresponds to 1,499,997 Group A shares and Mehmet Ali Aydinlar, Hatice Seher Aydinlar and Ibrahim Unsal own 1 Group A share each.

Note:

* Holders of A group shares are entitled to nominate three board members and B group shares are entitled to nominate the remaining two board members for appointment by the General Assembly.

6. INFORMATION ON OUR GROUP (cont'd)

(iv) Subsidiary and associate

As at the LPD, Acibadem Labmed does not have any subsidiary or associate.

6.3.39.3 International Hospital (Company No. 198735)

(i) History and business

International Hospital was incorporated in Istanbul, Turkey pursuant to TCC on 12 December 1983 as a private joint stock company and commenced its business on 12 December 1983.

The principal activity of International Hospital is provision of medical, surgical and hospital services. International Hospital holds the license for International Hospital.

(ii) Share capital

As at the LPD, the issued and paid-up share capital of International Hospital is TL 2,000,000.00 comprising 1,000,000 shares of TL 2.00 each.

There has been no change to the issued and paid-up share capital of International Hospital for the past three years preceding the LPD.

(iii) Shareholder*

As at the LPD, International Hospital is a 90.0%-owned subsidiary of Acibadem, who is both a Group A and B shareholder. Said Haifawi owns 10.0% in International Hospital as a Group A shareholder and Mehmet Ali Aydinlar, Zeynep Aydinlar Erogut and Tahir Arslan each own 1 Group A share.

Note:

* *Holders of A group shares are entitled to nominate two board members and B group shares are entitled to nominate the two board members for appointment by the general assembly. The remaining board member is elected among those nominees determined by A group shareholders and approved by B group shareholders.*

(iv) Subsidiary and associate

As at the LPD, International Hospital does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.39.4 Acibadem Mobil (Company No. 671761)

(i) History and business

Acibadem Mobil was incorporated in Istanbul, Turkey pursuant to TCC on 7 July 2008 as a private joint stock company and commenced its business on 7 July 2008.

The principal activities of Acibadem Mobil are the provision of emergency, home and ambulatory care services.

(ii) Share capital

As at the LPD, the issued and paid-up share capital of Acibadem Mobil is TL4,500,000.00 comprising 4,500,000 shares of TL1.00 each.

The changes in the issued and paid-up share capital of Acibadem Mobil for the past three years preceding the LPD are as follows:

Date of allotment	No. of shares	Par value TL	Consideration	Purpose of issue	Cumulative issued and paid-up share capital TL
09.04.2009	600,000	1.00	Cash, at TL1.00 per share	Cash injection	650,000.00
19.07.2010	350,000	1.00	Cash, at TL1.00 per share	Cash injection	1,000,000.00
21.01.2011	3,500,000	1.00	Cash, at TL1.00 per share	Cash injection	4,500,000.00

(iii) Shareholder

Acibadem Mobil is a 17.78%-owned subsidiary of Acibadem and Acibadem Poliklinik, which is a wholly-owned subsidiary of Acibadem, owns 82.22% in Acibadem Mobil, whilst Mehmet Ali Aydinlar, Hatice Seher Aydinlar and Zeynep Aydinlar Eroglu each own 13 shares in Acibadem Mobil.

(iv) Subsidiary and associate

As at the LPD, Acibadem Mobil does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.39.5 Yeni Saglik (Company No. 431766)

(i) History and business

Yeni Saglik was incorporated in Istanbul, Turkey pursuant to TCC on 12 January 2000 as a private joint stock company and commenced its business on 1 June 2011.

The principal activities of Yeni Saglik are the provision of medical, surgical and hospital services. Yeni Saglik holds the license for Aile Hospital Bahcelievler and Aile Hospital Goztepe.

(ii) Share capital

As at the LPD, the issued and paid-up share capital of Yeni Saglik is TL20,000,000.00 comprising 20,000,000 shares of TL1.00 each.

The changes in the issued and paid-up share capital of Yeni Saglik for the past three years preceding the LPD are as follows:

Date of allotment	No. of shares	Par value TL	Consideration	Purpose of issue	Cumulative issued and paid-up share capital TL
30.06.2010	60,000	1.00	Cash, at TL1.00 per share	Cash injection	110,000.00
20.12.2011	19,890,000	1.00	Cash, at TL1.00 per share	Cash injection	20,000,000.00

(iii) Shareholder*

As at the LPD, Yeni Saglik is a 99.99%-owned subsidiary of Acibadem, whilst Mehmet Ali Aydinlar, Hatice Seher Aydinlar, Zeynep Aydinlar Erogut, Yalcin Nak and Birol Sumer own 1 share each.

Note:

* The TCC requires at least 5 shareholders for the incorporation and valid existing of a joint stock company. However, the New TCC allows the establishment of a single shareholder joint stock company.

(iv) Subsidiary and associate

As at the LPD, Yeni Saglik does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.39.6 Jinemed Saglik (Company No. 303859)

(i) History and business

Jinemed Saglik was incorporated in Istanbul, Turkey under TCC numbered 6762 on 23 September 1993 as a private joint stock company and commenced its business on 23 September 1993.

The principal activities of Jinemed Saglik are provision of medical, surgical and hospital services. Jinemed Saglik holds the license for Jinemed Hospital and Jinemed Medical Center.

(ii) Share capital

As at the LPD, the issued and paid-up share capital of Jinemed Saglik is TL6,600,000 comprising 4,000 ordinary shares of TL16,500.00 each.

The changes in the issued and paid-up share capital of Jinemed Saglik for the past three years preceding the LPD are as follows:

Date of allotment	No. of shares	Par value TL	Consideration	Purpose of issue	Cumulative issued and paid-up share capital TL
13.04.2012	- *	16,500.00	Cash, at TL16,500.00 per share	Cash injection	Issued capital: 6,600,000.00 Paid-up capital: 6,593,682.89

Note:

* Please note that the capital increase dated 13 April 2012 was realised through the increase of the par value of each share. Thus no new shares were issued.

(iii) Shareholder

As at the LPD, Jinemed Saglik is a 65%-owned subsidiary of Acibadem, whilst Fahri Teksen Camlibel owns the remaining 35% in Jinemed Saglik.*

Note:

* As at the LPD, Jinemed Saglik is not a subsidiary of Acibadem Group. In January 2012, Acibadem and the shareholders of Jinemed Saglik executed a "share purchase agreement" according to which, 65.0% of the equity interest of Jinemed Saglik will be purchased by and transferred to Acibadem. On 8 March 2012, the Turkish Competition Authority granted clearance for this transaction; however, the share transfer has not yet been completed. Jinemed Hospital and Jinemed Medical Center is included in the pro forma financial information of the Group under Section 12.11 in this Prospectus. The share transfer is expected to be completed within 2012.

(iv) Subsidiary and associate

As at the LPD, Jinemed Saglik does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP *(cont'd)*

6.3.39.7 Acibadem Sistina (Company No. 6575641)

(i) History and business

Acibadem Sistina was incorporated in Skopje pursuant to Law on Healthcare and Law on Institutions on 7 April 2010 as a private institution and commenced its business on 7 April 2010.

The principal activity of Acibadem Sistina is provision of health care services to the citizens of Macedonia and the region. Acibadem Sistina holds the license for Acibadem Sistina Clinical Hospital.

(ii) Share capital*

As at the LPD, the authorised share capital of Acibadem Sistina is MKD1,946,800.

Note:

* Under the Law on Institutions in Macedonia, there is no requirement for a Macedonian Institution to have share numbers and par value for its shares.

The changes in the issued and paid-up share capital of Acibadem Sistina for the past three years preceding the LPD are as follows:

Date of allotment	Consideration	Purpose of Issue	Cumulative issued and paid-up share capital MKD
07.04 2010	Other than cash(tangible assets with estimated value of 100,000 MKD)	Initial capital for establishment of the entity	100,000.00
14.07.2010	Cash at 1,846,800 MKD	Capital increase	1,946,800.00

(iii) Shareholder

As at the LPD, Acibadem owns 50.32% and Orka Holding AD Skopje owns 49.67% in Acibadem Sistina and Nina Pijadeva-Mirkovska owns 0.01% in the share capital of Acibadem Sistina.

(iv) Subsidiary and associate

As at the LPD, Sistina Kosovo and Specialist Ordination are subsidiaries of Acibadem Sistina, details of which are set out in Sections 6.3.52.2 and 6.3.52.1 of this Prospectus. As at the LPD, Acibadem Sistina does not have any associate.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.39.8 Acibadem Sistina Medikal (Company No. 6729169)

(i) History and business

Acibadem Sistina Medikal was incorporated in Skopje under Companies Act on 31 August 2011 as a private company and commenced its business on 31 August 2011.

The principal activity of Acibadem Sistina Medikal is provision of medical equipment.

(ii) Share capital*

As at the LPD, the authorised share capital of Acibadem Sistina Medikal is MKD310,000.

Note:

* *Under the Companies Law in Macedonia except when the company is registered as a joint stock company, there is no requirement for a Macedonian company to have share numbers and per value for its shares.*

There has been no change to the issued and paid-up share capital of Acibadem Sistina Medikal since its incorporation on 31 August 2011 up to the LPD.

(iii) Shareholder

As at the LPD, Acibadem owns 50.0% in Acibadem Sistina Medikal, whilst Orka Holding AD Skopje owns the remaining 50.0% in Acibadem Sistina Medikal.

(iv) Subsidiary and associate

As at the LPD, Acibadem Sistina Medikal does not have any subsidiary or associate.

6.3.39.9 Acibadem Orta (Company No. 421811)

(i) History and business

Acibadem Orta was incorporated in Istanbul, Turkey pursuant to TCC on 9 June 1999 as a private joint stock company and commenced its business on 30 May 2012.

The principal activities of Acibadem Orta are construction and planning of healthcare facilities, provision of operation and management services to healthcare institutions and secondary logistic services such as catering cleaning, laundry services.

(ii) Share capital

As at the LPD, the issued and paid up share capital of Acibadem Orta is TL500,000.00 comprising 500,000 shares of TL1.00 each.

There has been no change to the issued and paid-up share capital of Acibadem Orta for the past three years preceding the LPD.

6. INFORMATION ON OUR GROUP *(cont'd)*

(iii) Shareholder

As at the LPD, Acibadem Orta is a 75.0%-owned subsidiary of Acibadem, whilst Acibadem Poliklinik owns 10.0%, Acibadem Mobil owns 5.0%, Acibadem Proje owns 5.0% and APlus owns 4.998% in Acibadem Orta. Acibadem Labmed and Mehmet Ali Aydinlar own 5 shares each.

(iv) Subsidiary and associate

As at the LPD, Acibadem Orta does not have any subsidiary or associate.

6.3.40 Subsidiaries of Pantai Medical Centre

6.3.40.1 Angiography (Company No. 103518-T)

(i) History and business

Angiography was incorporated in Malaysia under the Malaysian Companies Act on 29 June 1983 as a private company limited by shares and commenced its business in 1986.

The principal activity of Angiography is provision of cardiac catheterisation services.

(ii) Share capital

As at the LPD, the authorised share capital of Angiography is RM1,000,000.00 comprising 1,000,000 ordinary shares of RM1.00 each. The issued and paid-up share capital of Angiography is RM758,500.00 comprising 758,500 ordinary shares of RM1.00 each.

There has been no change to the issued and paid-up share capital of Angiography for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Angiography is a wholly-owned subsidiary of Pantai Medical Centre.

(iv) Subsidiary and associate

As at the LPD, Angiography does not have any subsidiary or associate.

6.3.40.2 Magnetom Imaging (Company No. 203987-H)

(i) History and business

Magnetom Imaging was incorporated in Malaysia under the Malaysian Companies Act on 8 September 1990 as a private company limited by shares and commenced its business on 1 February 1991.

The principal activities of Magnetom Imaging are provision of medical diagnostic services and other related ventures.

6. INFORMATION ON OUR GROUP (cont'd)**(ii) Share capital**

As at the LPD, the authorised share capital of Magnetom Imaging is RM2,000,000.00 comprising 2,000,000 ordinary shares of RM1.00 each. The issued and paid-up share capital of Magnetom Imaging is RM1,590,156.00 comprising 1,590,156 ordinary shares of RM1.00 each.

There has been no change to the issued and paid-up share capital of Magnetom Imaging for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Magnetom Imaging is a wholly-owned subsidiary of Pantai Medical Centre.

(iv) Subsidiary and associate

As at the LPD, Magnetom Imaging does not have any subsidiary or associate.

6.3.40.3 PMC Radio-Surgery (Company No. 386694-H)**(i) History and business**

PMC Radio-Surgery was incorporated in Malaysia under the Malaysian Companies Act on 9 May 1996 as a private company limited by shares and commenced its business on 9 May 1996.

The principal activity of PMC Radio-Surgery is provision of radiotherapy services.

(ii) Share capital

As at the LPD, the authorised share capital of PMC Radio-Surgery is RM5,000,000.00 comprising 5,000,000 ordinary shares of RM1.00 each. The issued and paid-up share capital of PMC Radio-Surgery is RM2.00 comprising 2 ordinary shares of RM1.00 each.

There has been no change to the issued and paid-up share capital of PMC Radio-Surgery since its incorporation on 9 May 1996 up to the LPD.

(iii) Shareholder

As at the LPD, PMC Radio-Surgery is a wholly-owned subsidiary of Pantai Medical Centre.

(iv) Subsidiary and associate

As at the LPD, PMC Radio-Surgery does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP *(cont'd)*

6.3.40.4 Pantai-Arc Dialysis (Company No. 522340-H)

(i) History and business

Pantai-Arc Dialysis was incorporated in Malaysia under the Malaysian Companies Act on 1 August 2000 as a private company limited by shares and commenced its business in 2008.

The principal activity of Pantai-Arc Dialysis is provision of haemodialysis services.

(ii) Share capital

As at the LPD, the authorised share capital of Pantai-Arc Dialysis is RM2,000,000.00 comprising 2,000,000 ordinary shares of RM1.00 each. The issued and paid-up share capital of Pantai-Arc Dialysis is RM1,315,760.00 comprising 1,315,760 ordinary shares of RM1.00 each.

There has been no change to the issued and paid-up share capital of Pantai-Arc Dialysis for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Pantai-Arc Dialysis is a 51.0%-owned subsidiary of Pantai Medical Centre, whilst Asia Renal Care Asia Pacific Holdings Limited owns 20.0%, Dr. Satwant Singh Gill owns 14.5% and Dr. Tan Wee Ming owns 14.5%.

(iv) Subsidiary and associate

As at the LPD, Pantai-Arc Dialysis does not have any subsidiary or associate.

6.3.41 Subsidiaries of Pantai Ayer Keroh

6.3.41.1 HPAK Cancer (Company No. 545400-K)

(i) History and business

HPAK Cancer was incorporated in Malaysia under the Malaysian Companies Act on 19 April 2001 as a private company limited by shares and commenced its business on 1 July 2002.

The principal activity of HPAK Cancer is provision of medical services for cancer diseases.

(ii) Share capital

As at the LPD, the authorised share capital of HPAK Cancer is RM1,000,000.00 comprising 1,000,000 ordinary shares of RM1.00 each. The issued and paid-up share capital of HPAK Cancer is RM666,669.00 comprising 666,669 ordinary shares of RM1.00 each.

There has been no change to the issued and paid-up share capital of HPAK Cancer for the past three years preceding the LPD.

6. INFORMATION ON OUR GROUP *(cont'd)*

(iii) Shareholder

As at the LPD, HPAK Cancer is a wholly-owned subsidiary of Pantai Ayer Keroh.

(iv) Subsidiary and associate

As at the LPD, HPAK Cancer does not have any subsidiary or associate.

6.3.41.2 HPAK Lithotripsy (Company No. 499723-M)

(i) History and business

HPAK Lithotripsy was incorporated in Malaysia under the Malaysian Companies Act on 24 November 1999 as a private company limited by shares and commenced its business in 2002.

The principal activity of HPAK Lithotripsy is provision of lithotripter services.

(ii) Share capital

As at the LPD, the authorised share capital of HPAK Lithotripsy is RM100,000.00 comprising 100,000 ordinary shares of RM1.00 each. The issued and paid-up share capital of HPAK Lithotripsy is RM100,000.00 comprising 100,000 ordinary shares of RM1.00 each.

There has been no change to the issued and paid-up share capital of HPAK Lithotripsy for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, HPAK Lithotripsy is a wholly-owned subsidiary of Pantai Ayer Keroh.

(iv) Subsidiary and associate

As at the LPD, HPAK Lithotripsy does not have any subsidiary or associate.

6.3.42 Subsidiary of Gleneagles KL

6.3.42.1 Oncology Centre (KL) (Company No. 394942-H)

(i) History and business

Oncology Centre (KL) was incorporated in Malaysia under the Malaysian Companies Act on 20 July 1996 as a private company limited by shares and commenced its business in 1998.

The principal activity of Oncology Centre (KL) is provision of comprehensive professional oncological service inclusive of diagnostic, radiotherapy and chemotherapy treatment.

6. INFORMATION ON OUR GROUP *(cont'd)*

(ii) Share capital

As at the LPD, the authorised share capital of Oncology Centre (KL) is RM25,000,000.00 comprising 24,700,000 ordinary shares of RM1.00 each and 6,000,000 redeemable preference shares of RM0.05 each. The issued and paid-up share capital of Oncology Centre (KL) is RM250,000.00 comprising 250,000 ordinary shares of RM1.00 each.

There has been no change to the issued and paid-up share capital of Oncology Centre (KL) for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Oncology Centre (KL) is a wholly-owned subsidiary of Gleneagles KL.

(iv) Subsidiary and associate

As at the LPD, Oncology Centre (KL) does not have any subsidiary or associate.

6.3.43 Subsidiary of Mount Elizabeth Services

6.3.43.1 Orifolio Options (Company No. 438082-H)

(i) History and business

Orifolio Options was incorporated in Malaysia under the Malaysian Companies Act on 4 July 1997 as a private company limited by shares and commenced its business in 1999.

The principal activity of Orifolio Options is letting of property and general trading.

(ii) Share capital

As at the LPD, the authorised share capital of Orifolio Options is RM100,000.00 comprising 100,000 ordinary shares of RM1.00 each. The issued and paid-up share capital of Orifolio Options is RM2.00 comprising 2 ordinary shares of RM1.00 each.

There has been no change to the issued and paid-up share capital of Orifolio Options since its incorporation on 4 July 1997 up to the LPD.

(iii) Shareholder

As at the LPD, Orifolio Options is a wholly-owned subsidiary of Mount Elizabeth Services.

(iv) Subsidiary and associate

As at the LPD, Orifolio Options does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP *(cont'd)*

6.3.45 Subsidiary of Twin Towers Healthcare

6.3.45.1 Twin Towers Medical Centre (Company No. 417262-P)

(i) History and business

Twin Towers Medical Centre was incorporated in Malaysia under the Malaysian Companies Act on 17 January 1997 as a private company limited by shares and commenced its business on 16 November 1998.

The principal activity of Twin Towers Medical Centre is operating an outpatient and daycare medical centre.

(ii) Share capital

As at the LPD, the authorised share capital of Twin Towers Medical Centre is RM10,000,000.00 comprising 8,999,999 ordinary shares of RM1.00 each, 1 Special Preference Share and 1,000,000 Class "A" redeemable cumulative preference shares of RM1.00 each. The issued and paid-up share capital of Twin Towers Medical Centre is RM4,000,000.00 comprising 4,000,000 ordinary shares of RM1.00 each.

The changes in the issued and paid-up share capital of Twin Towers Medical Centre for the past three years preceding the LPD are as follows:

<u>Date of allotment/ redemption</u>	<u>No. of shares</u>	<u>Par value</u> RM	<u>Consideration</u>	<u>Purpose of issue/ redemption</u>	<u>Cumulative issued and paid-up share capital</u> RM
<i>Class "A" Cumulative Redeemable Preference shares</i>					
17.01.2012	(205,000)	1.00	Cash, at RM1.00 per share	Redemption of Class "A" cumulative redeemable preference shares	4,000,000

(iii) Shareholder

As at the LPD, Twin Towers Medical Centre is a wholly-owned subsidiary of Twin Towers Healthcare.

(iv) Subsidiary and associate

As at the LPD, Twin Towers Medical Centre does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.46 Joint venture of Gleneagles Development

6.3.46.1 Apollo Gleneagles (Company No. U33112WB1988PLC045223)

(i) History and business

Apollo Gleneagles was incorporated in India under the (Indian) Companies Act, 1956 on 19 September 1988 as a public company and commenced its business on 14 October 1988.

The principal activity of Apollo Gleneagles is to acquire, establish, run and maintain hospitals.

(ii) Share capital

As at the LPD, the authorised share capital of Apollo Gleneagles is Rs. 1,200,000,000.00 comprising 120,000,000 shares of Rs.10.00 each. The issued and paid-up share capital of Apollo Gleneagles is Rs. 1,093,513,940.00 comprising 109,351,394 equity shares of Rs. 10.00 each.

There has been no change to the issued and paid-up share capital of Apollo Gleneagles for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, Apollo Gleneagles is 50.0%-owned joint venture by Gleneagles Development, whilst Apollo Hospitals and other nominees own the remaining 50.0% in Apollo Gleneagles.

6.3.47 Subsidiary of Gleneagles UK

6.3.47.1 The Heart Hospital (Company No. 2979311)

(i) History and business

The Heart Hospital was incorporated in the UK under the Companies Act 1985 on 14 October 1994 as a private company limited by shares.

The Heart Hospital is currently under company voluntary arrangement.

(ii) Share capital

As at the LPD, the authorised share capital of The Heart Hospital is GBP1,000.00 comprising 1,000 ordinary shares of GBP1.00 each. The issued and paid-up share capital of The Heart Hospital is GBP2.00 comprising two ordinary shares of GBP1.00 each.

There has been no change to the issued and paid-up share capital of The Heart Hospital for the past three years preceding the LPD.

(iii) Shareholder

As at the LPD, The Heart Hospital is a wholly-owned subsidiary of Gleneagles UK.

6. INFORMATION ON OUR GROUP (cont'd)**(iv) Subsidiary and associate**

As at the LPD, The Heart Hospital does not have any subsidiary or associate.

6.3.48 Subsidiary of Shanghai Rui Xin**6.3.48.1 Shanghai Rui Pu (Company No. 310115000905187)****(i) History and business**

Shanghai Rui Pu was incorporated in Shanghai under PRC Law on 27 July 2005 as a domestic joint venture limited liability company and commenced its business on 27 July 2005.

The principal activities of Shanghai Rui Pu are providing medical services including preventative medicine, internal medicine, general surgery, obstetrics and gynaecology, paediatrics, ophthalmology, stomatology, laboratory and radiology.

(ii) Registered capital

As at the LPD, the registered capital of Shanghai Rui Pu is RMB1,500,000.00. The paid-up capital of Shanghai Rui Pu is RMB1,500,000.00.

There has been no change to the registered and paid-up capital of Shanghai Rui Pu for the past three years.

(iii) Shareholder

As at the LPD, 70.0% of the equity interests of Shanghai Rui Pu is held by Shanghai International Trust Co., Ltd held on trust on behalf of Shanghai Rui Xin while the remaining 30.0% is held by Shanghai Shu Kang.

(iv) Subsidiary and associate

As at the LPD, Shanghai Rui Pu does not have any subsidiary or associate.

6.3.49 Subsidiary of Shanghai Rui Hong**6.3.49.1 Shanghai Rui Xiang (Company No. 310105000287634)****(i) History and business**

Shanghai Rui Xiang was incorporated in Shanghai under PRC Law on 16 August 2005 as a domestic joint venture limited liability company and commenced its business on 16 August 2005.

The principal activity of Shanghai Rui Xiang is providing medical services.

(ii) Registered capital

As at the LPD, the registered capital of Shanghai Rui Xiang is RMB5,000,000.00. The paid-up capital of Shanghai Rui Xiang is RMB5,000,000.00.

6. INFORMATION ON OUR GROUP (cont'd)

There has been no change to the registered and paid-up capital of Shanghai Rui Xiang for the past three years.

(iii) Shareholder

As at the LPD, 98% of the equity interests of Shanghai Rui Xiang are held by Shanghai International Trust Co Ltd on trust on behalf of Shanghai Rui Hong, while the remaining 2% is held by Shanghai International Group Assets Management Co Ltd on behalf of Shanghai Rui Hong.

(iv) Subsidiary and associate

As at the LPD, Shanghai Rui Xiang does not have any subsidiary or associate.

6.3.50 Subsidiary of Shanghai Shu Kang

6.3.50.1 Chengdu Rui Rong (Company No. 510109000181106)

(i) History and business

Chengdu Rui Rong was incorporated in Chengdu under PRC Law on 9 May 2011 as a domestic limited liability company and commenced its business on 9 May 2011.

The principal activity of Chengdu Rui Rong is providing medical services.

(ii) Registered capital

As at the LPD, the registered capital of Chengdu Rui Rong is RMB5,000,000.00. The paid-up capital of Chengdu Rui Rong is RMB5,000,000.00.

There has been no change to the registered and paid-up capital of Chengdu Rui Rong since its incorporation.

(iii) Shareholder

As at the LPD, Chengdu Rui Rong is a wholly-owned subsidiary of Shanghai Shu Kang.

(iv) Subsidiary and associate

As at the LPD, Chengdu Rui Rong does not have any subsidiary or associate.

6.3.51 Associate of Shanghai Shu Kang

6.3.51.1 Shanghai Rui Pu (Company No. 310115000905187)

(i) Shareholder

As at the LPD, 70.0% of the equity interests of Shanghai Rui Pu is held by Shanghai International Trust & Investment Co Ltd held on trust on behalf of Shanghai Rui Xin while the remaining 30.0% is held by Shanghai Shu Kang. For further details on Shanghai Rui Pu, please see Section 6.3.47.1 of this Prospectus.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.52 Subsidiaries of Acibadem Poliklinik

6.3.52.1 Acibadem Mobil (Company No. 671761)

(i) History and business

Acibadem Mobil was incorporated in Istanbul, Turkey pursuant to TCC on 7 July 2008 as a private joint stock company and commenced its business on 7 July 2008.

The principal activities of Acibadem Mobil are the provision of emergency, home and ambulatory care services.

(ii) Share capital

As at the LPD, the issued and paid-up share capital of Acibadem Mobil is TL4,500,000.00 comprising 4,500,000 shares of TL1.00 each.

The changes in the issued and paid-up share capital of Acibadem Mobil for the past three years preceding the LPD are as follows:

Date of allotment	No. of shares	Par value TL	Consideration	Purpose of issue	Cumulative issued and paid-up share capital TL
09.04.2009	600,000	1.00	Cash, at TL1.00 per share	Cash injection	650,000.00
19.07.2010	350,000	1.00	Cash, at TL1.00 per share	Cash injection	1,000,000.00
21.01.2011	3,500,000	1.00	Cash, at TL1.00 per share	Cash injection	4,500,000.00

(iii) Shareholder

Acibadem Mobil is a 82.22%-owned subsidiary of Acibadem Poliklinik and Acibadem owns 17.78%, whilst Mehmet Ali Aydinlar, Hatice Seher Aydinlar and Zeynep Aydinlar Erocut each own 13 shares in Acibadem Mobil.

(iv) Subsidiary and associate

As at the LPD, Acibadem Mobil does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP (cont'd)

6.3.52.2 Konur Saglik (Company No. 54501)

(i) History and business

Konur Saglik was incorporated in Bursa, Turkey pursuant to TCC on 13 August 2003 as a private joint stock company and commenced its business on 13 August 2003.

The principal activity of Konur Saglik is provision of emergency, outpatient and surgical services. Konur Saglik holds the license for Konur Surgical Medical Center.

(ii) Share capital

As at the LPD, the issued and paid-up share capital of Konur Saglik is TL1,590,000.00 comprising 6,360 shares of TL250.00 each.

The changes in the issued and paid-up share capital of Konur Saglik for the past three years preceding the LPD are as follows:

Date of allotment	No. of shares	Par value TL	Consideration	Purpose of issue	Cumulative issued and paid-up share capital TL
08.06.2009	1,090,000	250.00	TL250.00	Cash injection	1,140,000.00
02.03.2010	450,000	250.00	TL250.00	Cash injection	1,590,000.00

(iii) Shareholder*

As at the LPD, Konur Saglik is a 94.25%-owned subsidiary of Acibadem Poliklinik, Omer Buh Sem owns 5.00%, Suleyman Toker owns 2.50%, whilst Etem Erhan Aydinlar, Ibrahim Unsal and Emin Gokalp Bas each own 1 share.

Notes:

* The TCC requires at least 5 shareholders for the incorporation and valid existing of a joint stock company. However, the New TCC allows the establishment of a single shareholder joint stock company.

As of 2 March 2012, Suleyman Toker transferred his shareholding in Konur Saglik to Acibadem Poliklinik, as a result of which the shareholding of Acibadem Poliklinik increased to 95.0%.

(iv) Subsidiary and associate

As at the LPD, Gemtip Ozel is a 58.0%-owned subsidiary of Konur Saglik, details of which are as set out in Section 6.3.53.1 of this Prospectus. As at the LPD, Konur Saglik does not have any associate.

6. INFORMATION ON OUR GROUP *(cont'd)*

6.3.53 Subsidiaries of Acibadem Sistina

6.3.53.1 Specialist Ordination (Company No. 6668453)

(i) History and business

Specialist Ordination was incorporated in Macedonia under Law on Healthcare and Law on Institutions on 29 December 2010 as a private institution and commenced its business on 29 December 2010.

The principal activity of Specialist Ordination is performing regular checkups of the employees of different companies which are required by the law.

(ii) Share capital*

As at the LPD, the authorised share capital of Specialist Ordination is MKD19,840.00.

Note:

* *Under the Law on Institutions in Macedonia, there is no requirement for a Macedonian Institution to have share numbers and par value for its shares.*

There has been no change to the issued and paid-up share capital of the Specialist Ordination since its incorporation on 29 December 2010 up to the LPD.

(iii) Shareholder

As at the LPD, Specialist Ordination is a 99.5%-owned subsidiary of Acibadem Sistina and Nina Pijadeva-Mirkovska holds 0.5% in the share capital of Specialist Ordination.

(iv) Subsidiary and associate

As at the LPD, Specialist Ordination does not any subsidiary or associate.

6.3.53.2 Sistina Kosovo (Company No. 70684667)

(i) History and business

Sistina Kosovo was incorporated in Kosovo under Law on Business Organisations on 23 July 2010 as a foreign company and commenced its business on 23 July 2010.

The principal activities of Sistina Kosovo are performing non-medical activities such as patient's referrals, patient administrative assistance and patient's documents preparation.

(ii) Share capital

As at the LPD, the authorised share capital of Sistina Kosovo is EURO 2,600.00.

There has been no change to the issued and paid-up share capital of Sistina Kosovo since its incorporation on 23 July 2010 up to the LPD.

6. INFORMATION ON OUR GROUP (cont'd)

(iii) Shareholder

As at the LPD, Sistina Kosovo is a 100% owned subsidiary of Acibadem Sistina.

(iv) Subsidiary and associate

As at the LPD, Sistina Kosovo does not have any subsidiary or associate.

6.3.54 Subsidiary of Konur Saglik (Company No. 4746)

6.3.54.1 Gemtip Ozel

(i) History and business

Gemtip Ozel was incorporated in Gemlik, Turkey pursuant to TCC on 11 January 2011 as a private limited liability company and commenced its business on 11 January 2011.

The principal activity of Gemtip Ozel is provision of outpatient services. Gemtip Ozel holds the license for Gemtip Medical Center.

(ii) Share capital

As at the LPD, the issued share capital of Gemtip Ozel is TL250,000.00 comprising 10,000 shares of TL25.00 each. The paid-up share capital of Gemtip Ozel is TL81,250.00.

The changes in the issued and paid-up share capital of Gemtip Ozel for the past three years preceding the LPD are as follows:

<u>Date of allotment</u>	<u>No. of shares</u>	<u>Par value</u> TL	<u>Consideration</u>	<u>Purpose of issue</u>	<u>Cumulative issued and paid-up share capital</u> TL
02.12.2011	9,000	25.00	TL25.00	Cash	Issued capital: 250,000.00 Paid-up capital: 81,250.00

(iii) Shareholder

As at the LPD, Gemtip Ozel is a 58.0%-owned subsidiary of Konur Saglik, whilst Omer Artar owns 16.0% in Gemtip Ozel, Ender Ucar owns 16.0% in Gemtip Ozel and Ayse Akit own 10.0% in Gemtip Ozel.

(iv) Subsidiary and associate

As at the LPD, Gemtip Ozel does not have any subsidiary or associate.

6. INFORMATION ON OUR GROUP *(cont'd)*

6.4 Others

We manage Shanghai Hui Xing Jin Pu (which is wholly-owned by Shanghai Hui Xing) through certain contractual arrangements with the parent company of Shanghai Hui Xing. Shanghai Hui Xing Jin Pu is a wholly-owned subsidiary of Shanghai Hui Xing and does not have any associates. Although Shanghai Hui Xing and Shanghai Hui Xing Jin Pu fall within the definition of "subsidiary" for the purposes of Singapore Companies Act and Malaysian Companies Act by virtue of our contractual arrangements with the parent company of Shanghai Hui Xing, they are not, for the purposes of relevant accounting rules, treated as subsidiaries or associates of our Company.

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7. **INDUSTRY OVERVIEW**

(Prepared for inclusion in this Prospectus)

**Independent Market Research on the
Global Healthcare Services (HCS) Industry**

01 June 2012

FINAL REPORT

F R O S T  S U L L I V A N

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7. INDUSTRY OVERVIEW (cont'd)

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The market research process for this study has been undertaken through secondary or desktop research, as well as primary research, which involves discussing the status of the industry with leading participants and experts. The research methodology used is the *Expert Opinion Consensus Methodology*. Quantitative market information was sourced from interviews by way of primary research, and therefore, the information is subject to fluctuations due to possible changes in the business and industry climate. Frost & Sullivan's estimates and assumptions are based on varying levels of quantitative and qualitative analyses, including industry journals, company reports and information in the public domain. Forecasts, estimates, predictions and other forward-looking statements contained in this report are inherently uncertain because of changes in factors underlying their assumptions, or events or combinations of events that cannot be reasonably foreseen. Actual results and future events could differ materially from such forecasts, estimates, predictions or such statements.

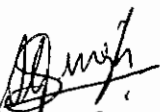
This study has been prepared for inclusion in the Prospectus of IHH Healthcare Berhad ("IHH or the company") in relation to an initial public offering in connection with its listing on the Main Market of Bursa Malaysia Securities Berhad and Main Board of the Singapore Exchange Securities Limited ("the Listing").

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For and on behalf of Frost & Sullivan (S) Pte Ltd:
Authorised Signatory



Sanjay Singh
Vice President

7. INDUSTRY OVERVIEW (cont'd)

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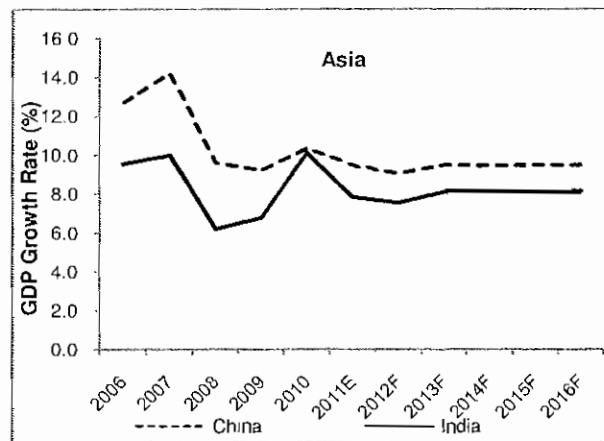
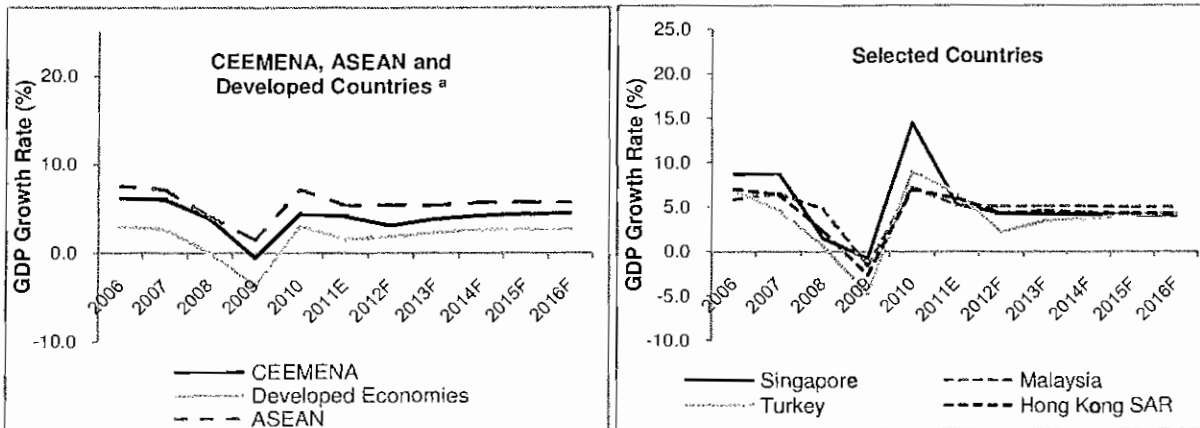
7. INDUSTRY OVERVIEW (cont'd)

1 GLOBAL MACROECONOMIC TRENDS

1.1 GROSS DOMESTIC PRODUCT (GDP) GROWTH

Most countries in the world witnessed a global financial crisis in 2008 and 2009 with GDP growth rates recovering in 2010 after a dip in 2009. The following charts illustrate the historical and forecast GDP growth rates in selected economies between 2006 and 2016.

Historical and Forecast GDP Growth Rates in Selected Economies, 2006 to 2016F



Source: World Economic Outlook (WEO) Database, September 2011 published online by the International Monetary Fund (IMF), based on GDP in constant prices.
 Note: a. As defined by the United Nations (UN)

China and India recorded a GDP growth rate of above 8.0% in 2010. In the CEEMENA region, Turkey's GDP growth rate was higher than the region's average growth rate. Singapore and Malaysia's GDP growth rate were also above the Association of the Southeast Asian Nations (ASEAN) average in the same year. The developed economies showed a relatively lower GDP growth rate of less than 5.0% in 2010.

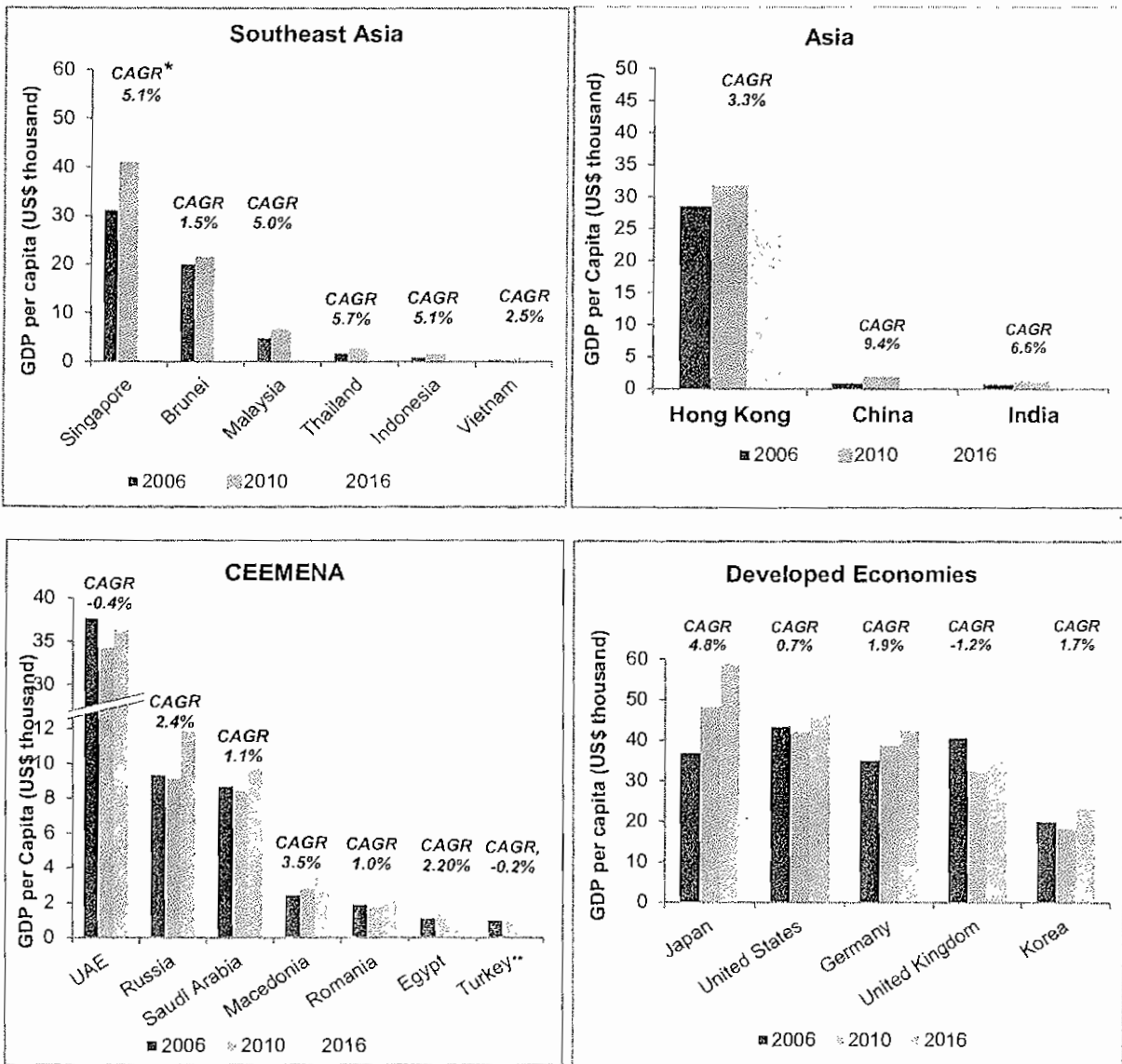
The economic outlook for China, India and the ASEAN region is highly positive and annual GDP growth rates between 5%-10% are expected over the next 4 years. Average GDP growth rate of developed countries is expected to be low, likely to be affected, amongst other things, by the Euro debt crisis. The better economic outlook in Asia and Southeast Asia has led to higher investment by the private sector accompanied by higher public spending in sectors such as infrastructure, education and healthcare.

7. INDUSTRY OVERVIEW (cont'd)

1.2 GDP PER CAPITA

An increase in wealth implies a trend towards the improvement of basic living standards, including better nutrition, sanitation and healthcare. The WEO (World Economic Outlook) report projects growth rates in GDP per capita, to be fastest in the newly developed and emerging economies of Singapore, Hong Kong and Korea. The following charts illustrate the GDP per capita in 2006, 2010 and 2016 for selected countries in Asia, the CEEMENA region and the developed economies.

GDP per capita (at constant prices) for Selected Countries, 2006, 2010 and 2016F



Source: Data in the above charts are based on GDP per capita data in constant prices in the respective country's national currency as sourced from the WEO Database, September 2011 published online by IMF. The data above was converted to US dollar based using the currency conversion rate for the respective years as depicted in the Appendix. Analysis by Frost & Sullivan.

Note:

* All CAGRs pertain to the period from 2006 to 2016.

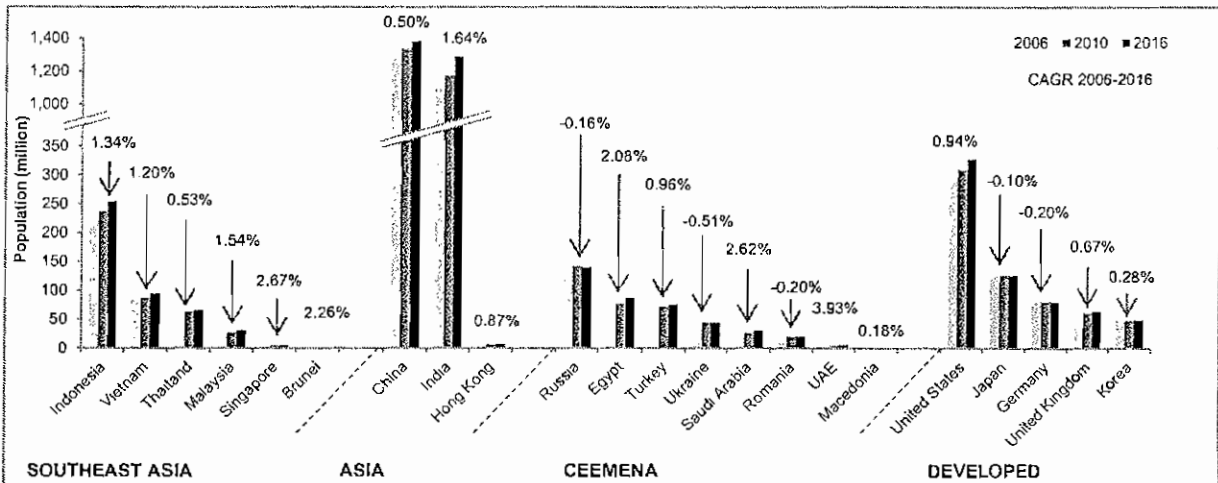
** In the CEEMENA chart above, Turkey's GDP per capita at current prices in 2010 is US\$ 10,047 (TL 15,119).

7. INDUSTRY OVERVIEW (cont'd)

1.3 POPULATION GROWTH AND AGEING POPULATION

Population growth between 2006 and 2010 was significant in emerging countries with a large population base such as Indonesia, China and India. Population growth was also high in newly developed economies such as the UAE, Saudi Arabia, Brunei, and Singapore (mainly fuelled by immigration). Growth in population is expected to lead to a growing demand for resources and basic needs, particularly for food, clean water, energy and healthcare. The population in countries like Germany and Japan registered a decreasing rate of growth over the same period. The following chart illustrates the population in 2006 and 2010 and the forecasted population in 2016 in selected countries in Asia, the CEEMENA region and selected developed economies.

Population Growth in Selected Countries, 2006, 2010 and 2016F



Source: WEO Database, September 2011 published online by IMF and countries data

An ageing population is defined as a shift in the distribution of a country's population towards an older age group, which is mainly caused by the ageing of the baby boomers¹, who are moving into the retirement age, and further exacerbated by low birth rate, low mortality rate and improved life expectancy. A low birth rate is mainly the result of increasing urbanisation which is associated with increased living costs and a busy lifestyle, both of which are less conducive to family building. Further, in some countries like the People's Republic of China (PRC), government restrictions on the number of children per family also contribute to lower birth rates.

A low mortality rate and improved life expectancy are primarily the result of better living conditions from increased wealth, access to better nutrition, healthcare and sanitation, as well as the political stability in countries. An ageing population is expected to lead to an increase in the demand for HCS due to:

- higher occurrence of non-communicable lifestyle diseases such as cardiovascular diseases as well as cancer and age related diseases such as arthritis and diabetes, among others;
- higher requirement for diagnosis and hospital-based inpatient and outpatient treatment; and
- longer duration of care.

The following table shows the percentage of ageing population (aged 65 years and above) and the ageing population CAGR between 2006 and 2010 for selected countries. As can be seen from the table, Asia, in particular Singapore, Malaysia, the PRC and Korea, have the fastest ageing population.

¹The baby boomers refer to those born during the 1940s -1960s

7. INDUSTRY OVERVIEW (cont'd)

Ageing Population (65 years and above), 2006-2010

Population 65 years and above (in thousands)					
Country	2006	% of Total Population	2010	% of Total Population	CAGR 2006-10
Southeast Asia					
Indonesia	11,630.9	5.2%	13,194.5	5.6%	3.2%
Thailand	5,163.6	8.2%	5,677.2	8.9%	2.4%
Vietnam	4,958.8	5.9%	5,298.5	6.0%	1.7%
Malaysia	1,153.8	4.3%	1,440.8	5.1%	5.7%
Singapore	356.5	8.1%	456.9	9.0%	6.4%
Brunei	12.5	3.3%	14.3	3.6%	3.2%
Asia					
The PRC	100,981.5	7.7%	119,235.1	8.9%	4.2%
India	50,938.5	4.7%	57,742.5	4.9%	3.2%
Hong Kong	844.7	12.3%	904.6	12.7%	1.7%
CEEMENA					
Russia	19,482.2	13.7%	18,289.3	12.8%	-1.6%
Ukraine	7,552.7	16.2%	7,075.5	15.5%	-1.6%
Turkey	4,628.7	6.7%	5,063.0	6.9%	2.3%
Egypt	3,399.7	4.8%	3,913.6	5.0%	3.6%
Romania	3,214.3	14.9%	3,196.4	14.9%	-0.1%
Saudi Arabia	716.3	3.0%	815.5	3.0%	3.3%
Macedonia	228.8	11.2%	243.0	11.8%	1.5%
UAE	30.1	0.7%	22.3	0.4%	-7.2%
Developed Countries					
United States	37,108.9	12.4%	40,483.8	13.1%	2.2%
Japan	26,038.2	20.4%	28,947.1	22.7%	2.7%
Germany	16,004.1	19.5%	16,632.7	20.4%	1.0%
United Kingdom	9,724.3	16.1%	10,321.1	16.6%	1.5%
Korea	4,668.2	9.7%	5,446.5	11.1%	3.9%

Source: WEO Database, September 2011, published online by IMF and countries data.

2nd fastest growth

Fastest growth and most affluent

3rd fastest growth with a large population base

One of the highest percentages of ageing population in Asia (ex Japan)

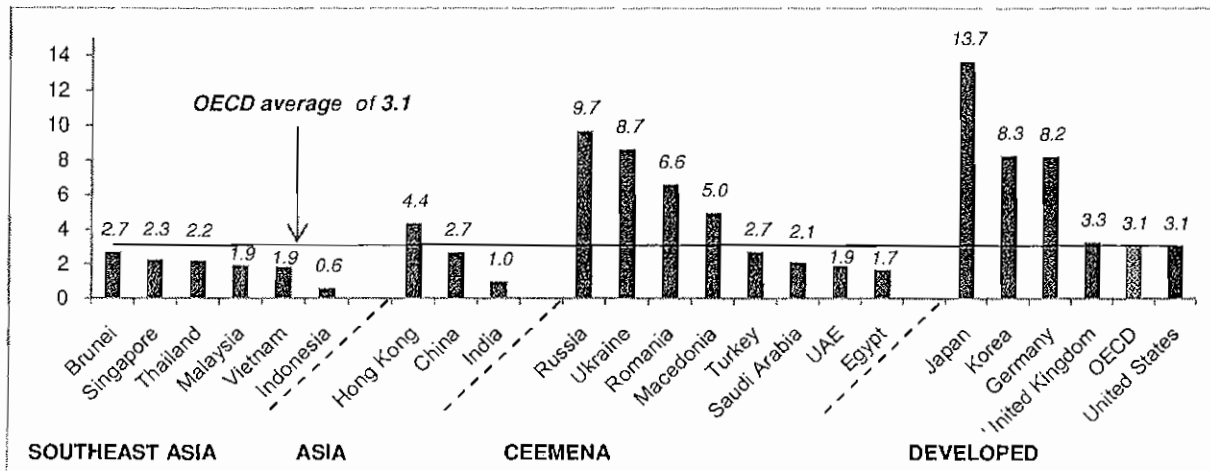
1.4 HEALTHCARE INDICATORS

Most of the developed and mature economies such as United States and United Kingdom have over 3.0 hospital beds per 1,000 population. In comparison, countries like Singapore, Thailand, Malaysia, Indonesia and India have a ratio of hospital beds per 1,000 population of below 3.0. The following chart shows the hospital beds per 1,000 population ratio data of selected countries in Southeast Asia, Asia, the CEEMENA region and selected developed economies, as compared with the Organisation for Economic Cooperation and Development (OECD) average ratio in 2009 or latest available year.

A low proportion of beds per 1,000 population is indicative of latent demand for additional hospital beds reflecting the growth potential for healthcare infrastructure in the country.

7. INDUSTRY OVERVIEW (cont'd)

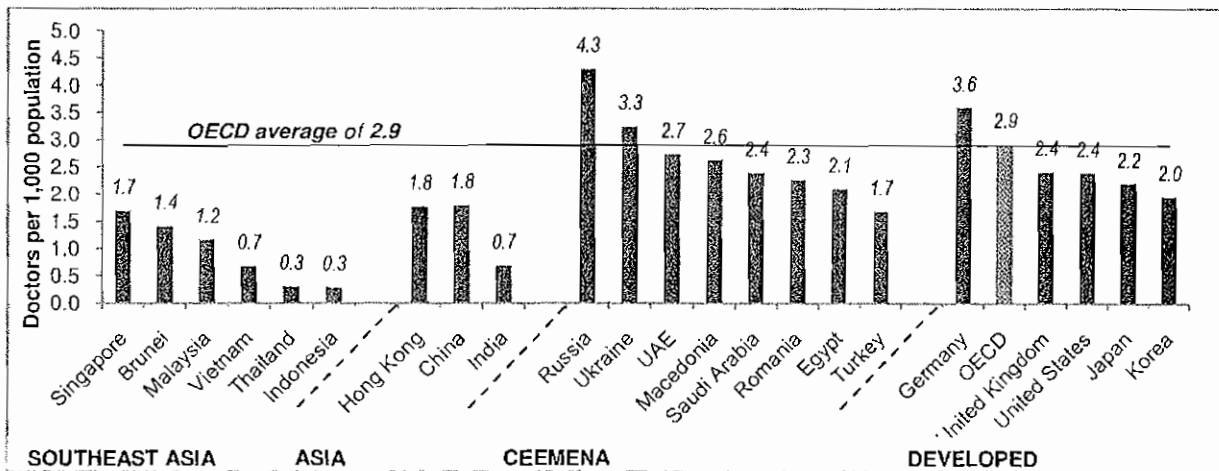
Hospital beds per 1,000 population ratio, 2009 (or latest available year)



Note: Data for Singapore, Malaysia, Hong Kong, China, India, Saudi Arabia and Turkey are as of 2010, sourced from the data published by the respective countries' government departments. Data for Russia, Japan, Korea and United States are as of 2009, sourced from the OECD. Data for Vietnam is as of 2009, sourced from government published data. All other countries' data are as of 2009 or latest available year, sourced from the World Bank.

Developing countries in Southeast Asia and other emerging economies in Asia tend to have lower ratios of doctors per 1,000 population and nurses per 1,000 population when compared with developed countries and emerging economies in the CEEMENA region. The development of the healthcare sector is highly related to government policies, investments in the area of healthcare education and the supply of healthcare workers. The following chart shows the doctors per 1,000 population ratio of selected countries in Southeast Asia, Asia, the CEEMENA region and the developed economies, as compared with the OECD average ratio in 2009 or latest available year.

Doctors per 1,000 population ratio, 2009 (or latest available year)

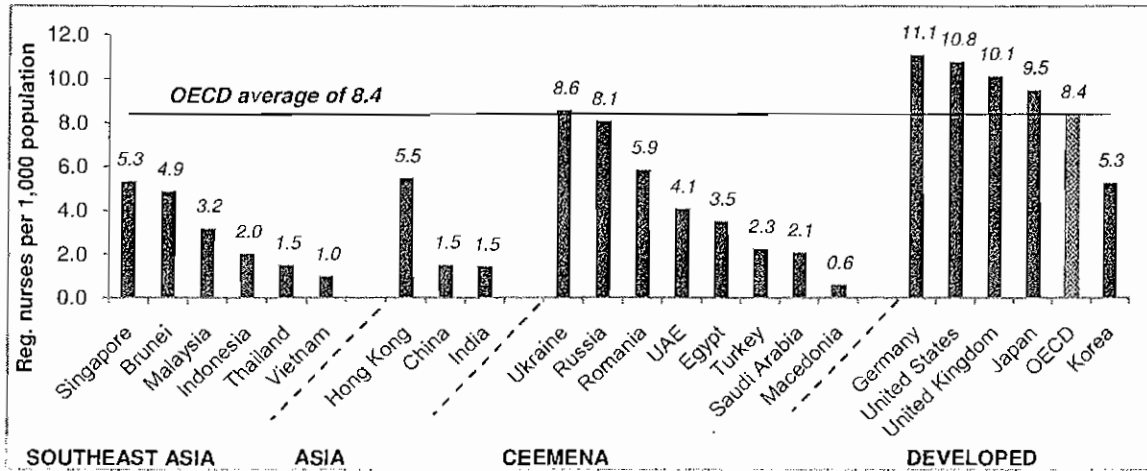


Note: Data for Singapore, Malaysia, Hong Kong, China, India, Saudi Arabia and Turkey are as of 2010, sourced from the data published by the respective countries' government departments. Data for United States and Japan are as of 2009, sourced from OECD. Data for Egypt is as of 2008, sourced from EIU. All other countries' data are as of 2009 or latest available year as published by the WHO.

7. INDUSTRY OVERVIEW (cont'd)

The following chart shows the registered nurses per 1,000 population ratio of selected countries in Southeast Asia, Asia, the CEEMENA region and selected developed economies, as compared with the OECD average ratio in 2009 or latest available year.

Registered nurses per 1,000 population ratio, 2009 (or latest available year)



Note: Data for Singapore, Malaysia, Hong Kong, China, India and Turkey are as of 2010, sourced from the data published by the respective countries' government departments. Data for United States and Japan are as of 2009, sourced from the OECD. All other countries' data are as of 2009 or latest available year as published by the WHO.

1.4.1 Challenges in a Public Healthcare Delivery System

Generally, the public healthcare policy in a relatively less-developed country is driven by government initiatives in providing healthcare to its population. The objective of governments in such countries is to provide its population with access to basic HCS, control and eradication of communicable diseases such as tuberculosis, rubella, leprosy, and Acquired Immuno Deficiency Syndrome (AIDS), providing care for the infirm and elderly, as well as creating awareness amongst the public on ways to prevent diseases.

As a country progresses from being under-developed to a developing economy, its public healthcare infrastructure typically lags due to limited funding, resulting in overcrowding in hospitals, shortage of resources and long waiting times. As a result of the high volume, a need-based system is typically implemented. Furthermore, public HCS tend to have less advanced treatment, medication and drugs. This leads to a growing demand for private hospitals and also an increase in outbound medical travel.

In developed countries, the government's role revolves around ensuring that public interest is protected through implementation of regulations and by channelling private spending in healthcare to achieve a more sustainable public funding system. In mature economies, a system of universal healthcare or national insurance is usually implemented to cater for public healthcare funding. Such a system is only sustainable in a country with a large wealthy population segment paying high taxes to fund public HCS. As a result, the majority of the population in developed countries utilises public HCS, resulting in long waiting times and backlog of treatment.

In comparison, private healthcare is typically seen as a premium service that provides an alternative option to the wealthier population who are able to pay out-of-pocket (OOP) or can fund private HCS via medical insurance. Private healthcare therefore provides a choice to the patients desiring shorter waiting times and faster access to quality healthcare.

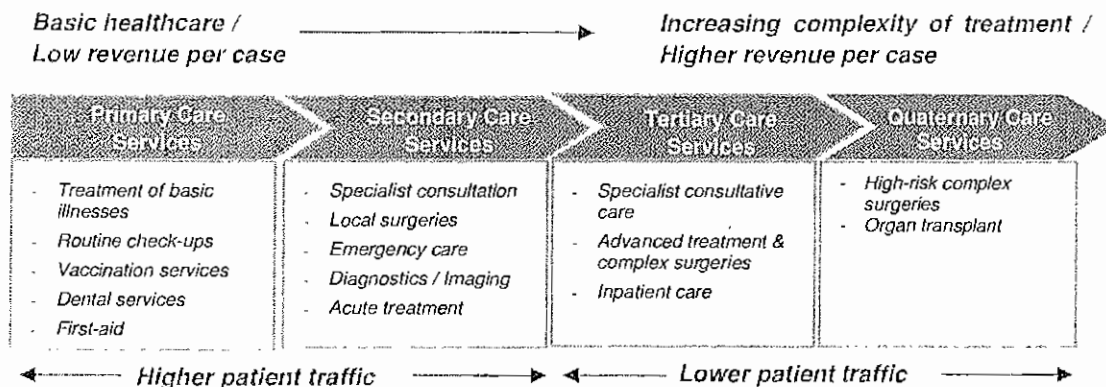
7. INDUSTRY OVERVIEW (cont'd)

2 OVERVIEW OF THE GLOBAL HEALTHCARE SERVICES (HCS) MARKET

2.1 DEFINITION OF HCS

HCS is defined as the provision of consultation, diagnostic, patient care and medication for the prevention or treatment of diseases, ailments, injuries or other physical and psychological health conditions. These services are provided by healthcare professionals such as specialists and general physicians, supported by medical assistants, nurses and allied health workers. The classification of HCS based on the type of care delivered is summarised in the following diagram:

Categorisation of HCS by Level of Service



Source: Compiled by Frost & Sullivan

Primary care is the most basic HCS that is provided to the general public, delivered by primary care physicians, nurses or family doctors on an outpatient basis. Primary care services are generally provided via health centres, clinics and sometimes pharmacies. They also include administering first-aid to injuries and dental services.

Secondary care refers to the intermediate HCS or consultation by medical specialists to patients, usually referred by primary care personnel and may be delivered on an inpatient or outpatient basis. Secondary care is typically provided in specialist clinics, hospitals and medical centres that have special facilities for diagnostic, inpatient treatment and general surgeries. Secondary care services are supported by healthcare workers such as nurses, pharmacists and allied health personnel.

Tertiary care is the level of HCS provided to patients which typically involves specialist consultative care, advanced treatment or complex surgery and inpatient care. Tertiary care patients are usually referred by primary or secondary care personnel. The provision of these services is delivered via hospitals and medical centres with specialised equipment and facilities for complex medical interventions. Examples of tertiary care include cardiac surgery, neurosurgery, reconstructive surgery and cancer treatment.

Quaternary care is the highest level of HCS which involves high-risk and complex surgeries such as organ transplants.

2.2 SEGMENTATION OF HCS

The general HCS model can be segmented into public and private HCS:

Public HCS is the foundation for a country's HCS structure. It refers to HCS provided by the government, typically through appointed ministries or administrative bodies. The services provided are funded through public sector budgets, national insurance schemes and/or universal healthcare programmes.

7. INDUSTRY OVERVIEW (cont'd)

Private HCS can be split between for-profit businesses and not-for-profit organisations. Private healthcare funding typically comprise of OOP expenditure or private insurance plans, and in some countries, funds from national or social insurance.

2.2.1 Development of the Public and Private HCS Market

A country's HCS public-private mix is highly related to the country's level of economic development. The following table summarises the relationship between a country's HCS and its level of economic development.

HCS Industry Profiling based on Level of Development in an Economy

Economy	Underdeveloped	Developing	Newly Developed	Matured
Infrastructure	<ul style="list-style-type: none"> Mainly public primary care, rural clinics and outboard non-profit clinics. Low number of public hospitals available in central/urban areas Low number of private practices, mainly primary clinics operated by family doctors 	<ul style="list-style-type: none"> Higher number of public clinics Increasing number of public hospitals being built and mainly concentrated in central/urban areas Growing number of private primary clinics. The start of private hospitals targeted at the wealthy population 	<ul style="list-style-type: none"> High number of public and private clinics Growth in the number of secondary and tertiary public healthcare Privatisation of public healthcare Rapid growth in the number of private hospitals 	<ul style="list-style-type: none"> Continued capacity building in public hospitals and raising standards Consolidation of the private healthcare sector
Healthcare Workforce	<ul style="list-style-type: none"> Few trained doctors and surgeons, mainly generalists Voluntary foreign doctors serving under not-for-profit / non-government organisation (NPO/NGO) Very few nurses, mainly care workers with limited formal qualifications 	<ul style="list-style-type: none"> Generalist physicians or surgeons mainly locally trained Overseas-trained specialists Growing number of nurses and technical assistants trained in public hospitals or vocational schools 	<ul style="list-style-type: none"> Higher number of local and foreign trained doctors Increase in number of specialists over a wide range of sub-specialties Movement of doctors from public to private sector 	<ul style="list-style-type: none"> Low rate of talent replacement Higher number of specialists over a wide range of sub-specialties, In-migration of foreign physicians, trained nurses and allied workforce
Healthcare Funding	<ul style="list-style-type: none"> Low public funding due to limited government resources Larger contribution from charity foundations, the United Nations (UN), Economic Groups and other (NPO/NGO) Limited healthcare insurance structure available Mainly OOP spending 	<ul style="list-style-type: none"> General reliance on taxation Some contribution from charity, UN, Economic Groups and other NPO/NGO Growing OOP spending Small insured population Developing funding structure for the poor 	<ul style="list-style-type: none"> High reliance on taxation Large social security contribution transitioning into universal healthcare model Large OOP spending in particular private sector Higher number of insured population Governments implement cost-containment strategies 	<ul style="list-style-type: none"> Very high reliance on taxation Mandatory contribution to social security/ universal healthcare model Low OOP spending Majority insured population
Technology	<ul style="list-style-type: none"> Basic medical, surgical and imaging equipment 	<ul style="list-style-type: none"> Basic medical, surgical and imaging equipment The start of Information and Communication Technology (ICT) integration 	<ul style="list-style-type: none"> Advanced equipment mainly in private facilities Higher ICT integration 	<ul style="list-style-type: none"> State-of-the-art equipment in both public and private facilities High ICT integration
Regulations	<ul style="list-style-type: none"> Unstructured Regulations mainly to maintain workforce and sanitation / hygiene standards 	<ul style="list-style-type: none"> Evolving, regulating the private sector Increasing standards compliance guidelines 	<ul style="list-style-type: none"> Maturing Higher governance on private sector Higher definition on accountability Standards compliance enforcement 	<ul style="list-style-type: none"> Matured High governance on private sector High definition on accountability, emphasis on standards compliance
Examples of Countries	<ul style="list-style-type: none"> Cambodia, Laos, Bangladesh, Nepal 	<ul style="list-style-type: none"> Thailand, Indonesia, Malaysia, India, Egypt, Turkey, China 	<ul style="list-style-type: none"> Singapore, Hong Kong, Korea 	<ul style="list-style-type: none"> United Kingdom, United States, Germany, Japan

Source: Compiled by Frost & Sullivan

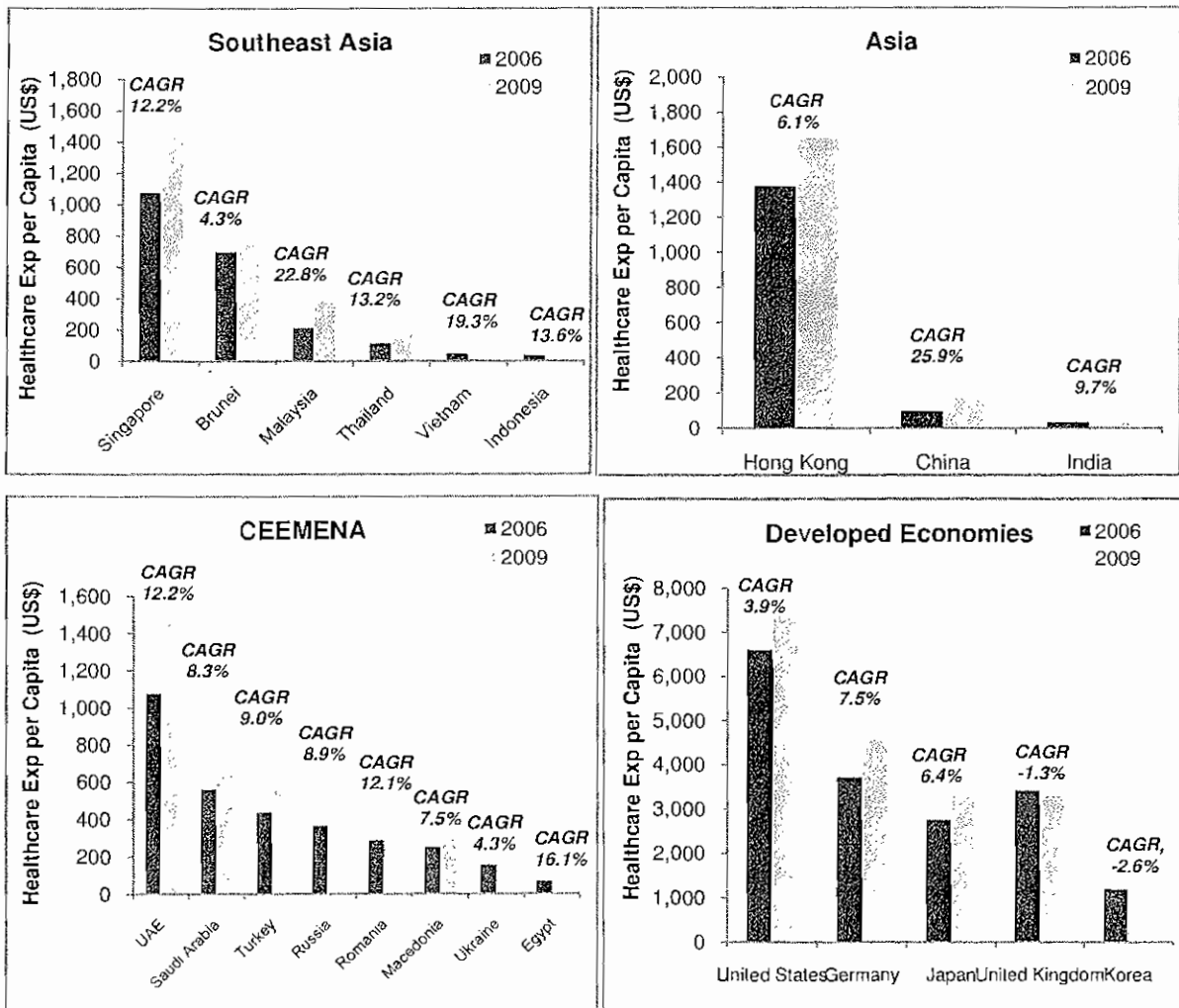
7. INDUSTRY OVERVIEW (cont'd)

2.2.2 Development and Trends in the HCS Market

Total healthcare expenditure per capita is increasing in most countries. Moderate to high growth was observed between 2006 and 2009, across the developing and newly developed regions in Asia and the CEEMENA region. These countries were either largely underserved and experiencing large capacity building or actively upgrading their healthcare systems. In these economies, healthcare expenditure is driven by factors such as changing lifestyle, ageing population, political conflicts and war, and the outbreak of highly transferable diseases.

The GDP in developed countries such as the United States, United Kingdom and Japan registered a lower growth at a CAGR of sub-3.0% from 2006 to 2009. Nevertheless, the total healthcare expenditure per capita in the developed countries is amongst the highest in the world, mainly due to higher living costs in these countries as well as the higher prevalence of age-related diseases.

Total Healthcare Expenditure per Capita (in current US\$) and Growth Trends, 2006 and 2009



Source: The World Bank Database and countries data.

Note: Total healthcare expenditure is the sum of public expenditure and private expenditure. Public expenditure includes capital expenditure by public HCS providers.

7. INDUSTRY OVERVIEW (cont'd)

Global Migration of Healthcare Workers into Higher Income Countries

Migration of healthcare workers originating from the developing countries into developed and mature economies is mainly driven by the motivation for employment opportunities, higher wages and better living conditions. Developed countries usually have a strict policy regarding the in-migration of healthcare workers, however such policies may be relaxed when there is a severe shortage. In-migration of doctors is apparent in countries such as Singapore, Australia, New Zealand, United States, Canada, Hong Kong and UAE. On the other hand, the in-migration of nurses is often due to the sector being less attractive to the locals due to the lower salary scale. Hong Kong, Singapore and the Gulf countries import nurses from other developing Asian countries such as Malaysia and the Philippines to fulfil the shortages of nurses in their respective countries.

Globalisation has also created new opportunities for healthcare tertiary education (HTE) providers in these developing countries to produce local talent for the purpose of supplying staff to the developed countries, in addition to serving their own countries. (*Refer to Chapter 6 for more details on HTE*).

Advanced Technology and ICT (Information and Communications Technology) Integration

Advanced technologies are changing the landscape of disciplines such as investigative medicine and micro-surgery. For instance, high-definition imaging equipment with 3-D visualisation and advanced ultrasound equipment enable doctors to diagnose and detect ailments in its early stage whereas robot-assisted surgery devices reduce surgeons' level of fatigue during complex surgeries. Technology also plays an important part in addressing the manpower shortage in the developed countries by relieving the need for a larger workforce. Furthermore, the integration of ICT in the healthcare sector allows efficient document handling of patient records and imaging files, which can be seamlessly transferred within or across different hospitals, providing patients with a more personalised service.

The United States, Japan and Germany are the major consumers of medical devices as well as being the leading producers and exporters of technologically advanced medical instruments. Based on the WHO global disease statistics, the top causes of mortality predicted in 2030 are expected to be cardiovascular diseases, cancers and pulmonary diseases. Therefore, healthcare providers are increasingly upgrading their facilities with advanced healthcare technologies for better and early diagnosis of such diseases. The use and deployment of such advanced technologies is also likely to support cost savings at patient level resulting from early diagnosis and treatment leading to faster recovery.

2.3 BARRIERS TO ENTRY

High Capital Expenditure (CAPEX): Building a healthcare facility incurs significant CAPEX investments. Such CAPEX includes the purchase of land and equipment as well as the construction cost of new buildings. For example, in Malaysia, a 200-bed hospital would typically cost between US\$ 40 million to US\$ 65 million to build, and in urban areas, the cost would be higher. The biggest variable is land cost which varies across locations. The cost of setting up an operation theatre in Malaysia could be approximately US\$ 0.7 million. Furthermore, there will be other start-up costs involved for the operation of the facility.

Licensing: The HCS industry is regulated and HCS providers are required to apply for a license in order to operate. The ease of obtaining a private operating license differs between countries. For mature economies, the constraints faced may be greater as these countries typically have a well-developed public healthcare system or may have exhausted the issuance of private licenses. By comparison, private hospital licenses are usually easier to obtain in developing countries such as Southeast Asia and in Middle Eastern countries with underdeveloped healthcare infrastructure and overburdened public resources. In these countries, the private sector is often encouraged to participate in providing HCS to the general public in order to complement the public HCS.

7. INDUSTRY OVERVIEW (cont'd)

Limited Land Bank: Countries with limited land areas such as Singapore and Hong Kong are among the most difficult countries to obtain new private hospital licenses due to the limitation of land. As such, there could be higher levels of consolidation activities amongst the private sector players in these markets.

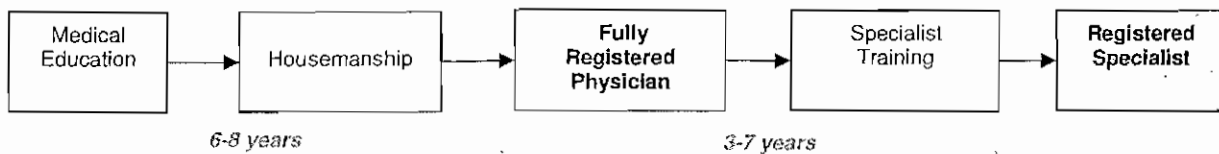
Regulatory Requirements and Standards: In general, the HCS sector is highly regulated by the government. The industry is subject to high levels of regulations and standards in the administration of its facilities, handling of supplies and in clinical operation procedures to ensure the safety of the general public. A new entrant must be highly familiar with the industry and highly knowledgeable in the intricacies of HCS.

Consumer Confidence in Brand and Industry Recognition: Typically, brand recognition is important in private HCS. The ability to attract specialists already established in their profession to set up a consultation clinic within a private hospital ensures a ready stream of patients and new entrants to a HCS market may have difficulties doing this due to the lack of brand recognition. Furthermore, new entrants have to compete with well established service providers who have achieved industry awards and accreditations like Joint Commission International (JCI).

Availability of doctors and nurses: The availability of qualified and experienced doctors / specialists and allied healthcare professionals (especially nurses) to support investments in new facilities / expansion plans could pose a challenge to the success of new hospitals / medical facilities.

Long training time to become a doctor, in particular, a specialist: It takes approximately 6-8 years to become a fully registered doctor and a further 3-7 years to be trained as a specialist. This long training time is highly challenging and as a result, the number of specialists produced is generally lower than other disciplines for most countries. The availability of such experienced specialists is one of the major barriers to entry for a new private HCS provider.

Typical Medical Specialist Career Progression Track



Source: Compiled by Frost & Sullivan

2.4 PRODUCT SUBSTITUTION

There is no substitution for HCS. However, within the general HCS models, patients may choose to seek treatment with either a public or a private HCS provider, which are able to provide the range of basic to a more complex HCS.

2.5 VULNERABILITY TO IMPORTS

Medical Supplies and Pharmaceuticals

Major producers of medical supplies and pharmaceuticals such as Pfizer, Abbot and Baxter, to name a few, operate a global supply network with manufacturing and distribution facilities present across different regions. Hence, most of the medical supplies and pharmaceuticals are easily available from country distribution agents making the healthcare sector less-vulnerable to imports of such items.

7. INDUSTRY OVERVIEW (cont'd)

3 OVERVIEW OF MEDICAL TRAVEL IN SELECTED COUNTRIES

3.1 DEFINITIONS

Medical travel is defined as the activity of seeking medical treatment outside the borders of one's own country, and requires a patient to travel to a destination country, including making necessary arrangements (akin to a tourist) such as entry visas / permits, transfers and accommodation. Such medical travel is often necessary due to the patient's prevailing illness, but may also include elective procedures.

Typical complex (high intensity) cases include heart surgeries, hip/knee replacement surgeries, cancer treatments and organ transplants. Such treatments generally require hospitalisation and in most cases post-operative visits to monitor progress. Elective procedures include enhancement surgeries, gender reassignments and reproduction/fertility treatments. Medical travel is distinct from medical tourism which usually involves non-invasive consultative care, wellness therapies or visiting therapeutic rehabilitation facilities for health rejuvenation.

Drivers for medical travel

It is generally observed that the overall economic development of a country precedes the development of the healthcare infrastructure therein. However, usually, there is a time lag (despite funds available for investment) largely on account of the following reasons:

- Healthcare is a highly regulated industry (in terms of licenses, approvals, monitoring, etc) with specific processes / procedures that need to be strictly followed, which leads to bureaucratic and regulatory delays; and
- The time taken to develop qualified, trained and experienced doctors & specialists and allied healthcare professionals (which are the most integral part of the healthcare delivery system in any country) adds to the 'lag' effect. The availability of the healthcare professionals can also be impacted by issues such as limited availability of trainers and related facilities.

This lag effect can be noticed in countries like Indonesia and other fast growing economies such as CEEMENA and these often become medical travel source markets. In such markets, the rising affluence and a desire for better quality of care is driving patients to seek medical treatment overseas in destinations such as Singapore and Malaysia, among others, where the healthcare infrastructure and availability of such professionals addresses their needs. One of the primary reasons for Indonesians seeking treatment overseas is the perceived poor quality of healthcare at home. The limited presence of holistic treatment services in Indonesia and the availability of better quality of healthcare in neighbouring countries, especially Singapore and Malaysia, act as a curb to the growth of and demand for the Indonesian domestic healthcare market. Competitive hospital fees in Malaysia are increasingly attracting Indonesians. In addition, tour operators in Singapore and Malaysia offer specially tailored packages for Indonesian patients. Special referral mechanisms as well as international customer departments at major private hospitals in these countries also serve as friendly points of contact for medical travellers from Indonesia.

An increasing trend of hospitals having international accreditations is another driver for medical travel. International accreditation plays an important role for medical travellers as it acts as a credibility stamp for the medical traveller indicating that the hospital meets international standards of care and quality treatment.

Therefore, the drivers for medical travel are typically based on one or a combination of factors related to quality of care, technology, unavailability of treatment in the home country, low access to treatment due to overcrowded facilities and long waiting times in the home country. The patients' financial capabilities, reputation of doctors at foreign hospitals, distance and connectivity to country of treatment are also key influences on the decision of medical travellers seeking treatment overseas.

Singapore and Malaysia are medical travel hubs for travellers from Asia, while Thailand and Turkey typically attract patients from CEEMENA region.

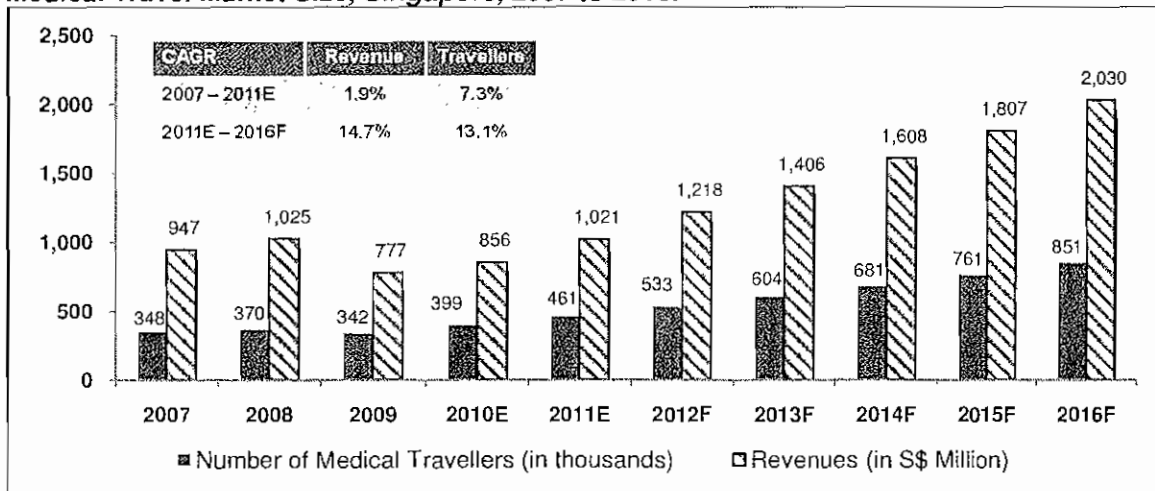
7. INDUSTRY OVERVIEW (cont'd)

3.2 SINGAPORE

A medical travel destination offering state-of-the-art technologies and medical procedures

Singapore is recognised for its HCS and medical expertise. It is one of the most favoured medical travel destinations in Southeast Asia for complex treatments in the field of oncology, organ transplants, cardiology and neurological surgery. The high quality of HCS has always been a driver for the country in attracting foreign patients mainly from Indonesia (47.0%) and Malaysia (14.0%). Strong policies and regulatory frameworks, which are recognised internationally, coupled with active governance, adherence to prescribed guidelines/accreditations and a strong focus on quality put the medical traveller at ease. These position Singapore as the destination of choice for complex treatments in the region.

The global financial crisis had an impact on the number of medical travellers and medical travel revenues in 2009. However, the industry recovered in 2010 and recorded revenues to the tune of S\$ 856.0 million (US\$ 628.0 million) which represented a growth of 10.1% over 2009. Singapore medical travel revenues and the number of medical travellers are expected to grow at CAGRs of 14.7% and 13.1% respectively between 2011 and 2016. This is attributable to Singapore having established itself as a centre of referral for complex procedures including organ transplants, cardiovascular surgeries and new cutting edge treatments such as, among others, hematopoietic stem cell transplantation. Apart from the presence of highly qualified and specialised transplant surgeons and strong healthcare support infrastructure, the country's popularity for organ transplants can also be attributable to, but not limited to, the high success rate of non-related living donor transplants, as Singapore HCS is governed by a strong ethical code resulting in high levels of trust in the medical system.

Medical Travel Market Size, Singapore, 2007 to 2016F

Source: Singapore Tourism Board (STB). Estimates by Frost & Sullivan.

Note: The above numbers of medical travellers represent approximately 60.0% of the total medical travellers (patient and the accompanying family) that visited Singapore. The number of travellers and revenues pertain to the actual medical travellers and the amount spent by the medical traveller on hospital treatment only. It does not include co-traveller(s) and incidental tourism related expenses. Estimates by Frost & Sullivan

The high occupancy rate and longer waiting times at major public hospitals in Singapore dissuades foreign patients from choosing public hospitals. As a result, private hospitals such as Mount Elizabeth Hospital, Gleneagles Hospital and Raffles Hospital are the key beneficiaries of the development of the medical travel market and increase in medical travellers. In addition to these hospitals, new premium private hospitals are also expected to benefit from the potential increase in medical travellers.

The government of Singapore has supported the medical travel industry by encouraging the country's hospitals to obtain international accreditations such as the JCI or International Organization for Standardization (ISO). One of the key factors that attract and strongly influence the decision of international patients to visit Singapore hospitals is the international accreditations that stand testimony to the quality of its healthcare delivery. For instance, as at 2011, 14 hospitals

7. INDUSTRY OVERVIEW (cont'd)

are JCI accredited (it has one of the highest percentages of JCI hospitals over total hospitals) and 11 hospitals are ISO certified.

In addition some hospitals in Singapore have set up overseas marketing and patient referral networks to expand their market coverage. The networks can be in the form of marketing agent tie-ups, doctor (referral) networks, government and corporate payer networks.

Singapore as a centre of evacuation/emergency treatments for the Southeast Asian region

Singapore also acts as an important evacuation centre for emergency treatment in the region. This ensures that the critically ill patients who face emergencies are air-lifted with trained doctors on board. Distinctive characteristics of the connectivity of the healthcare system in Singapore are expected to continuously aid in positioning the country as one of the most prominent medical travel hubs in the Asia Pacific region. Medical evacuation centres in Singapore have played a major role during Bali bombings, accidents during mining and in reaching out to tsunami affected victims. As corporates expand their presence in the ASEAN region, particularly in sectors such as oil & gas and mining, they have tie-ups with key medical evacuation agencies to better serve their employees in times of extreme medical emergencies. Singapore, with its state-of-the-art medical system, serves as one of the key hubs for such tie-ups among corporates.

Singapore's strategic geographical position, air and sea connectivity, and proximity to other Southeast Asian countries enables it to act as a centre for evacuation/emergency treatments and a key medical hub for medical travel source markets.

3.3 MALAYSIA

A cost competitive destination for medical travellers from, but not limited to, Indonesia

Medical travel market growth in Malaysia is on an upward trend. In 2011, the medical travel market in Malaysia generated approximately RM 509.8 million (US\$ 167.0 million) in revenues, having grown from approximately RM 253.8 million (US\$ 59.0 million) in 2007, registering a CAGR of 19.0% during the same period. As of 2011, hospitals in Penang received the highest share of medical travel revenue at 49.0%, followed by hospitals within the Klang Valley at 21.0% and Melaka at 10.0%. Upcoming and potential medical travel hubs in Malaysia include the Medini Health Hub in the Iskandar Development Region (please refer to the demand dynamics section in the HCS chapter in Malaysia) and Kota Kinabalu, Sabah.

Malaysia attracts a majority of its medical travellers from Indonesia given the close proximity and offering of quality healthcare at affordable prices. It is observed that patients from areas such as Sumatra seek treatment in Penang or Melaka while more affluent patients from Jakarta and Surabaya, among others, generally travel to Singapore for treatment.

Since March 2010, Singapore patients can utilise their national insurance fund (Medisave) for day surgery or in-hospital admissions at selected hospitals in Malaysia sourced via appointed referral centres². As of March 2012, there were 13 hospitals in Malaysia registered under this scheme. The following table lists the referral centres and their respective HCS facilities in Malaysia.

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² Patients must be referred by the appointed referral centres (Balestier Clinic and Parkway East Hospital) recognised by the government of Singapore prior to travelling to Malaysia for treatment.

7. INDUSTRY OVERVIEW (cont'd)

Medisave referral centres in Malaysia

Management	Referral Centre	HCS Facilities in Malaysia
Health Management International, Malaysia	Balestier Clinic, Singapore	<ul style="list-style-type: none"> Regency Specialist Hospital, Johor Bahru Mahkota Medical Centre, Melaka
Parkway Pantai Limited, Malaysia	Parkway East Hospital, Singapore	<ul style="list-style-type: none"> Gleneagles Hospital, Kuala Lumpur Gleneagles Medical Centre, Penang Pantai Hospital, Kuala Lumpur Pantai Hospital, Cheras Pantai Hospital, Ampang Pantai Hospital, Klang Pantai Hospital, Ipoh Pantai Hospital, Ayer Keroh Pantai Hospital, Penang Pantai Hospital, Batu Pahat Pantai Hospital, Sungai Petani

On average, the cost of surgery in a single bedded room in most Malaysian private hospitals is in the range of the cost at B1 wards and C wards in Singapore public hospitals. Several factors such as waiting time, affordability, quality of services/doctors and proximity from Singapore determine the patients' choice. As a result, private hospitals in Malaysia which provide locations in close proximity to Singapore, have a track record of quality service, short waiting times and competitive price point, and allow patients access to their Medisave, may be well positioned to tap into the segment of Singapore patients who may otherwise have confined their choices to the B1 and C-class wards in Singapore. The surgery cost comparisons between such private hospitals in Malaysia and Singapore's public B1 wards is estimated as follows:

Estimated surgery cost comparison between Singapore public & Malaysia private hospitals

Surgeries	B1 Ward ³ in Singapore (US\$)	C Ward ⁴ in Singapore (US\$)	Private Hospital Ward ⁵ in Malaysia (US\$)
Hip replacement	16,000	6,000	10,000
Knee replacement	14,000	4,300	8,000
Angioplasty	20,000	5,500	11,000
Heart bypass	20,000	4,000	9,000

Source: Compiled by Frost & Sullivan

The Economic Transformation Programme (ETP) outlined by the Malaysian government has identified the healthcare sector as a focus area for development to transform the country into a higher income economy. The Malaysian government has set a target for the medical travel industry to contribute RM 50.5 billion (US\$ 17 billion) to the Gross National Income (GNI) by 2020. The target is expected to be realised through various entry point projects under the ETP such as the implementation of marketing plans and collaborations with private HCS providers; foreign governments and insurance agencies in order to attract more medical travellers from countries such as Vietnam, Cambodia, Bangladesh, Canada, Brunei and countries of the Middle East; among others. Furthermore, the government is also providing tax benefits to encourage private HCS companies to obtain international accreditation such as JCI or ISO. To ease entry formalities for patients, the Immigration Department of Malaysia has implemented the Green Lane System at main entry points which expedites custom clearance for medical travellers.

Key drivers for the medical travel industry in Malaysia include accessibility to medical travel destinations (for instance, patients from Indonesia have the option of travelling to Penang either through sea or by air; Kuala Lumpur through air-route and Melaka through sea-link), reasonable healthcare costs, the availability of high quality treatment and an advanced medical infrastructure.

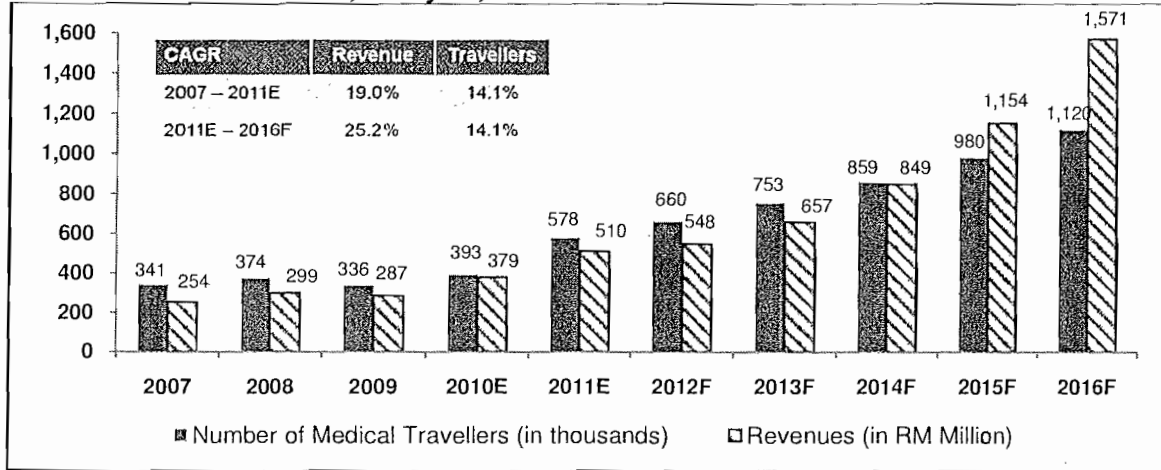
³ Class B1 ward = Air-conditioned 4 bedded ward (Source: Ministry of Health Singapore)

⁴ Class C ward = Fan-ventilated 8 or 9 bedded ward (usually greater than 6 beds) (Source: Ministry of Health Singapore)

⁵ Private hospital wards in Malaysia refer to single bed wards in private hospitals (Source: OECD)

7. INDUSTRY OVERVIEW (cont'd)

Medical Travel Market Size, Malaysia, 2007 to 2016F



Source: Malaysia Health Tourism Council (MHTC) and Association of Private Hospitals Malaysia (APHM).

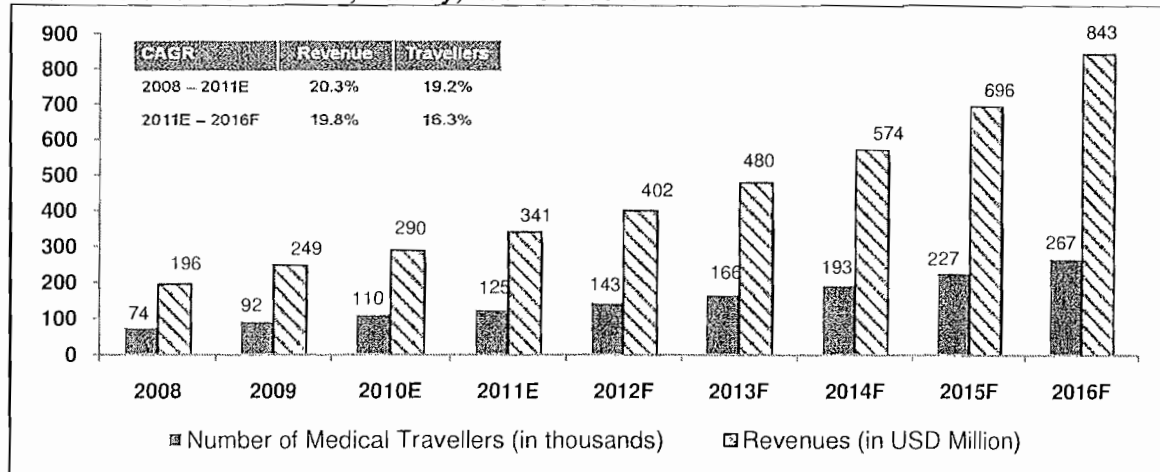
Note: The number of travellers and revenues pertain to the actual medical travellers and the amount spent by the medical travellers on hospital treatment only. It does not include co-traveller(s) and incidental tourism related expenses. Estimates by Frost & Sullivan.

3.4 TURKEY

A medical travel destination catering to complex surgeries at competitive prices for patients from the CEEMENA region

The medical travel market size in Turkey was estimated at approximately US\$331.9 million in 2011. Turkey has emerged as one of the most popular medical travel destinations in the CEEMENA region due to its high quality medical facilities, high concentration of specialists and capabilities in complex surgical procedures. It is strategically located between Europe, Asia and the Middle East which is also a contributing factor to its status as a key medical travel hub. A majority of medical travellers to Turkey were from Germany (39.0%) while Holland, Cyprus and Austria jointly accounted for approximately 17.0% of medical travellers in 2011. Libya is also one of the growing source markets for medical travellers in Turkey. The civil war which started in February 2011 has caused the healthcare facilities in Libya to be overcrowded with the injured. As a result, the more affluent population is increasingly travelling to Turkey to receive medical treatment in a more comfortable setting. Some of the key destinations (in alphabetical order) for medical travel in Turkey include Adana, Ankara, Antalya, Istanbul, Izmir and Kayseri. Medical travellers prefer Turkey due to its quality of healthcare, cost competitiveness and shorter waiting time compared to the majority of the EU countries.

Medical Travel Market Size, Turkey, 2008 to 2016F



Source: MOH Turkey, Department of Statistics Turkey. Estimates by Frost & Sullivan.

7. INDUSTRY OVERVIEW (cont'd)

Note: The number of travellers and revenues pertain to the estimated medical travellers and amount spent by the medical travellers on hospital treatment only. It does not include co-traveller(s) and incidental tourism related expenses. Estimates by Frost & Sullivan.

As of March 2012, there were 38 JCI accredited hospitals in Turkey, which is the highest number of JCI accredited hospitals in a single country in the world. Since March 2011, to support the development of the medical travel industry, the Turkish government subsidises 50% of expenses incurred in applying for the JCI accreditation, for private sector hospitals. Additionally, the Turkish government will also be paying up to 75% of the expenses incurred by hospitals or associations that promote medical tourism abroad.

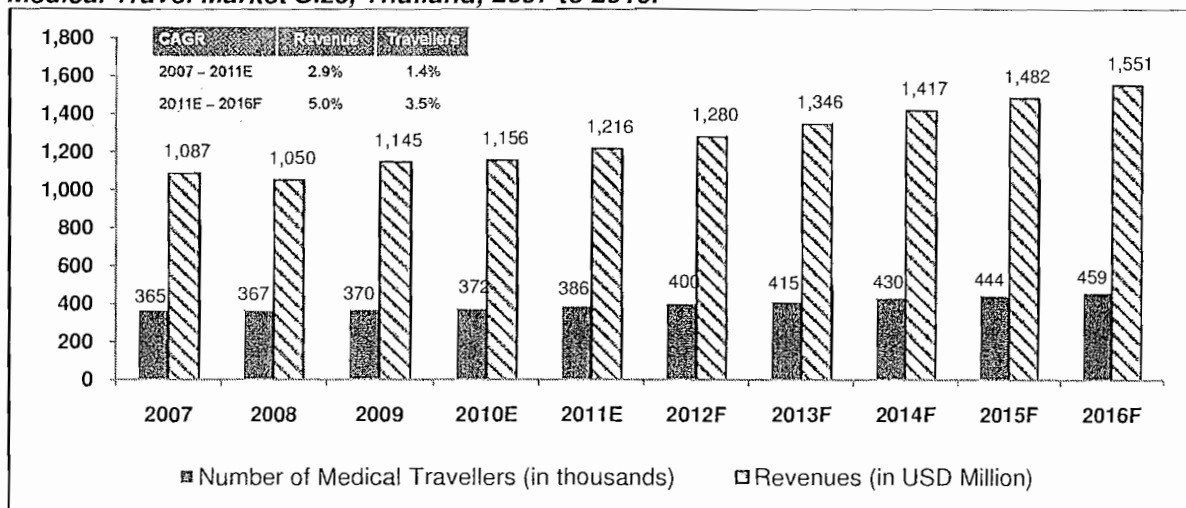
3.5 THAILAND

A key medical travel destination for patients from the Middle East with the added benefit of being a post-surgery holiday destination

Thailand is one of the key medical travel destinations in Southeast Asia in terms of the total number of medical travellers and revenues generated. The private healthcare sector has largely contributed to the growth of the medical travel industry in Thailand. The leading private participants in the Thai medical travel industry are Bumrungrad International Hospital, Bangkok Hospital, Vejthani Hospital and Samitivej Hospital.

In 2008, the industry was mildly affected by the global financial crisis and saw a drop in medical travel revenue. Nevertheless, it quickly recovered during 2009-2011 and is expected to be on an upward trend moving forward. However, growth is expected to be moderated by the continuing political uncertainty and the effects of recent major flooding in Bangkok. Thailand's medical travel revenues and number of medical travellers are projected to grow at a CAGR of 5.0% and 3.5% respectively over the years 2011 to 2016, slower than the expected growth in Singapore, Malaysia and Turkey.

Medical Travel Market Size, Thailand, 2007 to 2016F



Source: Thailand Medical Tourism Cluster, Primary interviews. Estimates by Frost & Sullivan.

Note: The numbers of medical travellers depicted above include tourists receiving treatment and exclude expatriates. Any incidental tourism expenses incurred during travel are also considered.

The majority of medical travellers to Thailand are from the Middle East region. Patients who visit Thailand often combine a holiday with their medical travel and this is a key attraction for many medical travellers. Although, for certain procedures, the cost of surgery in Thailand is comparable to Singapore, the two countries attract medical travellers from different source markets and generally do not compete in the same space, in terms of medical procedures performed. The government of Thailand has recognised the economic potential of medical travel and is planning to implement initiatives to support and promote this sector.

7. INDUSTRY OVERVIEW (cont'd)

3.6 POSITIONING AND MARKET SEGMENTS

While the four countries mentioned above are popular medical travel destinations, each one primarily caters to a distinctive segment of medical travellers (based on, among others, traveller preferences, medical conditions, and costs). The table below outlines the key benchmarks and highlights the key differences among these four medical travel destinations.

Country	Capability to Perform Complex Procedures (Relative to other medical travel hubs in the region)	Price Benchmark ⁶ (Average cost of selected surgeries in US\$)	Diversity of Patients (Top countries)	JCI Accredited Hospitals
Singapore	High <u>Key Treatments:</u> Cardiology, Cardio-thoracic surgery, Orthopaedics surgery, Reconstructive surgery, and Oncology	CABG ⁷ : 20,000 Hip replacement: 11,000 Rhinoplasty: 4,375	Indonesia >47.0% Malaysia 14.0% Russia, Vietnam >4.0% (each) Middle East, Europe, Korea >3.5% (each) North America >1.0%	14
Malaysia	Medium-High <u>Key Treatments:</u> Cardiology, Cardio-thoracic surgery, Orthopaedics surgery, In-vitro fertilisation (IVF), . Reconstructive surgery, and dental related treatment	CABG: 9,000 Hip replacement: 10,000 Rhinoplasty: 2,083	Indonesia 75.0% Singapore/Middle East/Others 21.0% India 4.0%	6
Turkey	High <u>Key Treatments:</u> Ophthalmology, Dental, Orthopaedic, Cardiology, Reconstructive surgery, Oncology, and Neurosurgery	CABG: 10,000 Hip replacement: 10,750 Rhinoplasty: 3,500	Germany 39.0% Holland 8.0% Austria 5.0% Cyprus 4.0% Azerbaijan, Russia, Iraq, France 3.0% (each) Belgium 2.0%	38
Thailand	Medium-High <u>Key Treatments:</u> Botox and face lift	CABG: 13,000 Hip replacement: 12,000 Rhinoplasty: 2,500	UAE >40.0% Qatar 9.0% Oman 6.0% Japan, Myanmar > 5.0%	13

Source: Primary interviews. Analysis by Frost & Sullivan

India

Refer to the section on medical travel in India HCS chapter – under the 'Introduction' and 'Demand dynamics' sections.

⁶ Source: OECD, March 2011, compiled from medical travel providers and brokers online and Frost & Sullivan

⁷ Coronary Artery Bypass Graft

7. INDUSTRY OVERVIEW (cont'd)

3.7 SUPPLY AND DEMAND CONDITIONS

The general perception that the growth in medical travel is primarily driven by “cheaper / lower cost treatment” may not necessarily paint the exact picture of the industry in the current economic conditions. Lower treatment cost is typically an enabler for seeking treatment abroad; however the final decision of the medical traveller would also depend on a number of other equally important factors including:

- **Quality of HCS and Industry Recognition:** The main concern in seeking treatment abroad is that the patient can never be fully certain of the real medical condition or quality of service. Patients may assess quality of service by seeking hospitals that have been accredited by an international accreditation body. Accreditation by ISO and JCI are highly sought after by HCS providers in order to gain global recognition.
- **Global Healthcare Network and Branding:** People tend to benchmark a service or product they are seeking based on familiarity with the product or by association. Typically patients may refer to friends or relatives that have successfully received treatment from a particular specialist or hospital when making their decision. In addition, HCS providers with a global referral centre or hospital network also leverage the same in promoting their services and strengthening their brand name. Both the hospital network and the brand can attract medical travellers to the HCS provider. Furthermore, the strength of having a global operating network is a differentiator especially in the post treatment phase as the hospital may connect the patient with its local operations for follow up rehabilitation sessions. This idea of seamless integration of services, may become an increasingly important decision factor for potential patients in their choice of medical travel destination.
- **Transportation and Access to Locations:** Another factor considered by medical travellers is safety of flying post-surgery as there may be possibilities of medical complications such as blood clotting leading to embolism, among others. Typically, medical travellers are likely to select destinations with direct flights, or border crossing by land to a neighbouring country, for treatment. Government regulations such as immigration policy of the destination country, complicated and time consuming visa application procedures also influence the choice of the medical travel destination. In addition to the costs related to the medical procedures and accommodation, travel costs are also an important consideration. The rising cost of fossil fuel has impacted the airlines industry and very often, these increases are onward passed to travellers in the form of higher fares. Nevertheless, the availability of low-cost or budget airlines and expansion of their route network in the region has helped to dampen the effect of rising fuel prices and provide greater access for medical travellers seeking treatment in the destination countries. Increasingly, HCS providers are offering value added services especially targeted to medical travellers such as travel, accommodation and visa arrangement packages so as to allow the overall travelling costs to be contained as well as to ensure that the patient's convenience and comfort are taken care of.
- **Internet and Communication Technology:** The proliferation of internet and communication technologies has greatly contributed to the marketing efforts of the medical travel industry. HCS providers are reaching out to interested patients globally through websites and other online platforms to provide them information about their services and a point of contact for their hospital. Network tools such as emails or bulletin boards provide a platform to the patients for communicating directly with HCS providers. Furthermore, such technologies are also very useful in the situation when patients develop complications after returning to their home country and may need to consult the overseas specialist who administered treatment or obtain medical records on an urgent basis. These tools may also be utilised for remote consultation sessions with overseas specialists as well as for delivering the patient's health records electronically to any local hospitals for follow up treatment.

7. INDUSTRY OVERVIEW (cont'd)

4 ANALYSIS OF THE HCS MARKET IN SELECTED COUNTRIES

4.1 SINGAPORE

4.1.1 Introduction and Background

Singapore is one of the newly industrialised countries and its economy is driven by its services sector (65.0% contribution to GDP) and manufacturing sector (21.0% contribution to GDP). It is one of the very few countries to have achieved an urbanisation rate of 100.0%, leading to high economic growth and wealth.

Socioeconomic Indicators, 2006 and 2010

Indicators	2006	2010
GDP (S\$ billion)	230.9	303.6
GDP per Capita (S\$) (current prices)	50,326	58,579
Population (million)	4.6	5.1
0-14 years (%)	19.1	17.4
15-64 years (%)	72.3	73.6
65 years and above (%)	8.1	9.0
Non-resident (%)	21.9	26.9
Birth Rate (per 1,000 people)	10.2	9.3
Infant Mortality Rate (per 1,000 births)	2.1	2.0
Crude Death Rate (per 1,000 population)	4.4	4.4
Total Fertility Rate (per female)	1.26	1.15
Life Expectancy – Female (Years)	80.0	84.1
Life Expectancy – Male (Years)	77.6	79.3
Total Employed (million)	2.5	3.1
Household Income Distribution:		
No: of households with household income of S\$ 6,000 and above	345,000 (33% of total)	490,000 (43% of total)
No: of households with household income less than S\$ 6,000	710,000 (67% of total)	658,000 (57% of total)
Urbanisation Rate (%)	100.0	100.0

Source: Yearbook of Statistics 2011, United Nations World Urbanisation Prospects Report, MOH Singapore.

The country is supported by a large productive population (aged 15-64) and high employed segment, which contributes to the increasing wealth of the population and a growing middle income group. The GDP per capita is the highest in Southeast Asia. When compared to other countries in the world, Singapore ranked high in terms of disposable income per capita.

Singapore has a well developed healthcare sector. Government expenditure per capita for healthcare in 2010 was approximately S\$ 842 (US\$ 617), having grown from S\$ 493 (US\$ 310) in 2006. Private expenditure per capita on healthcare in 2010 was approximately S\$ 1,477 (US\$ 1,083), having grown from S\$ 1,146 (US\$ 721) in 2006.

Singapore has a low population base which has expanded at a CAGR of 3.1% between 2006 and 2010. The non-resident population expanded at a CAGR of 8.5% and resident population expanded at a CAGR of 1.4% during the same period. The low growth in resident population is attributable to the decreasing birth rate.

Its ageing population (65 years and above) is around 9.0% of the total population and is increasing at a quicker pace.

Cancer, ischemic heart disease, pneumonia and cerebrovascular disease are the principal causes of deaths in Singapore representing over 72.0% of all deaths in 2010. There is a trend of increasing chronic lifestyle diseases mainly attributable to the sedentary lifestyle. As a result, there has been an increase in diseases such as cancer, diabetes, psychological and cardiovascular disease. This increase in lifestyle diseases is among the main drivers for the utilisation of the HCS in Singapore.

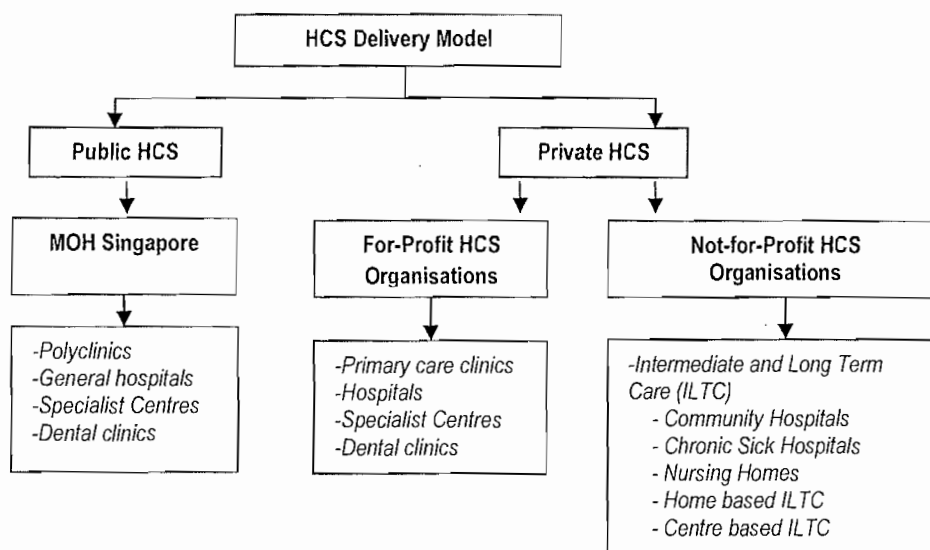
7. INDUSTRY OVERVIEW (cont'd)

4.1.2 Overview of HCS model and funding

The government of Singapore manages the public healthcare system through the Ministry of Health (MOH Singapore), which aims to provide access to quality and affordable basic medical services to all residents (citizens and permanent residents; excludes non-residents). This is achieved through providing subsidised medical services while promoting individual fiscal responsibility for the cost of HCS, thus encouraging the adoption of a healthy lifestyle and taking responsibility for one's own health.

All residents are entitled to basic medical services at government polyclinics and public hospitals, where rates are regulated and subsidised. Patients are expected to pay part of the cost, and to pay more when they require higher levels of service. MOH Singapore licenses and regulates all healthcare establishments such as hospitals, nursing homes, clinical laboratories, medical and dental clinics. However, the rates at private clinics and private hospitals are not regulated and are subject to market forces of demand and supply.

HCS Delivery Model in Singapore, 2011



Source: Frost & Sullivan primary and secondary desktop research

Note: ILTC cannot be clearly classified into public and private, as most of them are run by Voluntary Welfare Organisations (VWO) either partially funded by the government or in full by private charity and donations. Due to the lack of clarity, ILTC is classified by the way in which it operates, rather than by who operates it.

- **Primary HCS:** In Singapore, primary HCS include curative out-patient medical treatments, health screening, preventive health programmes for school children, home nursing, day care and rehabilitation for the elderly, health education and health promotion. Private General Physician (GP) clinics account for 80.0% of the primary care market in terms of patient volume, while the public sector caters to the remaining 20.0% of patients. At the point of primary care treatment, when patients have to be referred to specialists, the private GPs may recommend specific hospitals or doctors; however, the patient has the final decision.
- **Secondary & Tertiary HCS:** In the case of more expensive in-patient hospital care, 80.0% is provided by the public sector and the remaining 20.0% by the private sector (in terms of patient volume). Public sector hospital services are provided by various clusters of general hospitals and specialist centres run by the government. Private sector hospital services are provided by privately-run hospitals and hospital groups, also located in geographical clusters.
- **Quaternary HCS:** This is the highest level of HCS which involves high-risk and complex surgeries, such as transplantation of the cornea, kidney, liver and heart from deceased donors. Kidney and liver transplants are performed with living donors as well. Very few hospitals, primarily from the private sector, provide quaternary care in Singapore.
- **Intermediate and Long Term Care (ILTC) Services:** ILTC service (such as care at community hospitals, nursing homes, day rehabilitation and home visits etc.) is mainly

7. INDUSTRY OVERVIEW (cont'd)

provided by Voluntary Welfare Organisations (VWO), with support from the government. The government provides up to 90.0% of capital funding and up to 50.0% of operating expenditure for long-term care institutions run by VWO. The VWO raise the rest of their funding through community donations.

Sources of Healthcare Funding

Healthcare expenditure in Singapore can be categorised into public expenditure and private expenditure (which includes expenditure by individuals, employers and private insurance). The components of the national healthcare expenditure are summarised in the following diagram.

Components of the National Healthcare Expenditure

<p style="text-align: center;">Individual</p> <ul style="list-style-type: none"> • OOP expenses (Direct payment) • Insurance premiums • Medisave contributions (can be used to pay MediShield premiums) 	<p style="text-align: center;">Government</p> <ul style="list-style-type: none"> • Subsidies • Medisave contributions (as an employer)
<p style="text-align: center;">Employer</p> <ul style="list-style-type: none"> • Medical Insurance premiums for the employee • Medisave contributions 	<p style="text-align: center;">Private Insurance provider</p> <ul style="list-style-type: none"> • Insurance payouts • Medisave contributions (as an employer)

Source: Compiled by Frost & Sullivan from various sources

Public healthcare expenditure in Singapore refers to the government expenditure on healthcare infrastructure in the form of capital expenditure, healthcare subsidies, and the procurement of pharmaceutical and medical supplies. The funding originates from tax collection and other government income and the majority of it is channelled to MOH Singapore through annual budget allocations. Singapore practises a co-payment policy with individual citizens.

Private healthcare expenditure is composed of three components in the following order of importance: OOP expenditure, private insurance and contributions from non-profit institutions.

Healthcare Expenditure	2006	2007	2008	2009	2010	2011E	CAGR (%) 2006-2011E
Total (S\$ billion)	7.52	8.51	9.69	11.02	12.02	12.92	11.4
Public Contribution	2.26	2.53	3.09	3.98	4.37	4.74	15.9
Private Contribution	5.26	5.98	6.60	7.04	7.66	8.19	9.2
Public as a % of total	30.1	29.8	31.9	36.1	36.3	36.7	-
Private as a % of total	69.9	70.2	68.1	63.9	63.7	63.3	-
Total as a % of GDP	3.3	3.2	3.6	4.1	4.0	3.9	-

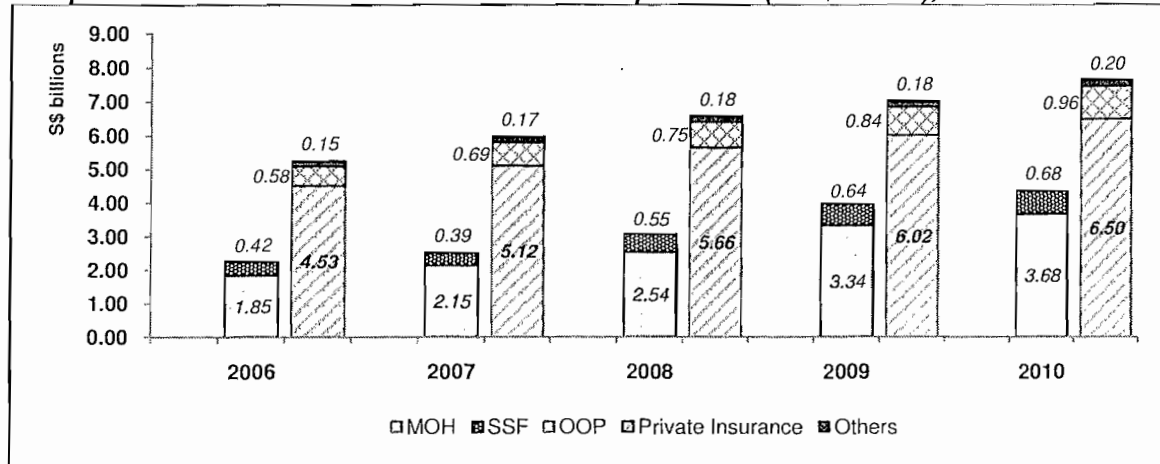
Source: The WHO Healthcare Expenditure Database. Projection and analysis by Frost & Sullivan

During the period 2006 to 2011, public healthcare spending grew at a CAGR of 15.9% as compared to the private healthcare spending, which grew at a CAGR of 9.2%. The growth in public healthcare spending is attributable to the government introducing additional healthcare subsidies and various healthcare schemes during the global financial crisis. In dollar terms, the private healthcare spending increased by S\$ 2.93 billion (US\$ 2.33 billion), while the public spending increased by S\$ 2.48 billion (US\$ 1.97 billion).

7. INDUSTRY OVERVIEW (cont'd)

The chart below shows the public and private healthcare expenditure further classified into their respective components.

Components of Public and Private Healthcare Expenditure (in S\$ billion), 2006 to 2010



Source: The WHO Healthcare Expenditure Database

Notes:

1) **Public Expenditure Components:** MOH (Direct subvention by MOH Singapore via Medisave and MediShield), SSF (Social Security funds such as Medifund)

2) **Private Expenditure Components:** OOP expense, Private Insurance and Others. The breakdown of 'Others' is not available.

4.1.3 Regulatory Overview

MOH Singapore's primary role, along with its statutory boards, is to establish and monitor legislation to ensure the appropriate allocation of resources and achievement of clinical outcomes and professional standards to residents.

All hospitals, clinics, clinical laboratories and nursing homes are required to maintain good standards of medical services through licensing by the MOH Singapore. The following table lists the relevant laws and regulations pertaining to the operation and delivery of private HCS in Singapore:

Key healthcare acts and regulations

Act/Regulation	Key provisions
Private Hospitals and Medical Clinics Act 1993 (Chapter 248)	Provides for the control, licensing and inspection of private hospitals, medical clinics, clinical laboratories and healthcare establishments.
Medical Registration Act (Chapter 174)	Provides mechanisms to: <ul style="list-style-type: none"> - ensure that registered medical practitioners are competent and fit to practice medicine; - uphold standards of practice within the medical profession; and - maintain public confidence in the medical profession.
Human Organ Transplant Act (Chapter 131A)	Provides guidelines and regulations concerning the removal of organs after death, the prohibition of trading in organs and blood, living donor organ transplants and for the enforcement of the act.
Regulation of Imports and Exports Act (Chapter 272A)	Provides for the regulation, registration and control of imports and exports of any goods in Singapore, including medical supplies and medical devices.

Source: MOH Singapore, Attorney General's Chamber

7. INDUSTRY OVERVIEW (cont'd)

4.1.4 Supply Dynamics

Infrastructure

In terms of hospital bed capacity, Singapore has a relatively low total hospital beds ratio (2.22 beds per 1,000 population in 2010), when compared to other developed nations. Though the government has increased the bed capacity of public hospitals periodically (through expansions and new developments), public hospitals are still unable to cater to the rising demand for hospital beds.

Public and Private Hospital Beds 2006 to 2010

Hospital beds	2006	2007	2008	2009	2010	CAGR (%) 2006-2010
Total Beds	11,527	11,547	11,580	11,564	11,509	-0.1
<i>Public Hospital Licensed Beds</i>	<i>8,320</i>	<i>8,368</i>	<i>8,319</i>	<i>8,456</i>	<i>8,881</i>	<i>1.6</i>
<i>Private Hospital Licensed Beds</i>	<i>3,207</i>	<i>3,179</i>	<i>3,261</i>	<i>3,108</i>	<i>2,628</i>	<i>-4.9</i>
Beds per 1,000 population	2.51	2.39	2.32	2.28	2.22	-

Source: Yearbook of Statistics 2011. Analysis by Frost & Sullivan

Note: The decrease in licensed beds between 2009 and 2010 was due to a re-classification by MOH Singapore under which the number of licensed beds became a closer reflection of the number of operational beds.

In comparison with the United States, the United Kingdom, Italy and France, the desired bed ratio for an economy like Singapore's is estimated to be 2.98 beds per 1,000 population (average of the bed ratios in the above mentioned countries). Based on the number of beds to be added in Singapore in the next 5 years, the supply of public and private hospital beds can be projected. In addition, applying the desired bed ratio over the population projected by the IMF, Frost & Sullivan estimates that there will be a significant shortfall in the supply of hospital beds.

Hospital beds projection and shortfall analysis, 2011E to 2016F

Shortfall of beds	2011E	2012F	2013F	2014F	2015F	2016F
Desired Beds [A]	15,634	15,904	16,181	16,464	16,749	17,041
Projected Beds [B]	11,509	11,873	12,093	13,043	14,143	14,393
<i>Public Hospital Licensed Beds</i>	<i>8,881</i>	<i>8,881</i>	<i>8,881</i>	<i>9,831</i>	<i>10,931</i>	<i>11,181</i>
<i>Private Hospital Licensed Beds</i>	<i>2,628</i>	<i>2,992</i>	<i>3,212</i>	<i>3,212</i>	<i>3,212</i>	<i>3,212</i>
Projected per 1,000 population	2.19	2.22	2.22	2.36	2.51	2.51
Shortfall of beds [A] minus [B]	4,125	4,031	4,088	3,421	2,606	2,648

Source: Population projections by IMF. Upcoming new hospital data from hospital websites and MOH Singapore publications. Other projections and analysis by Frost & Sullivan.

Note: 'Private Hospital Licensed Beds' include beds from private hospitals, community hospitals, chronic sick hospitals and inpatient hospice care centres. Desired hospital beds ratio=2.98 per 1,000 population; average of 2010 ratios from the United States, the United Kingdom, Italy and France

Public hospitals in Singapore are running at very high occupancy rates of 85.0% to 95.0% (based on weekly data published by MOH Singapore in the first week of March 2012). In view of the current and potential shortfall of hospital beds, the government has announced in its Healthcare 2020 Masterplan, the addition of 1,900 acute hospital beds and 1,800 community hospital beds, as follows:

- Ng Teng Fong General Hospital – scheduled to open in 2014, followed by the Jurong Community Hospital in 2015, together adding about 1,000 beds.
- Seng Kang General Hospital – opening date brought forward from 2020 to 2018, in addition to increasing the capacity to a total of 1,400 beds (general hospital + sister community hospital).
- An integrated building will be built near Changi General Hospital and St Andrew's Community Hospital, adding around 250 acute and community hospital beds by 2014.
- Community hospitals at Yishun and Outram – scheduled to open by 2015, adding about 800 beds.
- Khoo Teck Puat Hospital will convert its rooftop garden into a 32-bed ward by early 2013.

Addition of beds in the private sector is limited to the opening of Mount Elizabeth Novena Hospital (333 beds) and Fortis Specialty Centre (31 beds) in 2012 and the Farrer Park Hospital (220 beds)

7. INDUSTRY OVERVIEW (cont'd)

in 2013. The difficulty in obtaining a private hospital license due to stringent requirements and scarcity of available land have resulted in only 2 private hospital licenses to be issued in the past 15 years (Mount Elizabeth Novena Hospital and Farrer Park Hospital).

Further, since March 2010, MOH Singapore allowed residents to use Medisave to pay for their hospitalisation in selected private hospitals in Malaysia, thereby increasing the number of private acute beds in the Singapore healthcare system. Parkway Pantai Limited (10 hospitals) and Health Management International (2 hospitals) were chosen by MOH Singapore as local partners to support the move, which help residents access treatment at a comparatively lower cost.

Workforce

The government's move to further develop the healthcare infrastructure to meet the increasing healthcare demands requires the current number of doctors (9,030 in 2010) to be doubled by 2020. In order to manage the increasing workforce requirements, the government is increasing intakes into existing medical schools and setting up new medical schools (for example, the opening of Lee Kong Chian School of Medicine in 2013) to produce 500 doctors, 2,700 nurses, 240 pharmacists and 80 dentists every year. In addition, it is expected to allow more foreign trained doctors to practice in the country.

An increasing number of doctors are switching from public practice to private practice recently. In order to retain talent within the public healthcare sector, the government has proposed to increase salaries of the healthcare workforce by about 20.0% over the period of 2012 to 2015.

To manage the shortfall of doctors in the public sector, the government is exploring a sustainable framework to involve the private sector in public sector healthcare (akin to public private partnership), which would enable private doctors to treat subsidised patients. New models of care are expected to be introduced to tap on the capacity of private GPs to provide residents with accessible, affordable and high quality care.

Doctors and Nurses/Midwives 2006 to 2010

Doctors and Nurses	2006	2007	2008	2009	2010
Total Doctors	6,931	7,384	7,841	8,323	9,030
Specialists	2,654	2,781	2,962	3,180	3,374
<i>Public</i>	<i>1,557</i>	<i>1,617</i>	<i>1,772</i>	<i>1,927</i>	<i>2,060</i>
<i>Private</i>	<i>1,097</i>	<i>1,164</i>	<i>1,190</i>	<i>1,253</i>	<i>1,314</i>
Non-Specialists	4,277	4,603	4,879	5,143	5,656
Doctors per 1,000 population	1.51	1.53	1.57	1.64	1.70
Total Nurses / Midwives	20,927	22,332	24,209	26,792	29,340
<i>Public</i>	<i>11,574</i>	<i>12,294</i>	<i>13,711</i>	<i>15,675</i>	<i>17,613</i>
<i>Private</i>	<i>6,109</i>	<i>6,112</i>	<i>6,224</i>	<i>6,463</i>	<i>6,965</i>
<i>Not in active practice</i>	<i>3,244</i>	<i>3,926</i>	<i>4,274</i>	<i>4,654</i>	<i>4,762</i>
Nurses / Midwives per 1,000 population	4.56	4.64	4.85	5.28	5.34

Source: Singapore Medical Council Annual Report 2010, Yearbook of Statistics 2011. Analysis by Frost & Sullivan

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7. INDUSTRY OVERVIEW (cont'd)

Selected Specialists in Singapore, 2010

Specialist Discipline	Public	Private	Specialist Discipline	Public	Private
Medical Oncology	45	29	Obstetrics & Gynaecology	92	192
Cardiology	83	58	Otorhinolaryngology (ENT)	39	42
Cardiothoracic Surgery	24	12	Ophthalmology	103	68
Dermatology	42	38	Anaesthesiology	184	131
Orthopaedic Surgery	98	58	Neurology	47	16
General surgery	133	99	Neurosurgery	19	13
Urology	32	30			

Source: Singapore Medical Council Annual Report 2010

It is observed that Singapore has a higher number of specialists per 1,000 population than Malaysia, especially in the specialist disciplines of medical oncology, neurology, neurosurgery, cardiology, cardiothoracic surgery, urology and dermatology.

Doctors and Nurses/Midwives Projection 2011 to 2016F

Shortfall of Doctors & Nurses	2011E	2012F	2013F	2014F	2015F	2016F
Desired Doctors [A]	15,502	15,771	16,045	16,325	16,609	16,898
Projected Doctors [B]	9,730	10,430	11,130	11,830	12,530	13,230
Projected per 1,000 population	1.85	1.95	2.05	2.14	2.23	2.31
Shortfall of Doctors [A] minus [B]	5,772	5,341	4,915	4,495	4,079	3,668
Desired Nurses/Midwives [C]	46,375	47,178	47,999	48,838	49,685	50,550
Projected Nurses/Midwives [D]	32,040	34,740	37,440	40,140	42,840	45,540
Projected per 1,000 population	6.10	6.50	6.88	7.25	7.61	7.95
Shortfall of Nurses/Midwives [C] minus [D]	14,335	12,438	10,559	8,698	6,845	5,010

Source: Population projections by IMF. Other projections and analysis by Frost & Sullivan.

Notes:

Projected doctors = 700 new doctors per year (500 locally trained + 200 foreign trained)

Projected Nurses/Midwives = 2,700 new nurses/midwives per year (based on Healthcare 2020 Masterplan)

Desired doctors ratio=2.95 per 1,000 population; Desired nurses/midwives ratio=8.83 per 1,000 population; average of 2010 ratios from the United States, the United Kingdom, Italy and France

4.1.5 Demand Dynamics**Ageing Population Puts Pressure on Inpatient Hospital Services**

Singapore's ageing population (above 65 years), which is the fastest growing in Southeast Asia (in terms of CAGR growth from 2006 to 2010), is expected to increase pressure on the public healthcare system due to the following reasons: increasing rate of admissions, increasing length of stay, increasing time for treatment, and lower ability of the elderly population to afford private healthcare. Given the above, the government may initiate additional insurance schemes and revise healthcare policies to shift larger portions of the younger, working patient population into the private sector. This is likely to further increase the growth potential of private hospital services.

Increasing Number of Foreigners

The government, as a part of its economic policies, has liberalised immigration policies in order to attract foreigners to settle in the country. With the increase in the migrant population, it is estimated that Singapore will have more non-residents who are not eligible for healthcare subsidies from the government, forcing them to use private HCS. This implies that private healthcare operators may see growth from the incremental expenditure on HCS by foreigners, paid from OOP or through employers / insurers.

7. INDUSTRY OVERVIEW (cont'd)

Introduction of 'Means Testing'

The government introduced the concept of "means testing" in 2009, which adjusted subsidies provided to eligible patients in public hospitals based on their annual income. The subsidies decrease with increasing annual income, thereby shifting healthcare costs to individuals who can afford treatment in private hospitals. This is expected to further increase the growth potential of the private hospital sector in the long term.

Access to healthcare – Medical Insurance

MOH Singapore is the regulator of the health insurance industry. The government encourages individuals to subscribe for approved health insurance policies by allowing them to pay the premium from savings in the Medisave account. In addition, employers are encouraged by tax incentives to implement employer-sponsored health insurance schemes.

- MediShield is a low-cost national insurance scheme, for which premiums can be paid out of Medisave accounts, intended to cover residents when the balance in their Medisave accounts is insufficient to meet their healthcare expenses. MediShield can cover up to 80.0% of a large medical bill at the Class B2/C level⁸ in public hospitals.
- In order to help residents who are willing to use private hospitals or Class B1/higher ward classes⁹ in public hospitals, the government encourages the purchase of Medisave-approved private Integrated Shield Plans (health insurance) in addition to MediShield. The residents can opt for riders, to increase the scope and value of the insurance coverage.
- ElderShield is an affordable severe disability insurance scheme which provides basic financial protection to those who need long-term care, especially during old age. It provides a monthly cash payout to help pay OOP expenses for the care of a severely-disabled person.
- Residents with Medisave accounts are automatically covered under ElderShield from the age of 40. MOH Singapore has appointed 3 private insurers (Aviva, Great Eastern and NTUC Income) to run the ElderShield program. By 2010, the scheme had 921,000 policyholders, up from 835,000 in 2008.

There are different coverage plans for private medical insurance in Singapore – with hospitalisation insurance and insurance for debilitating illnesses. Plans are either single-premium or regular premium. Most private insurance plans cover restructured hospitals (public hospitals, but not fully government-owned) and private hospitals; since there is a minor difference in the premiums for private hospitals and A wards of restructured hospitals, patients are more likely to choose a private hospital plan. Most companies in Singapore pay an annual premium for their employees which cover medical expenses and hospitalisation; however, in order to customise the coverage to their healthcare needs, many employees top this up with personal private health insurance.

While the MediShield and Integrated Shield Plans operate on a co-payment model (insurance payouts start only after Medisave deductibles and/or co-insurance payments by the insured), private insurers also offer first dollar coverage plans (the insurer pays for hospital bills on a 'as-charged' basis, up to a stipulated cap without any deductibles) that further supplements these plans. Such first dollar coverage provided by private insurers attract many residents, as they do not have to pay OOP expenses, despite the higher than usual premiums involved due to high risk to the insurer.

With the liberalisation of insurance policies, more private insurance companies have gained entry into the market, leading to increased competition, lower premiums and broader coverage. This has resulted in an increase in funds for private HCS, driving more patients to move towards private hospitals. Between 2006 and 2010, private insurance expenditure increased from S\$ 581 million

⁸Class B2 = Fan-ventilated 6 bedded ward, Class C ward = Fan-ventilated 8 or 9 bedded ward (usually greater than 6 beds)

⁹Class B1 = Air-conditioned 4 bedded ward. Higher ward classes include Class A1 and A1+ which are air-conditioned single rooms

7. INDUSTRY OVERVIEW (cont'd)

(US\$ 366 million) to S\$ 964 million (US\$ 707 million) at a CAGR of 13.5%, as private insurance provides patients with more flexibility.

Medical Clusters and Concentration of Specialists

In Singapore, the public and private HCS providers are generally grouped together in geographic clusters. This enables easy referrals between the primary service providers, prominent secondary and tertiary hospitals and other ancillary HCS providers within the same cluster. There are 3 major private healthcare clusters and 5 public clusters. The private clusters, namely Orchard, Tanglin, and Novena, account for approximately 70.0% to 85.0% of the private market in terms of private specialist concentration. There is a crossover between the Orchard and Tanglin clusters due to their proximity. Specialists located in clinics around hospitals in these clusters are more likely to refer their patients to adjacent hospitals, due to convenience or partnerships with the hospitals. On the public side, most medical education and research takes place at 2 main clusters – Outram and Kent Ridge.

Out of the 1,314 private specialists in Singapore (as of 2010), it is estimated that around 35.0% to 40.0% practice in the Orchard cluster, another 25.0% to 30.0% practice in the Tanglin cluster, 10.0% to 15.0% in the Novena cluster and the remaining are spread around the island. In line with upcoming developments, the concentration of specialists in the Novena cluster is likely to increase in the near future.

According to the Healthcare 2020 Masterplan, it is expected that there will be more arrangements between the public and private hospitals within and across these clusters. For example, Changi General Hospital will lease some beds from Parkway East to cope with its increasing patient load. Similarly, MOH Singapore is entering into a memorandum of understanding with Raffles Hospital for subsidised patients. These measures will ensure that facilities within every healthcare cluster operate together to optimise doctor and bed capacity.

Government investing heavily in Health Promotion and Disease Preventive Programmes

The government is shifting focus from episodic care in the acute hospitals, to keeping people healthy and managing their chronic conditions, which is more effective and sustainable in the long term.

The Health Promotion Board (HPB) drives the national health promotion and disease prevention programmes targeted at increasing the years of healthy life and preventing illness, disability and premature death. Its focus is to increase awareness and prevent diseases and conditions at the initial stages, so that the need for more expensive medical treatments and associated expenses can be avoided.

The Community Health Assist Scheme (CHAS), formerly known as Primary Care Partnership Scheme (PCPS) enables the lower income residents to seek subsidised primary care at participating private GP and dental clinics. The scheme covers common medical illnesses, 10 chronic conditions and basic dental services. The amendments in January 2012 has increased the qualifying per capita monthly household income from S\$ 800 to S\$ 1,500 and lowered the qualifying age criteria from 65 years to 40 years, thereby increasing the shift of outpatients from public sector to participating private players.

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7. INDUSTRY OVERVIEW (cont'd)

Increase in Private Hospital Admissions

Though the historical (2006-2011) growth in private hospital admissions is the same as that of public hospital admissions, the year-on-year growth of private hospital admissions in recent years has overtaken that of public hospitals admissions, indicating a shift from public hospitals to private hospitals for secondary and tertiary care. This growth in private hospital admissions is attributable to the availability of hospital beds and sophisticated services in the private segment, coupled with increased disposable income and private insurance coverage.

Hospital Admissions	2006	2007	2008	2009	2010	2011	CAGR (%)
Total Hospital Admissions	415,833	429,744	433,876	436,346	450,325	469,441	2.45
Public Hospital Admissions	316,261	325,261	330,071	332,595	343,332	357,022	2.45
Private Hospital Admissions	99,572	103,972	103,805	103,751	106,993	112,419	2.46
Public as a % of total	76.1	75.8	76.1	76.2	76.2	76.1	-
Private as a % of total	23.9	24.2	23.9	23.8	23.8	23.9	-
Y-o-Y Growth Rate (Public) %	0.4	3.0	1.3	0.8	3.2	4.0	-
Y-o-Y Growth Rate (Private) %	0.4	4.4	-0.2	-0.1	3.1	5.1	-

Source: Singapore Year Book of Statistics 2011, Analysis by Frost & Sullivan

Note: Y-o-Y = Year on Year

4.1.6 Competitive Landscape**Private hospitals**

In 2011, there were 7 private hospitals in Singapore. Parkway Pantai Limited is the only private hospital group with a network of 3 hospitals while the others are all single entity hospitals.

Private HCS providers may be categorised as for-profit or not-for-profit. The for-profit private HCS category comprises 1 hospital group and 3 single entity hospitals that hold licenses for majority of the hospital beds in Singapore. Mount Alvernia Hospital, is the only not-for-profit private hospital.

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7. INDUSTRY OVERVIEW (cont'd)

Positioning of Major Private HCS Providers in Singapore, 2011 (ranked by average per day inpatient bill size)

The following table lists the key private HCS providers (group and single entity) based on the total number of licensed beds and positions them based on the average bill size per patient per day:

Hospital Name	Location	No. of Accredited Specialists	JCS Accredited Institution	Hospital Network			Total No. of Licensed Beds	Avg. Total Inpatient Bill Size (in S\$)	Positioning	
				Specialist Areas	Target Customers	Key Value Proposition				
Mount Elizabeth Hospital (Parkway Pantai Limited)	Central	1,230	Yes	Cardiothoracic vascular surgery, Neurosurgery, General surgery, Kidney Transplantation, Hematopoietic Stem Cell Transplantation, Orthopaedics, Cardiology, Oncology	Affluent domestic patients, Medical travellers	High-end medical services catering to affluent population	345	4,836	12,848	Premium
Gleneagles Hospital (Parkway Pantai Limited)	Central	1,216	Yes	Cardiology, Gastroenterology, Liver Transplantation, Obstetrics & Gynaecology, Oncology, Orthopaedics	Affluent domestic patients, Expatriates, Medical travellers	High-end medical services catering to affluent population	272	3,972	10,583	High
Raffles Hospital (Raffles Medical Group)	Central	N/A	Yes	Cardiology, Orthopaedic, Oncology, Obstetrics & Gynaecology	Expatriates, Medical travellers	High end HCS provider with an island wide referral network	380 (only 190 operational)	3,691	8,583	High
Parkway East Hospital (Parkway Pantai Limited)	East	1,083	Yes	-General Surgery, Paediatrics, Obstetrics and Gynaecology, Cardiology, Fertility services including IVF	Middle-high income population from the east zone	Medium-high end medical services	113	3,014	7,568	Medium to High
Mount Alvernia Hospital	Central	1,000	No	Cardiology, Cardiothoracic Surgery, Neurology, Neurosurgery, Orthopaedic, Ophthalmology, General Surgery	Middle-high income population from the central zone	Non-profit hospital with competitive pricing & multi-specialties	303	2,735	7,704	Medium to High
Thomson Medical Centre (Thomson Medical Pte Ltd)	Central	N/A	No	Obstetrics & Gynaecology and Paediatrics	Middle-high income population from the central & north-east zones	Birth deliveries and focuses on women and children care	190	2,230	5,615	Medium
West Point Hospital (China Healthcare Group)	West	N/A	No	Orthopaedic, General Surgery, Rehabilitation and Physiotherapy	Corporate customers, mainly the industrial workers	N/A	58 (34 leased to NUH)	N/A	N/A	N/A

7. INDUSTRY OVERVIEW (cont'd)

Source: Hospital websites, MOH Singapore, Analysis by Frost & Sullivan

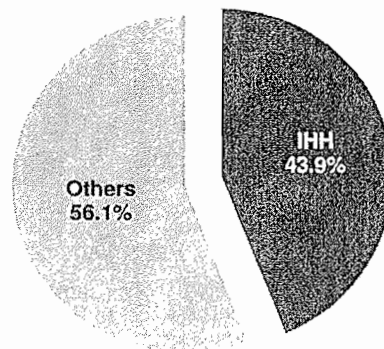
Notes for the table in the previous page:

- a. The number of private hospital licensed beds in the above table excludes the beds in community hospitals and chronic sick hospitals. However, the Singapore Yearbook of Statistics 2011 includes these two types of beds into the definition of the term 'private sector hospital beds'.
- b. Raffles Hospital has 190 active beds and 190 reserve beds. However, the total 380 beds are considered for the purpose of the above chart.
- c. West Point Hospital has 58 beds, of which 34 beds are leased out to NUH. However, the total number of 58 beds has been considered for the purpose of the above chart.
- d. The above mentioned average bill sizes are published by MOH Singapore, based only on Medisave claims submitted by the hospitals.
- e. The average bill sizes include doctors' charges.
- f. Average per day = total amount of inpatient bills divided by total number of days stayed in hospital (day surgery bills are not included).
- g. The comparison only serves as a guide and has not been standardised for the different range of medical specialties in each hospital.
- h. Only the following selected surgical specialties are used in the calculation of average inpatient bill sizes: Cardiothoracic Surgery, ENT, General Surgery, Neurosurgery, Gynaecology, Obstetrics, Orthopaedic Surgery, Paediatrics Surgery, Plastic Surgery.
- i. The number of accredited specialists may not add up to the total number of specialists in Singapore, as a specialist can be accredited to more than one hospital.

In 2011, there were 1,661 private hospital licensed beds in Singapore among the major private HCS providers (excluding the beds in community hospitals and chronic sick hospitals). IHH's market share in Singapore, based on the number of beds was 43.9%. This makes IHH the leading private HCS provider in Singapore.

The following chart illustrates IHH's share in the number of private hospital beds in Singapore during 2011.

IHH's Market Share by Number of Licensed Beds (Private), 2011



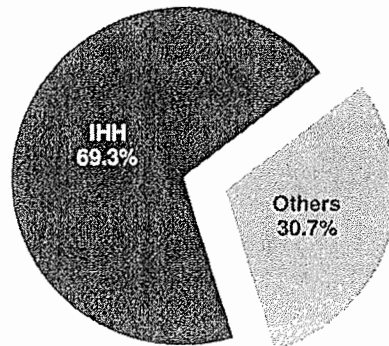
Source: MOH Singapore, IHH, Analysis by Frost & Sullivan

4.1.7 Market Size ('For-Profit' Private Hospital Industry Revenue)

The 'for-profit' private hospitals market size in Singapore was estimated at S\$ 768.5 million (US\$ 563.6 million) in 2010. The revenues of all 'for-profit' private hospitals in Singapore (only revenue from hospital operations, excluding all other HCS) were added up to calculate the 'for-profit' private hospital revenue market size. In 2010, IHH's market share by revenue was estimated to be 69.3%.

7. INDUSTRY OVERVIEW (cont'd)

IHH's Market Size Based on 'For-Profit' Private Hospital Industry Revenue in Singapore, 2010



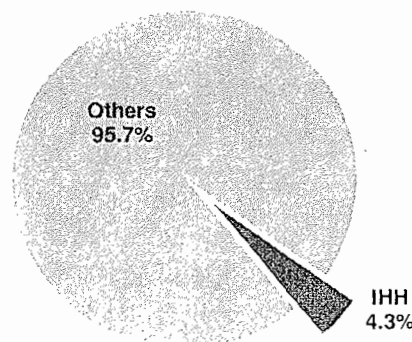
Source: ACRA, IHH, Analysis by Frost & Sullivan

4.1.8 Primary care clinics

In 2011, there were approximately 1,400 GP clinics in Singapore. The primary care sector is very fragmented with a large number of GPs in private practice (stand alone, or two or more GPs running a clinic) and only few primary care groups.

IHH's market share in Singapore, based on the number of primary care clinics was 4.3%. This makes IHH one of the leading private primary care groups in Singapore. The following chart illustrates IHH's share in the number of primary care clinics in Singapore during 2011.

IHH's Market Share by Number of Primary Care Clinics (Private), 2011



Source: MOH Singapore, Clinic websites, Analysis by Frost & Sullivan

4.1.9 Industry Outlook / Prospects

Healthcare expenditure is forecast to reach S\$ 18.5 billion (US\$ 14.6 billion) in 2016, growing at a CAGR of 7.5% during the projection period of 2011 to 2016. The emphasis on healthcare as outlined in the Healthcare 2020 Masterplan is the major driver for investment in the industry, which has spurred the capacity building by both public and private sectors. As new private and public hospitals are expected to be operational during 2012 to 2013 and 2014 to 2018 respectively, the increase in healthcare expenditure is also expected to be apparent during the above mentioned

7. INDUSTRY OVERVIEW (cont'd)

time periods. During the forecast period from 2011 to 2016, public and private healthcare expenditures are estimated to grow at CAGRs of approximately 7.0% and 7.7% respectively.

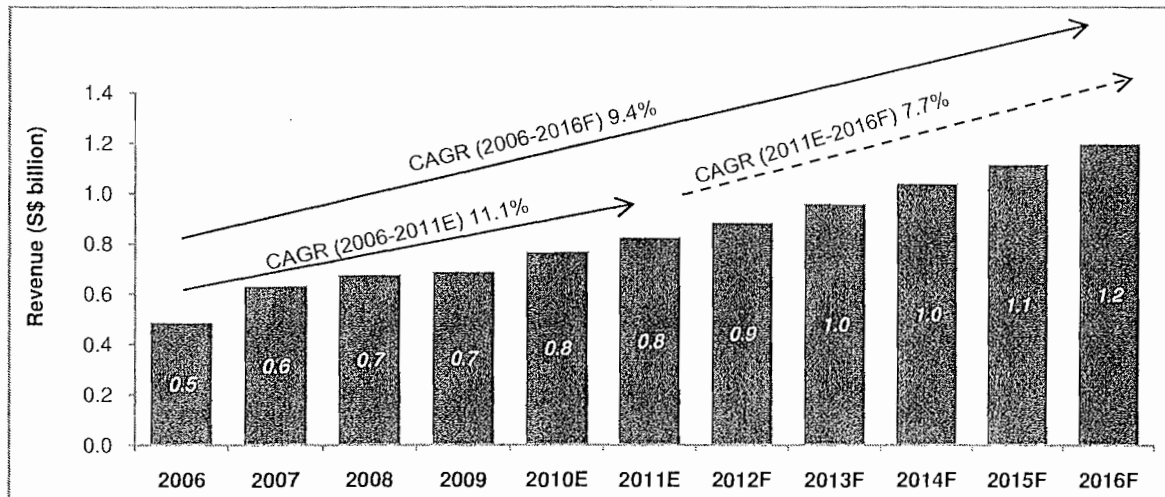
The private hospital market is forecast to grow to S\$ 1.2 billion (US\$ 0.9 billion) in 2016 at a CAGR of 7.7% during the period from 2011 to 2016. Growth is anticipated to be steady during the forecast period as a result of new hospitals starting operations.

Healthcare Expenditure Forecast, 2011E to 2016F

Year	Total Healthcare Expenditure (\$\$ billion)	Public Healthcare Expenditure (\$\$ billion)	Private Healthcare Expenditure (\$\$ billion)	Private Hospital Market Size by Revenue (\$\$ billion)
2011E	12.9	4.7	8.2	0.8
2012F	13.8	5.0	8.8	0.9
2013F	14.9	5.3	9.6	1.0
2014F	16.1	5.7	10.4	1.0
2015F	17.2	6.1	11.1	1.1
2016F	18.5	6.5	11.9	1.2
CAGR (2011E-2016F)	7.5%	7.0%	7.7%	7.7%

Source: Analysis and Forecast by Frost & Sullivan

The chart below illustrates the private hospitals market size growth and forecast for the duration between 2006 and 2016.

Private Hospitals Market Size Growth Trend and Forecast, 2006 to 2016F

Source: Analysis and forecast by Frost & Sullivan

During the forecast period, major driving factors for growth in revenue include an increase in private hospital admissions due to increasing affluent population, increasing lifestyle diseases, decreasing government subsidies for high income population and increasing uptake of private insurance. With Singapore expected to maintain its lead position as a destination for quaternary care, the growth in medical travel industry is expected to contribute to the private hospital revenue growth.

7. INDUSTRY OVERVIEW (cont'd)

4.2 MALAYSIA

4.2.1 Introduction and Background

Malaysia is a newly industrialised country with a growing economy and increasing wealth. The country's economy is mainly driven by its services sector, manufacturing industries and resources (palm oil plantations and downstream sectors, oil & gas, among others) contributing approximately 49.3%, 26.1% and 15.6% respectively to the GDP in 2010. Malaysia's urbanisation rate has been on an upward trend, increasing from 67.6% in 2005 to 72.2% in 2010.

Socioeconomic Indicators, 2006 and 2010

Indicators	2006	2010
GDP (RM billion)	574.4	766.0
GDP per Capita (RM) (current prices)	21,409	27,113
Population (million)	26.6	28.3
0-14 years (%)	32.4	30.3
15-64 years (%)	63.3	64.9
65 years and above (%)	4.3	5.1
Non-resident (%)	6.9	6.0
Birth Rate (per 1,000 people)	22	21(2009)
Infant Mortality Rate (per 1,000 births)	6.6	6.4
Crude Mortality Rate (per 1,000 population)	4.5	4.8
Life Expectancy – Female (Years)	76.3	76.6
Life Expectancy – Male (Years)	71.8	71.7
Total Employed (million)	10.1 (2005)	11.1
Household Income Distribution:		
Top 40 percentile	51.8% (2004)	49.6%
Bottom 20 percentile	13.2% (2004)	14.3%
Urbanisation Rate (%)	67.6% (2005)	72.2%
<i>Source: Department of Statistics, Ministry of Health, Economic Planning Unit, Malaysia; United Nations World Urbanisation Prospects Report.</i>		

The country is supported by a large productive population (aged 15-64 years) and a high employed segment, which contributes to the increasing wealth of the population and a growing middle income group. The GDP per capita is higher than that in most Southeast Asian countries, with the exception of Singapore and Brunei.

Malaysia has a low population base which is on the rise, as a result of a moderate to high birth rate and low infant and crude mortality rate. The principal causes of deaths in Malaysia include old age, ischemic heart diseases, pneumonia, cancer, cerebrovascular diseases, asthma, septicaemia and transport accidents.

Malaysia's healthcare system is reasonably well developed, however the industry is not yet considered comparable to that of developed countries. This is mainly attributed to the low proportion of healthcare investment by the Malaysian government. In 2009, the Malaysian government spent approximately RM 623.2 (US\$ 177.3) per capita on healthcare,

whereas United States, United Kingdom and Japan's public healthcare spending per capita was approximately US\$ 3,606, US\$ 2,745 and US\$ 2,364 respectively.

For any developing country, there is an increasing trend of chronic lifestyle diseases mainly attributable to the changing habits of leading a more stressful life, consuming more processed foods which are generally of high sugar and saturated fat content and lower nutrition, long working hours sitting in front of a computer causing neurological stress and occupational diseases, and leading a more sedentary lifestyle with the lack of regular exercise.

As a result, there has been an increase in psychological disease, cardiovascular disease, diabetes, cancer and orthopaedic diseases. The following table illustrates the growth in major lifestyle diseases between 2007 and 2009, based on the number of patients receiving outpatient treatment in MOH Malaysia's specialist medical facilities.

7. INDUSTRY OVERVIEW (cont'd)

Incidence of Diseases ^a	2007	2008	2009
Heart-related disease (cardiology)	74,639	84,615	101,979
Diabetes ^b	47,836 (2006)	66,856	70,079
Cancer	59,739	62,170	47,047
Neurology	26,844	28,682	29,807
Ophthalmology	620,649	653,065	717,390
Urology	90,168	92,683	96,809
Orthopaedic	639,222	679,930	723,929
Neuro-Psychiatry	324,450	379,010	412,013

Source: MOH Malaysia Annual Report 2007-2009

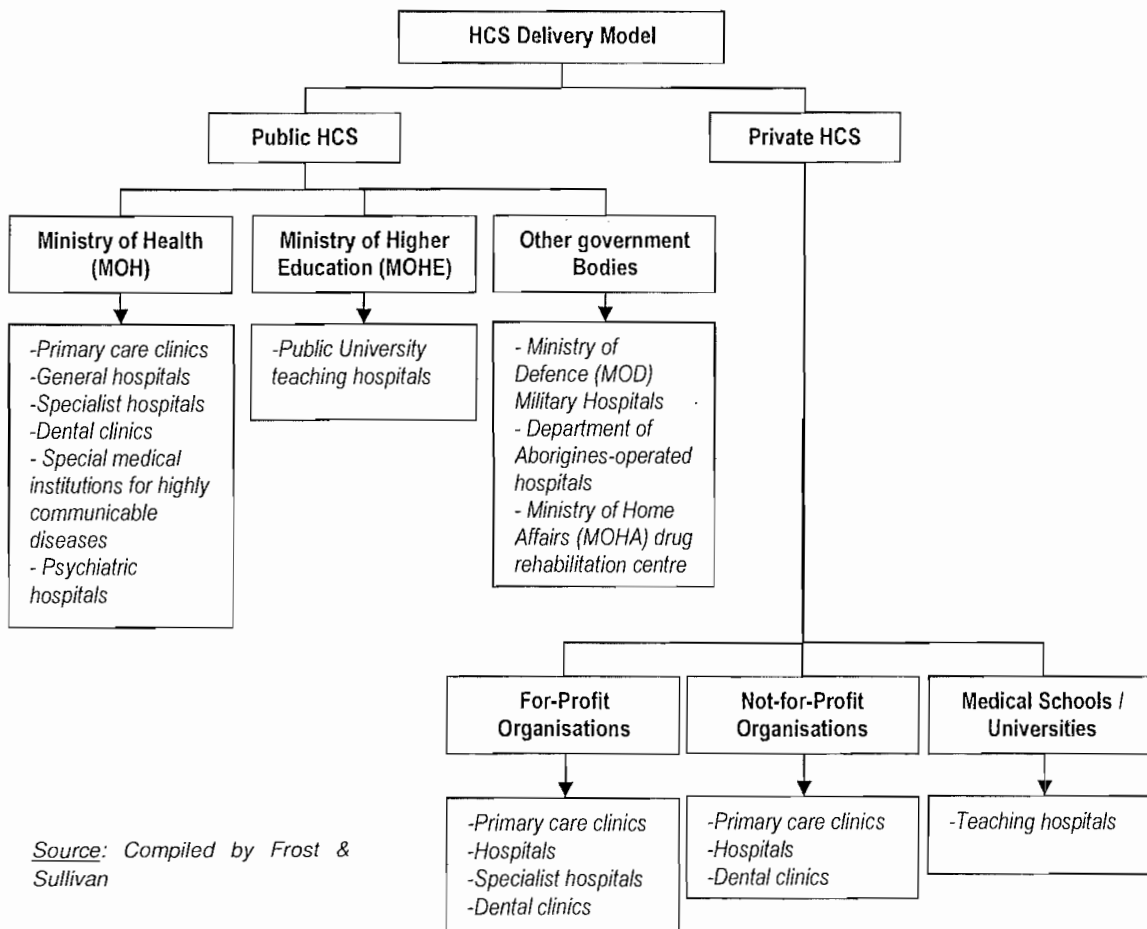
Notes: a. Data above is based on the number of patients receiving out-patient treatment in MOH Malaysia health facilities.

b. Data refer to new cases in MOH health facilities

4.2.2 Overview of HCS model and funding

HCS in Malaysia are available through public and private HCS providers. The following table summarises the HCS delivery model in Malaysia.

HCS Delivery Model in Malaysia, 2011



Source: Compiled by Frost & Sullivan

Total healthcare expenditure in Malaysia in 2011 was estimated at RM 43.4 billion (US\$ 14.2 billion), contributing to approximately 5.1% of the GDP. Healthcare expenditure in Malaysia comprises mainly public and private expenditure. Other contributions include those from foreign governments, non-government organisations (NGOs) like the WHO, Asian Development Bank (ADB), International Monetary Fund (IMF), among others, which are negligible in value.

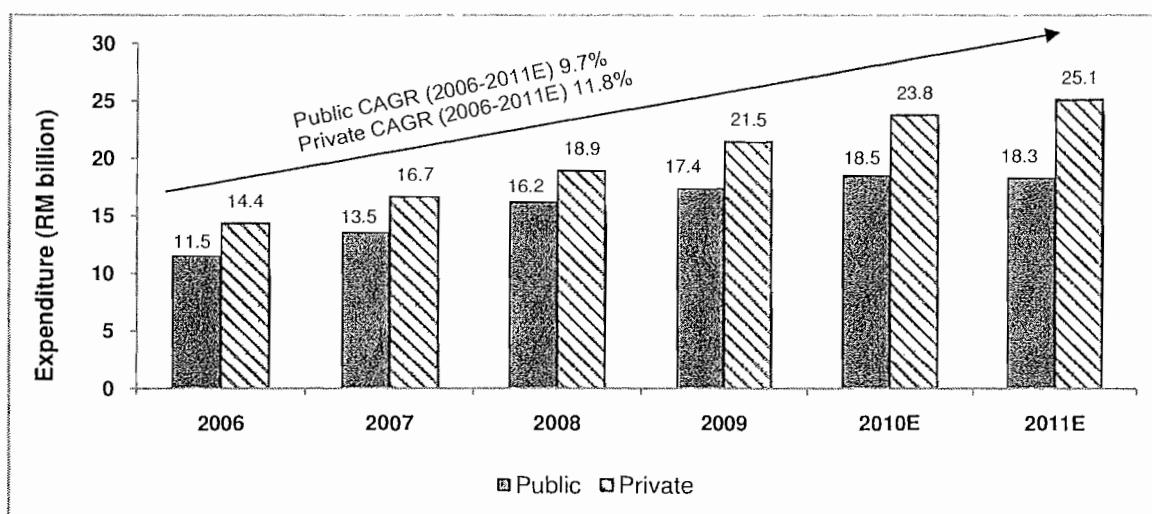
7. INDUSTRY OVERVIEW (cont'd)

The public healthcare system is highly subsidised and government spending on healthcare largely accounts for HCS operational costs, capacity building and the procurement of pharmaceuticals and medical supplies. The funds originate from tax collections and other government income and are mainly channelled to the MOH Malaysia through annual budgetary allocations. In 2011, the public healthcare expenditure contributed to approximately 42.2% or RM 18.3 billion (US\$ 6.0 billion) of the total healthcare expenditure.

Private healthcare expenditure comprises OOP expenditure incurred by individuals or corporates for healthcare bills, purchase of pharmaceuticals and disbursements made by private insurers for medical expenses. Private healthcare expenditure indicates spending incurred in both public and private healthcare facilities, as well as spending on over-the-counter medication/pharmaceuticals. In 2011, private healthcare expenditure was estimated at 56.9% or RM 25.1 billion (US\$ 8.2 billion) of the total healthcare expenditure in that year.

The growth in total healthcare expenditure is mainly attributable to an increase in private healthcare spending. Capacity building was apparent in both the public and private healthcare sectors as there was a general uptrend in the number of registered beds observed between 2007 and 2009. The last five years have seen a steady increase in private healthcare expenditure. The graph below shows the total healthcare expenditure and breakdown of public and private expenditure between 2006 and 2011.

Healthcare Expenditure Growth Trend in Malaysia, 2006-2011E



Source: Department of Statistics Malaysia, MOH Malaysia health facts 2007-2010, The World Bank, The WHO. Analysis by Frost & Sullivan.

Sources of Healthcare Funding

The choice of healthcare treatment recorded in Malaysia is highly related to the availability of healthcare funding, which is typically determined by the employment medical benefit structure or the disposable income of the person.

Public healthcare system in Malaysia is heavily subsidised by the government, making the service in public healthcare facilities almost free to the majority of the public. Under the public healthcare system, civil servants, old-age pensioners, school children, and the very poor enjoy free medical and dental services in public healthcare facilities. Hence, they are among the major groups that seek public healthcare treatment. Privately employed persons pay a government-subsidised fee when seeking treatment and medication in public healthcare facilities.

Public healthcare facilities lack capacity and suffer from over-utilisation due to insufficient infrastructure investment. In 2009, the government expenditure per capita on healthcare was approximately RM 623.2 (US\$ 177.3) versus more developed neighbouring countries such as

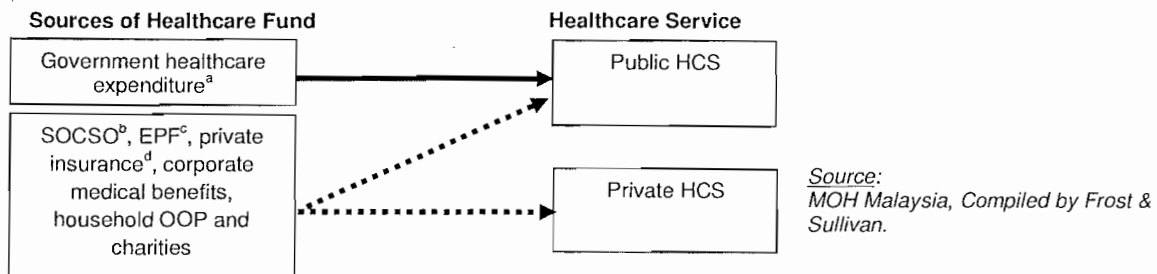
7. INDUSTRY OVERVIEW (cont'd)

Singapore and Brunei, whose government healthcare expenditure per capita was US\$ 607 (RM 2,146) and US\$ 720 (RM 2,545) respectively¹⁰. Despite the government's intentions to increase capacity and improve public healthcare facilities, the budgetary constraints limit the speed and scale of these developments. Patients who utilise public HCS face overcrowding and long waiting lists for major surgeries and treatments, which can vary from 4 weeks to 6 months.

Private HCS on the other hand charge full medical fees to their patients, and can typically provide for surgeries within one week. Consultation charges by doctors are capped based on the Private Healthcare and Services Regulations 2006. For those employed in the private sector, the Employment Act 1955 entitles employees visiting the GP to be reimbursed or paid by the employer. Usually, this is provided by the private healthcare sector.

The following diagram illustrates the healthcare funding structure in Malaysia, for public and private HCS.

Sources of Healthcare Funding in Malaysia, 2011



Notes:

- Government healthcare expenditure is typically from tax contributions channelled through annual budget allocations
- Social Security Organisation (SOCISO) fund through pooled contributions by employer and employee
- EPF retirement account by employer contributions and employee savings
- Private insurance receives premium from corporate or individual households

4.2.3 Regulatory Overview

The healthcare industry in Malaysia is highly regulated. The laws that have been established are fairly comprehensive, and cover all aspects of the HCS industry from licensing operations, to standards and guidelines for services, which include the quality of healthcare professionals and workers, equipment safety, fees structure and advertising prohibition and guidelines. In order to maintain standards and ensure the safety and protection of the general public, these laws and regulations place high requirements on the healthcare service sector in Malaysia. MOH Malaysia is the appointed authority responsible for regulating the HCS industry which includes determining the zoning of areas and issuance of operating licenses to the private HCS providers. The zoning of areas subjects private hospitals to proof a need or demand by the community for HCS, ensuring that there is equal distribution of hospitals within the country and to avoid limiting the concentration of hospitals to just certain areas. However, the issuance of new licenses in the same zone is subject to MOH Malaysia's policies and may be revised to accommodate for population growth. The acts that govern the private HCS industry include the *Private Healthcare Facilities and Services Act 1998* and the *Medicines (Advertisement and Sale) Act 1956 (Revised 1983)*.

All healthcare professionals and allied workforce in Malaysia are, by law, required to register with the respective regulatory boards in order to practice in Malaysia. The registering bodies are Malaysian Medical Council (MMC) for medical practitioners, the Malaysian Dental Council (MDC) for dental practitioners, the Nursing Board for nurses and the Midwives Board for midwives. Graduates from MOH Malaysia recognised institutions may register and enter the workforce directly whereas foreign graduates are subjected to examinations in order to register and enter the workforce in Malaysia.

¹⁰ The World Bank data

7. INDUSTRY OVERVIEW (cont'd)

4.2.4 Supply Dynamics

Workforce

The supply of healthcare workforce in Malaysia has generally improved over the last 5 years from 2007 to 2011. Despite Malaysia having a steady supply of doctors and nurses, the ratio to population is still considered low when compared to developed countries. The following table shows the growth in the number of healthcare worker from 2006 to 2010, and the MOH Malaysia's projected workforce level in 2016.

Healthcare Workforce in Malaysia, 2006, 2010 and 2016F

Indicators	2006	2010	2016F
Total Specialists	2,413 (2007)	2,520 (2009)	5,492 ^a
Total Doctors	21,937	32,979	48,742 ^a
• Public	13,335	22,492	N/A
• Private	8,602	10,550	N/A
Doctors per 1,000 population	0.82	1.16	1.67 ^b
Total Nurses	64,309	90,199	N/A
• Public	34,598	47,992	N/A
• Private	13,044	21,118	N/A
Nurses per 1,000 population	1.79	2.44	5.00 ^b

Source: MOH Malaysia website & Annual Report 2009, Social Statistics Bulletin Malaysia 2010, MOH Malaysia Health Facts 2006-2010

Notes:

a. MOH Malaysia forecast

b. MOH Malaysia's target as per the Health Plan 2011-2015

The number of specialists in Malaysia is fairly small and is concentrated mainly in the private sector. This is even more prevalent in disciplines such as cardiology, orthopaedic surgery and obstetrics & gynaecology (O&G), and is the key driver for the general public to opt for private hospitals for the more complex surgeries and procedures. MOH Malaysia has set a target to double the number of specialists in Malaysia by 2016 in order to fulfil the healthcare needs of the population.

Selected Specialists in Malaysia, 2011

Specialist Discipline	Public	Private	Specialist Discipline	Public	Private
Medical Oncology	25	26	Obstetrics & Gynaecology	88	289
Cardiology	45	125	Otorhinolaryngology (ENT)	47	98
Cardiothoracic Surgery	21	25	Ophthalmology	106	125
Dermatology	25	43	Anaesthesiology	154	201
Orthopaedic Surgery	117	182	Neurology	22	27
General surgery	118	171	Neurosurgery	21	27
Urology	25	50			

Source: National Specialist Register database retrieved on 3 Feb 2012.

Note: The above list is non-exhaustive and not limited to these disciplines.

Prior to the Health Plan 2011-2015, foreign healthcare professionals were prohibited by the MOH Malaysia from practising in Malaysia. With the relaxation of these policies and in order to fulfil the shortage of local talent in this area, Malaysia can expect more foreign and qualified healthcare professionals to enter the workforce.

7. INDUSTRY OVERVIEW (cont'd)

Hospital Beds

There is a general shortfall of hospital beds in Malaysia. Malaysia's number of hospital beds per 1,000 population was 1.94 in 2010, which was lower than the OECD's average of 3.1. Using the OECD average as a benchmark, the hospital beds shortfall analysis is shown in the following table.

Hospital beds projection and shortfall analysis, 2011E to 2015F

	2011E	2012F	2013F	2014F	2015F
Beds required (A)	88,970	90,520	92,070	93,620	95,170
Projected beds (B)	57,409	60,440	63,313	65,729	68,079
Beds shortfall (A-B)	31,561	30,080	28,757	27,891	27,091
Beds per 1,000 population	2.0	2.1	2.2	2.2	2.3

Source: Frost & Sullivan analysis.

Note: 2012-2015 hospital beds projection is based on actual hospital construction and expansion announcement on the media by the government and private companies.

Major Development Projects by MOH Malaysia and the Private Sector (2012-2015)

In 2010, there were 2,833 public clinics and 145 public hospitals in Malaysia¹¹. For primary care, approximately 80 new clinics have commenced operations between January 2010 and April 2011. An additional 50 clinics are expected to be built during the 10th Malaysia Plan (10MP) under the First Rolling Plan (RP1). Major ongoing projects which started during 2011 include the construction, upgrading or expansion of hospitals in Kuala Lumpur, Taiping, Seremban, Kota Bharu, Tampoi, Kangar, Kuala Terengganu, Kota Bharu, Rompin and the Sabah Medical Centre (Hospital Queen Elizabeth II). Other new hospital projects under way are in Lawas and Petra Jaya (Sarawak), Tuaran (Sabah) and Kuala Krai (Kelantan)¹². These expansion and development projects are at different stages of completion and are expected to add at least 3,777 new hospital beds to the public healthcare sector during the period between 2012 and 2015.

In 2010, there were 7,954 private clinics and 217 private hospitals in Malaysia¹³. There were at least 24 new private hospital development projects throughout Malaysia that have been announced and expected to be operational within the period 2012 to 2015¹⁴, alongside several expansion plans for existing hospitals. These are at different stages of completion but are expected to add approximately 6,893 hospital beds in the private HCS sector during the period between 2012 and 2015. The new hospital developments are mainly concentrated in the Klang Valley, Johor and Melaka. As of Q1 2012, at least 2 of the hospitals announced have started operations, both located in the Klang Valley.

New Private Hospitals by Region, 2012 to 2015

State / Region	New Private Hospitals	Additional Beds ^a
Klang Valley ^b	10	2,427
Johor	5	1,140
Melaka	2	910
Sabah	1	500
Others	6	2,506
Total	24	6,893

Notes:

a. Additional beds include beds from new private hospitals planned and the expansion of current private hospitals

b. In Q1 2012, 2 new hospitals in the Klang Valley have started operations

Source: Company annual reports, websites and online media releases.

¹¹ MOH Health Facts 2010

¹² Source: MOF Economic Report 2011/12, Chapter 4: Public Sector Finance

¹³ MOH Health Facts 2010

¹⁴ Company annual reports, websites and media announcements

7. INDUSTRY OVERVIEW (cont'd)

The following table shows the projected hospital beds for the public and private sector between 2011E and 2015F.

Public and Private Hospital Beds Projection 2011E to 2015F

	2011E	2012F	2013F	2014F	2015F	CAGR 2011E- 2015F
Total Beds	57,409	60,440	63,313	65,729	68,079	4.4%
Public Hospital Beds	43,947	45,205	46,148	46,924	47,724	2.1%
Private Hospital Beds	13,462	15,235	17,165	18,805	20,355	10.9%

Source: Company annual reports, websites and online media releases. Compiled by Frost & Sullivan.

4.2.5 Demand Dynamics**Access to Healthcare Funds – Medical Insurance**

One of the most important enablers in accessing healthcare is the accessibility to healthcare funds. Traditionally, those who seek treatment in a private healthcare facility pay OOP for the medical fees. The increasing availability of medical insurance packages in Malaysia has decreased the reliance on OOP spending for private HCS and has encouraged the transition from public to private HCS, in particular for the middle-income population. There were 27 registered medical insurance providers in Malaysia as at March 2012, out of which 9 of the companies also provide Life insurance policies. Examples of companies which provide general medical insurance include Kurnia Insurance (M) Berhad, MSIG Insurance (M) Berhad and ACE Jerneh Insurance Berhad, among others.

The growth in the insurance market indicates that the general public is increasingly accepting the benefits of subscribing to private insurance as part of the healthcare funding mix. The accessibility of funds for private HCS is largely dependent on the availability of competitive life insurance and general medical insurance offered in Malaysia subscribed by corporations or individuals. In 2010, the majority of the policies were individual policies (96.5%) and the remaining were group policies. In 2010, the written premium for general medical insurance was RM 643.5 million (US\$ 200.4 million), and is forecasted to grow to RM 1.5 billion (US\$ 490.7 million) by 2016. The following table illustrates the growth in general medical insurance net premium between 2006 and 2010 and the forecasted growth in 2016.

General Insurance Written Premium (Medical) 2006, 2010 and 2016F

	2006	2010	2016F	CAGR (2006-2016F)
Written Premium (RM million)	398.3	643.5	1,498.9	14.2%

Source: Annual Insurance Statistics (2006-2010), Bank Negara Malaysia. Forecasts by Frost & Sullivan.

Growing Middle and High Income Population Segment

Malaysia has a growing middle and high income class population. A wealthier population generally aspires for better living conditions and better quality of healthcare. Malaysia has a high national savings ratio of approximately RM 281.1 billion or 34.5% of the Gross National Income (GNI) in 2011¹⁵. This provides an opportunity for the private HCS providers to align its service offerings to cater for this segment. The following table shows the percentage distribution of households based on income class for the years 2004, 2007 and 2009.

¹⁵ Based on current prices as sourced from the Ministry of Finance, Malaysian Economic Report, Fourth Quarter 2011.

7. INDUSTRY OVERVIEW (cont'd)

Percentage Distribution of Household by Income Class, Malaysia, 2004, 2007 and 2009

Income Class	Distribution of Household (%)		
	2004	2007	2009
Below RM 2,499 per month	56.1	49.1	44.1
RM 2,500 – RM 4,999 per month	27.1	30.1	31.7
RM 5,000 and above per month	16.8	20.8	24.2

Source: Department of Statistics Malaysia

Iskandar Malaysia – Medical Hub

The Malaysian government has identified healthcare as one of the 6 economic growth drivers for Iskandar Malaysia (the other growth drivers being education, finance, creative industry, logistics and tourism), to be developed in the Nusajaya Flagship area which is situated to the West of Johor Bahru. The Nusajaya development spreads across a land area measuring 24,000 acres, and is one of the largest property developments in Southeast Asia and is projected to have a population of 500,000 by 2025.

Healthcare development plans in Nusajaya are as follows:

- The Afiat Healthpark development is under the ownership of UEM Land Bhd. The Afiat Healthpark hosts the Columbia Asia Nusajaya Hospital, an 82-bedded hospital, supported by other health facilities. The Columbia Asia Nusajaya Hospital commenced operations in June 2010.
- Medini Iskandar Malaysia – a 2,230-acre international mixed-used development under a joint development between Global Capital and Development Sdn Bhd and Medini Central Sdn Bhd. The target population by 2014 is 50,000. The North Medini development will include the building of a 300-bed tertiary healthcare complex by the Parkway-Pantai group which is expected to be operational in end 2014.

The Iskandar development region, being in close proximity to Singapore has an advantage over other cities in Malaysia, and has the potential to emerge as the next medical travel hub in Malaysia. It is expected to cater to domestic demand as well as to medical travellers, particularly from Singapore which is an attractive market for the private HCS industry in Malaysia given its population size of 5.2 million. As the private healthcare cost for a single bed ward in Malaysia is comparative with Singapore's public B1 ward hospitals, it is anticipated that Singaporeans who utilise the B1 and C wards may look to hospitals in Iskandar as an alternative. (Refer to Section 3.3 Medical Travel – Malaysia for details).

1Care for 1Malaysia – 5 Years National Health Plan (2011-2015)

The 1Care for 1Malaysia is a national health reform plan announced during the 10th Malaysia Plan (10 MP). The main objective is to alleviate the challenges faced by the public healthcare sector which includes overburdened resources, increasing cost of medical supplies and the migration of specialists to the private sector, as well as the varying quality of healthcare across the public sector, through greater integration with the private sectors. The other objective is to provide the general public with greater access to the private healthcare sector, at the same time addressing the healthcare financing structure in order to ensure that the general public is not burdened by high OOP expenditure. The efforts outlined by the "5 Years National Health Plan (2011-2015)" include:

- Contracting out certain auxiliary health services, such as radiotherapy services and emergency purchase of MRI, Computed Tomography Scan (CT-scan) and Intensive Care Unit (ICU) services to private hospitals. This will reduce the public medical costs and provide the private sector with an opportunity to grow in the healthcare delivery market.
- Employment of private specialists on a sessional or honorarium basis
- The introduction of a Full-Paying scheme to several public hospitals, namely Hospital Putrajaya and Hospital Selayang, which now makes it possible for MOH Malaysia specialists to receive referrals from private hospitals at full paying patient rates

7. INDUSTRY OVERVIEW (cont'd)

- The approval of locum practices for MOH Malaysia doctors, which makes it possible for MOH Malaysia doctors to now legally practice as locums in private clinics with their head of department's approval – this is to address the brain-drain situation
- To address the rising rate of lifestyle diseases through wellness campaigns and programmes to lead a healthier lifestyle.

National Health Financing Scheme

The scheme is at the drafting stage and when implemented is expected to be mandatory for all Malaysians. It is to be funded through contributions from employees, employers and the federal government. The implementation of a national health financing scheme will relieve the government from the burden of subsidising healthcare, and channel their funds into investments in the public HCS infrastructure such as for capacity building, upgrading of current facilities and installing state-of-the-art medical equipment and systems, as well as focusing on other areas such as health awareness campaigns and research and development in healthcare. The scheme is expected to relieve the public healthcare system as those covered by the scheme may be allowed to opt for private HCS whereby the scheme may also be utilised. Nevertheless, the actual scheme is yet to be announced by the government.

4.2.6 Competitive Landscape

In 2011, there were 221 private hospitals in Malaysia. Many of the hospitals are part of a wider network of hospitals operated by several key service providers.

Private HCS providers may be categorised as for-profit or not-for-profit. In the for-profit private HCS category there are 7 major healthcare groups and at least 4 single entity hospitals that command the majority of the number of hospital beds in Malaysia. The following table lists the key for-profit HCS providers (group or single entity) based on the total number of beds available within their facilities.

Major^a Private HCS Providers in Malaysia, 2011

Healthcare Group or Holding Company	Number of Hospitals	No. of MSQH / JCI Accredited Hospitals ^b	Estimated no. of Specialists	Location / Region	Estimated no. of Beds ^c
KPJ Healthcare Bhd	20	MSQH: 10 hospitals	760	Peninsular Malaysia, Sabah & Sarawak	2,180
Pantai Hospitals Sdn Bhd and Gleneagles (Malaysia) Sdn Bhd (Subsidiaries of Parkway Pantai Limited)	11	MSQH: 7 hospitals JCI: 2 hospitals	>780	Peninsular Malaysia	2,010
Columbia Asia Sdn Bhd	10 (2012)	MSQH: 1 hospital	140	Klang Valley, Iskandar, Taiping & Sarawak	695 (2012)
Sime Darby Healthcare Sdn Bhd (Subsidiary of Sime Darby Holdings Bhd)	2 (2012)	MSQH: 1 hospital JCI: 1 hospital	94	Selangor	613 (2012)
Health Management International Ltd	2	None	127	Johor Bahru and Melaka	498
TDMC Hospital Sdn Bhd (Subsidiary of TDM Bhd)	4	None	39	Terengganu, Pahang & Klang Valley	352
Sunway Medical Centre	1	MSQH accredited	108	Selangor	350
Prince Court Medical Centre Sdn Bhd (Subsidiary of Petronas)	1	MSQH accredited	83	Kuala Lumpur	300
Putra Specialist Hospital Sdn Bhd	2	None	80	Batu Pahat and Melaka	288
Loh Guan Lye & Sons Sdn Bhd	1	MSQH accredited	57	Penang	265
Island Hospital Sdn Bhd	1	None	47	Penang	240

7. INDUSTRY OVERVIEW (cont'd)

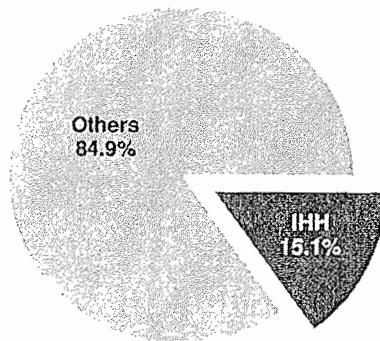
Note: The list above excludes not-for-profit hospitals. The list above is non-exclusive and not limited to these players.

Sources:

- a. Based on the number of beds.
- b. JCI website and the Malaysian Society for Quality in Health (MSQH) website. The MSQH information is correct as on 12 March 2012.
- c. The beds information in the table above was obtained on a best effort basis and as per published in the companies' own publication and/or websites, or announced in mainstream media. The term 'beds' may refer to licensed or operational beds.

In 2010, there were 13,186 private hospital beds in Malaysia. IHH's market share in Malaysia, based 1,993 licensed beds in 2010 was 15.1%. This ranks IHH as the second leading private HCS provider in Malaysia in 2010.

IHH's Market Share by Number of Licensed Beds (Private), 2010

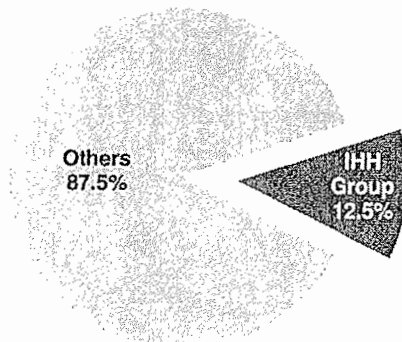


Source: MOH Malaysia, IHH, Analysis by Frost & Sullivan

4.2.7 Market Size (Private Hospital Industry Revenue)

In 2010, the private hospitals market size in Malaysia was estimated at RM 6,038 million (US\$ 1,880 million), having grown from RM 5,252 million (US\$ 1,494 million) in 2009. In 2010, IHH's market share by revenue was calculated to be 12.5%.

IHH's Market Size Based on Private Hospitals Industry Revenue in Malaysia, 2010



Source: MOH Malaysia, IHH, Analysis by Frost & Sullivan

7. INDUSTRY OVERVIEW (cont'd)

4.2.8 Industry Outlook / Prospects

Healthcare expenditure is forecast to reach RM 65.9 billion (US\$ 21.6 billion) in 2016, growing at a CAGR of 8.7% during the period 2011-2016. The ETP and 10MP, with the emphasis on healthcare, is expected to be a major driver for investments spurring a flurry of capacity building by both public and private sectors. As most new hospitals are expected to be operational during 2012 to 2016, the increase in private healthcare expenditure is also expected to be apparent during this time period. The public-private integration is expected to relieve the over utilisation of resources in the public sector as the ancillary services such as imaging and laboratory services may be outsourced to the private sector. CAGRs for the public and private expenditure during 2011 to 2016 are estimated at 7.1% and 9.8% respectively. The following table shows the healthcare expenditure forecast and the private hospitals market size based on revenue between 2011 and 2016.

Healthcare Expenditure Estimates and Forecast, 2011E to 2016F

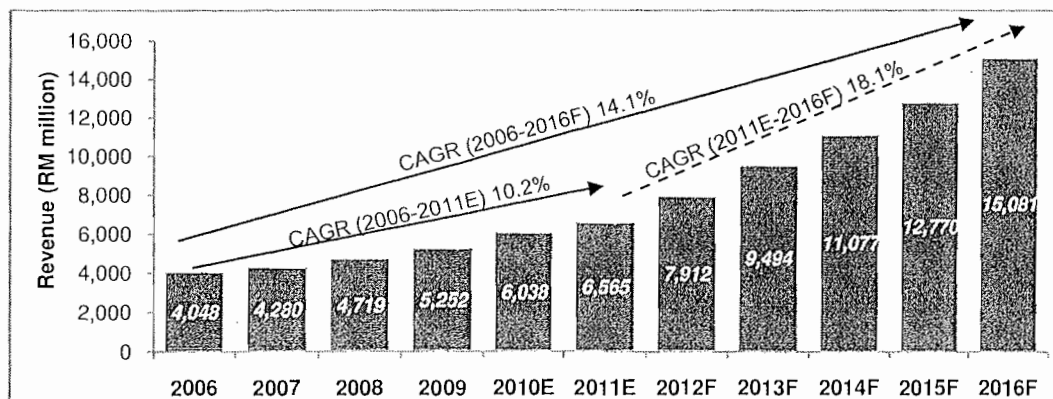
Year	Total Healthcare Expenditure (RM million)	Public Healthcare Expenditure (RM million)	Private Healthcare Expenditure (RM million)	Private Hospitals Market Size (RM million)
2011E	43,429	18,313	25,115	6,565
2012F	46,782	20,241	26,541	7,912
2013F	51,068	21,513	29,554	9,494
2014F	55,776	22,866	32,909	11,077
2015F	60,639	24,304	36,334	12,770
2016F	65,948	25,833	40,115	15,081
CAGR 2011E-2016F	8.7 %	7.1 %	9.8%	18.1%

Source: Analysis and Forecast by Frost & Sullivan

The private hospital market size is forecast to grow to RM 15,081 million (US\$ 4,934 million) in 2016 at a CAGR of 18.1% during the period 2011 to 2016. Growth is anticipated to be higher during the forecast period (2012 to 2016) as a result of new hospitals opening during the time period. During this time, major driving factors for growth in revenue for private hospitals include:

- higher uptake of private insurance by middle income households which act as enablers to more complex treatments or procedures in private healthcare facilities,
- rising medical costs which are transferred to patients, and
- growth in the medical travel industry generally seeking for certain complex procedures which are cheaper than in the neighbouring medical hubs of Singapore and Thailand.

This is in addition to the increase in utilisation of HCS in general as a result of population growth, ageing population and increasing lifestyle diseases. The following chart illustrates the private hospitals market size growth trend and forecast for the duration 2006 to 2016.

Private Hospitals Market Size Growth Trend and Forecast, 2006 to 2016F

Source: Analysis and forecast by Frost & Sullivan

7. INDUSTRY OVERVIEW (cont'd)

4.3 TURKEY

4.3.1 Introduction and Background

According to the IMF's World Economic Outlook Report, Turkey is a newly industrialised country. Turkey's urbanisation rate has been on an upward trend increasing from 67.3% in 2006 to 69.7% in 2010.

Socioeconomic Indicators, 2006 and 2010

Indicators	2006	2010
GDP (TL billion)	758.4	1,254.6
GDP per capita (TL) (current prices)	10,908	15,119
Population (million)	69.4	73.0
0-14 years (%)	27.9	26.0
15-64 years (%)	65.5	67.1
65 years and above (%)	6.7	6.9
Birth Rate (per 1,000 population)	18.6	17.5
Infant Mortality Rate (per 1,000 births)	20.6	10.1
Life Expectancy – Female (Years)	75.6	76.8
Life Expectancy – Male (Years)	71.2	71.8
Total Employed (million)	20.1 (2005)	22.6
Household Income Distribution:		
Top 40 percentile (%)	67.0	65.8
Bottom 20 percentile (%)	17.3	18.4
Urbanisation Rate (%)	67.3	69.7

Turkey has a large productive population (aged between 15-64 years) and high employed segment, which contribute to the increasing wealth of the population and a growing middle income group. The GDP per capita is generally higher than in most countries in the region. Turkey's large population base is rising as a result of a moderate birth rate and low infant mortality rate. The ageing population (aged above 65 years) accounted for approximately 6.9% of the population in 2010 and is expected to increase with higher life expectancy and low mortality rate.

Turkey's national healthcare expenditure grew from TL 40.6 billion (US\$ 28.4 billion) in 2006 to approximately TL 74.4 billion

(US\$ 49.4 billion) in 2010, registering a strong CAGR of 14.0% during this period. The growth in healthcare infrastructure and facilities has spurred the demand for healthcare professionals.

The government introduced the 2003-2013 "Health Transformation Program" (HTP) in Turkey to address the shortage of doctors, healthcare facilities and increase the quality and efficiency of the healthcare system as well as to enhance the accessibility of healthcare facilities. Driven by the HTP, Turkey's number of hospital beds per 1,000 population increased from 2.65 in 2006 to 2.74 in 2010. Likewise, the number of doctors per 1,000 population increased from 1.51 in 2006 to 1.69 in 2010. In addition, the private healthcare sector has blossomed in Turkey and there have been noticeable improvements in the quality of public hospitals due to rising competition from private hospitals.

Changing Lifestyle and Burden of Diseases

Rapid socio-economic development in Turkey has resulted in an increasing trend in non-communicable/lifestyle diseases such as coronary diseases, cancer, diabetes, hypertension, obesity and chronic obstructive pulmonary disease over the last 3 years. The key contributing risk factors for these diseases are urbanisation, mechanisation, reduced physical activity, an ageing population, air pollution, smoking and genetic predisposition.

7. INDUSTRY OVERVIEW (cont'd)

Prevalence of Selected Diseases (in millions)	2009	2010	2011
Coronary Disease	3.6	3.8	4.1
Cancer	0.6	0.7	0.7
Diabetes	6.1	6.5	6.9
Hypertension	17.0	18.0	19.2
Obesity	14.5	15.2	15.9
Chronic Obstructive Pulmonary Disease (COPD)	4.5	5.0	5.5

Source: MOH Turkey

In 2010, lifestyle diseases such as coronary diseases, cancer and respiratory diseases accounted for more than 62% of the hospital deaths in Turkey. Given the inadequacy of public hospitals, the private healthcare sector has concentrated on secondary and tertiary healthcare, offering treatment for such lifestyle diseases. For instance, major industry players in the private healthcare sector such as Acibadem Health

Group, Anadolu Sağlık Merkezi (Health Group), Florence Nightingale Health Group and Memorial Health Group have all allocated resources to specialise in oncology and cardiovascular diseases.

Ageing population

The increasing ageing population is also signalling an increasing need for HCS, especially for the elderly. MOH Turkey statistics show that people above the age of 65 made up 6.9% of the population in 2010 and this segment is expected to reach 7.6% of the population by 2016. This factor will drive the demand for: the treatment of chronic diseases including cardiovascular diseases; the long-term management of diseases such as osteoporosis and dementia; and home care or home monitoring and geriatric care. These factors will exert increasing pressure on healthcare budgets as they require sophisticated and capital intensive treatment.

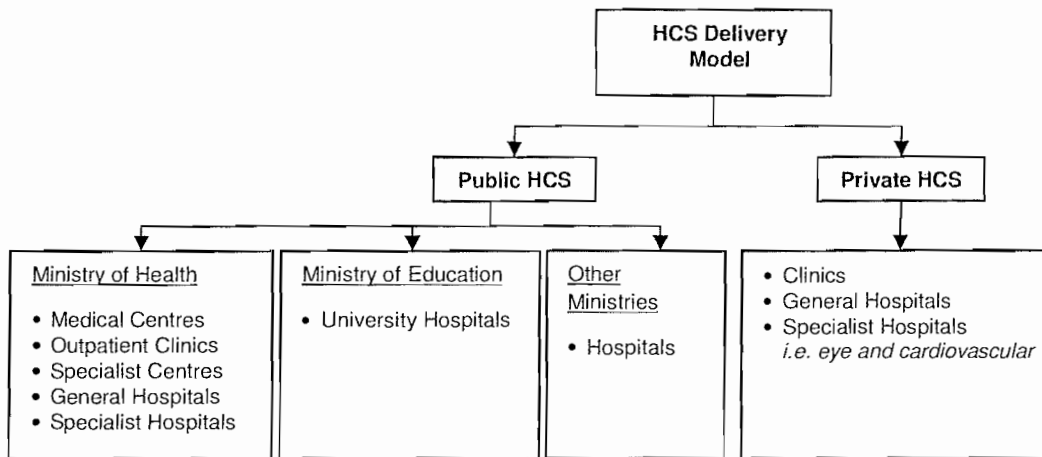
4.3.2 Overview of HCS model and funding

The major healthcare providers in Turkey are the Ministry of Health (MOH Turkey), the Social Security Institution, the Ministry of Education, the Ministry of Defence, the Ministry of Labour and Social Security and private healthcare institutions. MOH Turkey is the largest healthcare provider in Turkey and essentially the only provider of preventive HCS at a national level. It is also responsible for regulating the private HCS industry and issuing operating licenses to private healthcare facilities.

Primary HCS in Turkey is available at family health centres, maternal and child health and family planning centres, population health centres, cancer early diagnosis screening and training centres, medical centres, outpatient centres, private doctor offices and tuberculosis control dispensaries. MOH Turkey provides secondary HCS through general state hospitals and other public hospitals. For public tertiary HCS, University Hospitals primarily cater to the need of general public. There are also specialist hospitals that provide specific quaternary HCS such as heart related diseases and eye treatments. The healthcare facilities in the public sector are complemented by a smaller network of private facilities. The provision of private healthcare in Turkey is available via medical centres, outpatient centres, private doctor offices, general hospitals and specialist hospitals such as eye hospitals.

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7. INDUSTRY OVERVIEW (cont'd)

HCS Delivery Model in Turkey, 2011

Source: Frost & Sullivan primary and secondary desktop research.

Turkey has a Universal Health Insurance (UHI) scheme that is provided by the Social Security Institution (*Sosyal Guvenlik Kurumu - SGK*). The UHI scheme provides basic healthcare coverage to all residents including foreigners who are working in the country through public hospitals. Those who are covered by SGK may also receive HCS in private hospitals that have agreements with SGK (either full or partial basis). In addition to the private hospitals, private medical centres may also enter into the agreement with SGK (full or partial basis).

There are two types of agreements between SGK and private hospitals as well as private medical centres – full SGK agreements and partial SGK agreements. Under the full SGK agreement, all units of the private hospitals can be utilised to serve SGK patients. In return, private hospitals may charge a premium (30% to 90%) on top of the SGK tariff, plus additional charges for amenities. Under the partial SGK agreement, private hospitals only need to provide cardiovascular surgery, cardiology, oncology, radiation oncology, organ and tissue transplantation, radio surgery, and emergency services. They may only charge a premium of up to 30% for these services to SGK patients. Even after accounting for such premiums, fees paid by full or partial SGK patients are generally lower than that of non-SGK patients. Individuals who seek additional medical services from the private healthcare which are not contracted under SGK need to pay their medical expenses OOP, if they do not have private health insurance coverage. Furthermore, the private hospitals are not bound by these price caps when serving non-SGK patients. Generally, private hospitals and private medical centres under partial SGK agreement are of higher quality compared to those with full SGK agreement because majority of these hospitals are located in major cities. They provide HCS to patients with higher income level who can afford OOP or private insurance payment. SGK patients receive only the basic services payment from the government whereas patients with private insurance coverage can receive a more comprehensive HCS from the private hospital at no additional cost.

Despite the availability of the UHI scheme, many employers subscribe to private health insurance schemes for their employees. This way, they can ensure that their employees receive quality treatment at private hospitals. Individuals in higher income groups may also personally subscribe to private health insurance to enjoy these benefits. In 2011, there were 27 private healthcare insurance providers in Turkey such as Acibadem Sağlık ve Hayat Sigorta A.Ş., Allianz, Ak Sigorta Anadolu and Yapı Kredi, among others, providing private insurance coverage to approximately 2.3 million people (approximately 3.1% of the total population). However, private health insurance is not mandatory.

According to MOH Turkey, SGK expenditure, including both public and private, accounted for 45.2% of the total healthcare expenditure in 2010, followed by public expenditure (20.9%), OOP expenditure (23.3%), non-profit organisations (8.8%) and private healthcare insurance (1.8%). The following diagram illustrates the payment structure for a healthcare expense in Turkey, for public and private HCS:

7. INDUSTRY OVERVIEW (cont'd)

approximately 14.0% of the total hospital beds in Turkey, recording a CAGR of 16.2% from 2006 to 2010. The following table shows the growth in number of hospital beds from 2006 to 2010, and Frost & Sullivan's projection up to 2016. The ratio for the number of hospital bed per 1,000 population is expected to approach 3.0 per 1,000 population.

	2006	2007	2008	2009	2010	2011F	2012F	2013F	2014F	2015F	2016F	CAGR 2006-2016F
Total Beds	183,696	184,983	188,065	195,549	199,950	203,960	208,561	213,177	217,872	222,541	227,227	2.1%
Public	168,280	166,988	167,127	170,371	171,887	173,090	174,821	176,569	178,335	180,118	181,920	0.8%
Private	15,416	17,995	20,938	25,178	28,063	30,869	33,740	36,608	39,537	42,423	45,308	11.4%
Beds per 1,000 population	2.64	2.63	2.65	2.71	2.74	2.76	2.79	2.81	2.84	2.87	2.90	N/A

Source: MOH Turkey. Analysis and forecasts by Frost & Sullivan

HCS Licensing

In 2002, MOH Turkey established a commission to plan the future development of the Turkish HCS sector and as part of this, several procedures were introduced. Such procedures included the suspension of new issuance of hospital/outpatient clinic licenses, special unit permits for new applicants and approvals for applications to increase capacity in or transfer health personnel to hospitals/outpatient clinics until the planning commission becomes fully effective. Notwithstanding the above, private hospitals that obtained a pre-approval certificate before February 15, 2008 were allowed to pursue the obtaining of other licenses required to commence operations. Hospitals that applied for but were unable to obtain a pre-approval certificate before February 15, 2008 due to certain irregularities could re-apply for the pre-approval certificate subject to irregularities having been solved within 3 months from March 11, 2009. Should such hospitals have completed their applications for the pre-approval certificate before June 11, 2009, they are allowed to pursue the licensing procedure. Other than the above exceptions, MOH Turkey has taken the general approach of not issuing any new licenses.

There are three separate licenses that companies need to secure in order to participate in the Turkish HCS market:

- Companies need to first obtain the 'pre-approval' license which evidence that the architectural design of the building is suitable for the operation of hospital in accordance with relevant provision of the Turkish health regulations. In order to obtain a pre-approval certificate, the construction permit and the building use permit must be obtained from the relevant governmental authorities.
- Following the pre-approval certificate, the applicant must obtain a hospital 'opening certificate' from MOH Turkey within 3 years (or if need be, a longer term with prior consent of MOH Turkey) from the issuance date of the pre-approval certificate. The hospital opening certificate evidenced that the hospital's building, management and healthcare technical reports and services have met the requirement stipulated under the Turkish health regulations.
- Companies then need to obtain the final and main 'operational' license for the commencement of patient reception and treatment within six months following the issuance date of the hospital opening certificate.
- In addition to the above, Medical Centre Regulation regulates the medical centres, outpatient clinics and special units. All of these centres should be incorporated only by doctors or by companies whose shareholders are doctors. These entities need to obtain 'pre-approval' certificate and 'operational' certificate in order to commence operations.

The above mentioned regulations have made it difficult for existing or new players to build new greenfield hospitals. As a result, major HCS players in Turkey have been pursuing M&A activities to expand their market share as well as relocate their facilities to a more strategic location. MOH Turkey has also made a provision to allow the conversion of two medical centre licenses into a single operational hospital license. One medical centre can also be converted into hospital if the qualifications satisfy the regulation terms and conditions. These developments are expected to aid the consolidation of the HCS industry in Turkey. Such expansion plans are also subject to the approval of the commission for planning established by the MOH Turkey and the applications for these transactions must be filed to the Ministry of Health until March 11, 2013. Furthermore, while

7. INDUSTRY OVERVIEW (cont'd)

the Hospital Regulation permits these expansion plans as being subject to the approval of the commission, the commission is likely to allow expansion plans, especially greenfield facilities, only in developing or underdeveloped cities.

4.3.5 Demand Dynamics

Access to Healthcare Funding – Medical Insurance

Access to healthcare funds is an important driver for private healthcare in Turkey. Traditionally, those who seek quality treatment in a private healthcare facility pay OOP for their medical fees. In 2011, the number of people with private health coverage had almost doubled from 1.28 million in 2008 to 2.28 million, even though the total insurance premium collection only increased by 46.1% from TL 1.17 billion (US\$ 898.3 million) in 2008 to TL 1.71 billion (US\$ 1.02 billion) in 2011. This implied that increasing portions of the Turkish population are covered by private health insurance as insurance premiums are becoming more affordable to the general public.

Demand for Quality Services

The private sector plays a critical role in expanding the accessibility of healthcare coverage in Turkey. The demand for health services increases every year. The number of inpatients visiting private hospitals increased from 1.2 million in 2006 to over 2.7 million in 2010 (22.5% CAGR). In 2010, the number of private inpatients accounted for 25.5% of the total inpatients in Turkey. Many of them are seeking HCS from private hospitals to avoid long waiting time in public hospitals in addition to receiving better quality services and treatments.

Health Transformation Program (HTP)

MOH Turkey formulated the HTP to improve the quality and efficiency of the healthcare system as well as to enhance access to healthcare facilities. This has had a positive impact on the private healthcare sector as it is expected to divert more patients to private hospitals. Under the HTP priorities, MOH Turkey has set and implemented among others, the following critical initiatives:

- **Implementation of Universal Health Insurance (UHI):** The three main social security systems, Social Insurance Institution (SSK), Pension Fund for Civil Servants (Emekli Sandigi) and Social Security Institution for the self-employed (Bag-Kur), were combined under SGK, resulting in only one payment agency for healthcare. This has resulted in the expansion of health insurance coverage from 40% of the population in 2007 to approximately 90% in 2011.
- **Establishment of Family Doctor Pilot Project:** In December 2004, the Turkish government introduced the Family Doctor Pilot Project with the goal to increase the ratio of one family doctor per 2,000 population by 2023. Under this pilot project, individuals who participate in the UHI system will be registered with a primary care family doctor. They would need to visit that particular doctor before proceeding to a hospital for secondary care. Individuals who visit a hospital without referrals from a primary care doctor will likely incur additional charges. Nevertheless, this initiative is still voluntary at the moment. Upon full enforcement, this project is expected to reduce the burden on public hospitals.
- **Expansion of SGK coverage to private hospitals:** In 2007, MOH Turkey extended SGK's healthcare coverage to include private hospitals with the aim of alleviating the burden on public hospitals by encouraging patients to seek medical treatments in the private sector. Patients seeking basic treatments in both public and private hospitals (with SGK agreements) are now covered under the SGK scheme. However, patients who are seeking better amenities or specialised treatment in private hospital that are not covered under SGK have to pay the premium price charged by private hospitals through OOP expenditure or private health insurance. The expansion of the SGK coverage is expected to encourage the migration of patients from public hospitals to private hospitals with SGK agreements.

Government Incentives

In November 2011, the government announced a statutory decree to establish tax-free health zones in Turkey. Currently, investors who invest a minimum of TL50 million in the healthcare industry enjoy a corporate tax rate of between 2% and 10%. Furthermore, under a new plan, the government will also contribute to a social security premium for the employers for up to 7 years. These investment initiatives are designed to boost investment in the healthcare industry.

Allowance of Foreign Health Professionals

In February 2012, the government passed a law enabling the employment of foreign health professionals in private hospitals. Foreign health professionals with at least a diploma in a medical

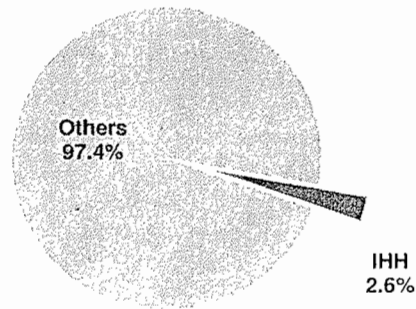
7. INDUSTRY OVERVIEW (cont'd)

or allied health programme and a good command of the Turkish language are allowed to practice in private healthcare facilities, save for dentists, pharmacists and midwifery.

4.3.6 Market Size (Private HCS Industry Revenue)

The private HCS market size in Turkey has grown from TL 17.6 billion (US\$ 12.3 billion) in 2006 to an estimated TL 28.3 billion (US\$ 18.8 billion) in 2010, recording a CAGR of 12.6%. In 2010, IHH's market share by revenue was 2.6%.

IHH's Market Size Based on Private HCS Market Size in Turkey, 2010



Source: Analysis by Frost & Sullivan

4.3.7 Competitive Landscape

The major healthcare providers in the private sector, with a focus on hospitals with partial SGK and/or without SGK agreements, are summarised below in alphabetical order.

Major Industry Players with Partial SGK / Non SGK Agreements in Turkey, 2011

Major Private Hospitals Group	Hospital Networks	No. of Hospitals with Partial SGK agreements (Estimated no. of beds)	No. of Hospitals without SGK agreements (Estimated no. of beds)	No. of JCI Accredited Hospitals (Estimated no. of beds)	Est'd Number of Total Beds	Est'd Number of Beds (Non SGK / Partial SGK) – Excludes Full SGK
Acibadem Health Group	13 hospitals ^a , 9 medical centres	8 (1,046)	1 (100)	6 (881)	1,572	1,146
Anadolu Sağlık Merkezi (Health Group)	1 hospital, 2 medical centres	1 (222)	0	1 (222)	222	222
Bayındır Health Group	3 hospitals, 1 medical centre	2 (239)	1 (121)	2 (242)	360	360
Florence Nightingale Health Group	3 hospitals, 1 medical centre	3 (550)	0	3 (550)	550	550
Memorial Health Group	4 hospitals, 2 medical centres	3 (475)	0	2 (332)	615	475
Universal Health Group	14 hospitals	1 (289)	6 (631)	1 (289)	1,500	920

Source: Compiled by Frost & Sullivan

Note:

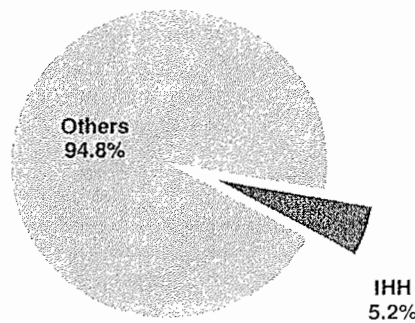
- Acibadem Health Group is currently in the process of acquiring Jinemed Hospital (with 23 beds) and Jinemed Medical Centre, which are not included in the table above.
- This list is non-exhaustive and not limited to these players. The list excludes private hospital groups having hospitals with full SGK agreements.
- The beds information in the table above was obtained on a best effort basis and as per published in the companies' own publication and/or websites, or announced in mainstream media. The term 'beds' may refer to licensed or operational beds.

7. INDUSTRY OVERVIEW (cont'd)

In addition to the above, hospital groups like Acibadem Saglik Hizmetleri ve Ticaret A.S., Memorial Health Group and Universal Health Group also include hospitals with full SGK agreements in their network. Some of the other major hospital groups that operate hospitals with full SGK agreements include Medical Park Health Group (comprising 17 hospitals and 2 medical centres with approximately 2,450 beds); Medicana Health Group (comprising 6 hospitals and 2 medical centres with approximately 1,170 beds) and BSK (Medline - comprising 6 hospitals with approximately 550 beds), among others.

In 2010, there were approximately 28,063 private hospital beds (encompassing hospitals with full SGK, partial SGK and non SGK agreements) in Turkey. IHH's market share in Turkey, based on the number of beds was 5.2%. Given the fragmented nature of the private HCS market (including full SGK, partial SGK and non-SGK), this ranks them as one of the leading private HCS provider in Turkey.

IHH's Market Share by Number of Beds (Private) in Turkey, 2010



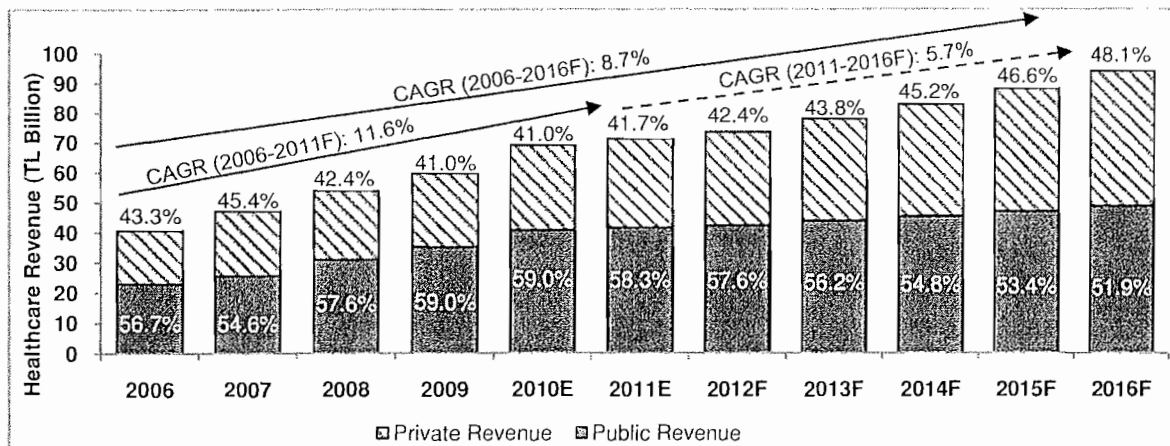
Source: Compiled by Frost & Sullivan

4.3.8 Industry Outlook / Prospects

The healthcare market in Turkey is expected to grow as a result of the implementation of the UHI scheme, increasing annual income, health awareness, ageing population, as well as the growing medical travel industry. All these factors are expected to lead to higher healthcare spending in Turkey which is estimated to reach TL 186.1 billion (US\$ 103.6 billion) in 2016 from TL 44.1 billion (US\$ 30.8 billion) in 2006 at a CAGR of 15.5%.

Private hospitals are expected to continue to grow in the healthcare market. M&A activities in the private healthcare sector are also expected to continue to increase as major players continue to grow and expand, further consolidating the market. Due to the license restrictions imposed by the government for building new hospitals, fewer new entrants / industry players are expected in the short to medium term from 2012 to 2015.

Private HCS Market Size Growth Trend and Forecast, 2006 to 2016F



Source: MOH Turkey, Analysis and Forecast by Frost & Sullivan.

7. INDUSTRY OVERVIEW (cont'd)

4.4 INDIA

4.4.1 Introduction and Background

According to the IMF, India's nominal GDP rose from US\$ 0.9 trillion in 2006 to US\$ 1.5 trillion in 2010. The GDP per capita rose from US\$ 791.0 in 2006 to US\$1,265.0 in 2010. The population in India was estimated to be approximately 1.2 billion in 2010, making India the second-most populous country in the world, after the PRC. 4.9% of India's population was above 65 years of age in 2010. According to the World Bank, the adjusted national income per capita¹⁶ of India was US\$ 1,024.0 in 2009, up from US\$ 742.0 in 2006 at a CAGR of 11.3%. The literacy rate of India went up from 64.8% of the total population in 2001 to 74.0% in 2011 showing an increase of 9.2 percentage points. With an increased national literacy rate and increasing access to information on HCS on the Internet and various interactive forums, there is a rapid increase in awareness regarding HCS across all age groups. According to the Associated Chambers of Commerce and Industry of India (ASSOCHAM), India's medical travel industry is also expected to grow from approximately US\$ 333.0 million in 2008 to US\$ 2.1 billion by 2015 at a CAGR of over 30.0%. With strong economic growth, a burgeoning population with rising purchasing power, increasing literacy rates and expected growth in medical travel, India is emerging as a highly attractive market for healthcare delivery.

Burdens of diseases in India

According to the WHO and World Economic Forum (WEF), the income loss to Indians due to lifestyle diseases including coronary diseases, strokes, cancer, diabetes and respiratory infections was approximately US\$ 8.7 billion in 2005, and is projected to reach US\$ 54.0 billion in 2015. The rise in patient volumes driven by such lifestyle diseases and the increasing cost of treatment are expected to drive the revenue of participants in the healthcare delivery industry.

Prevalence of selected diseases	2006	2010	2015F
Coronary Heart Disease	37,871,227	46,968,695	61,522,343
Stroke	1,286,000	1,450,804	1,667,372
Diabetes	32,265,639	37,671,965	45,809,149
Chronic Asthma	28,173,000	31,054,659	34,399,180
Chronic Obstructive Pulmonary Disease (COPD)	17,020,000	18,851,985	21,603,800
Cancer	2,060,174	2,243,647	2,496,133
Hypertension	108,507,801	118,051,148	139,361,226

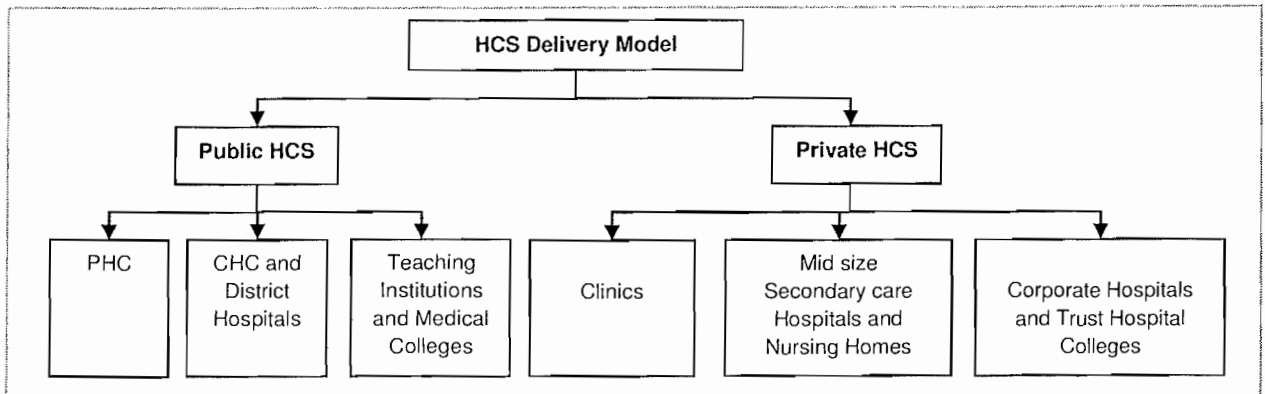
Source: Indian Council of Medical Research (ICMR)

4.4.2 Overview of HCS model and funding

The HCS delivery system in India is divided into public and private HCS delivery segments. Each of these segments provides primary, secondary and tertiary care to the population. The public segment focuses on primary and secondary care and caters mainly to the rural population due to its affordability. The private segment focuses on secondary and tertiary care and caters mainly to the urban population with a focus on the metropolitan, tier-1 and tier-2 cities in India.

¹⁶ Adjusted net national income is Gross National Income (GNI) minus consumption of fixed capital and natural resources depletion.

7. INDUSTRY OVERVIEW (cont'd)

HCS Delivery Model in India, 2011

Source: Compiled by Frost & Sullivan

Note: CHC and PHC stand for Community Health Centre and Primary Health Centre respectively

Within the public segment, the government in India has developed large numbers of PHC, which focus on providing immunisation, treatment for malnutrition, pregnancy and child birth as well as treatment of common illnesses, to cater to the primary healthcare needs of the rural population.

In India, approximately 70.0% to 80.0% of the total healthcare needs are catered for by the private segment by healthcare expenditure, as evident in table below (Please note that capital expenditure is not considered). This is as a result of limited government healthcare expenditure due to central and state government deficits and the government efforts to promote the growth of the private healthcare segment through measures such as introduction of tax incentives and land allocation. Generally more than 80.0% of private healthcare expenditure is from OOP expenditure.

Within the private segment, secondary and tertiary care is provided by private HCS providers, which can be further categorised into the following two segments:

- Private corporate hospitals, which are hospital chains operated by healthcare groups such as Apollo Hospitals, Fortis Healthcare and Manipal Health Systems.
- Private hospitals include unorganised private segment hospitals, which are owned and run by individual doctors or group of doctors.

India Healthcare Expenditure, 2006 to 2010

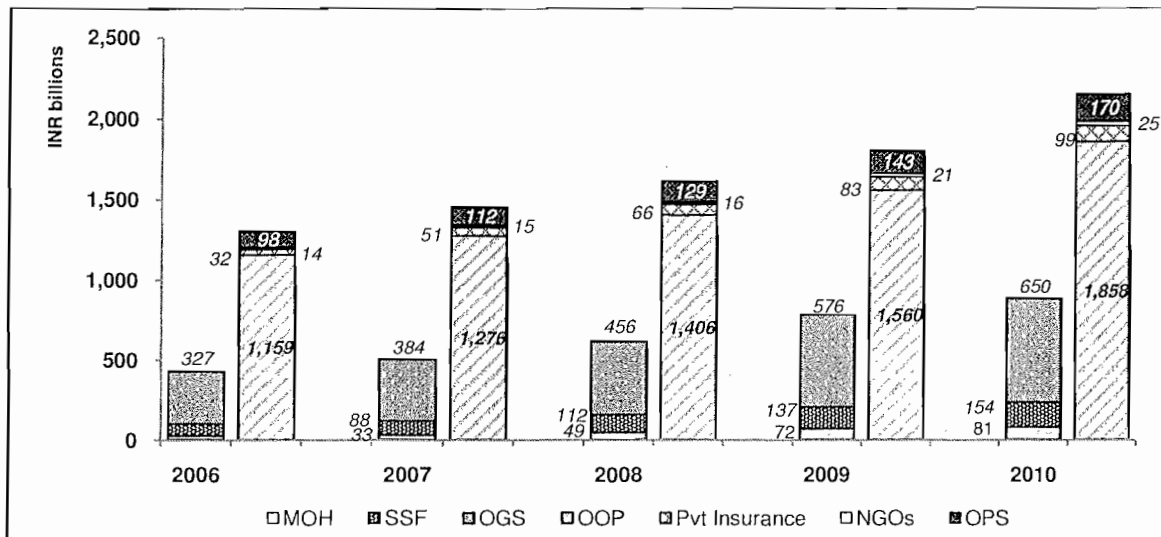
Healthcare Expenditure	2006	2007	2008	2009	2010	CAGR(%) (2006-2010)
Total (INR million)	1,734,068	1,961,102	2,234,230	2,591,553	3,037,569	
Public Contribution	430,385	505,993	617,588	784,584	886,140	19.8
Private Contribution	1,303,683	1,455,109	1,616,642	1,806,969	2,151,429	13.3
Public as a % of total	24.8	25.8	27.6	30.3	29.2	-
Private as a % of total	75.2	74.2	72.4	69.7	70.8	-
Total as a % of GDP	4.0	4.0	4.0	4.2	4.1	-

Source: The WHO Healthcare Expenditure Database. Projection and analysis by Frost & Sullivan

7. INDUSTRY OVERVIEW (cont'd)

The chart below shows the public and private healthcare expenditure further classified into their respective components.

Components of Public and Private Healthcare Expenditure (in INR billion), 2006 to 2010



Source: The WHO Healthcare Expenditure Database

Notes:

1) **Public Expenditure Components:** MOH (Direct subvention by MOH India), SSF (Social security funds) and OGS (Other government spending). The breakdown of OGS is not available.

2) **Private Expenditure Components:** OOP expense, Private Insurance, NGOs (Contribution from non-profit organisations) and OPS (Other private spending). The breakdown of OPS is not available.

3) The MOH and NGO components are very small and not visible in the chart above. The corresponding data is given below:

INR billions	2006	2007	2008	2009	2010
MOH	28	33	49	72	81
NGOs	14	15	16	21	25

4.4.3 Regulatory Overview

In general, the Indian Government has found it difficult to regulate the healthcare sector in India adequately. Despite the existence of regulatory frameworks, effective enforcement and implementation remains challenging for both the central and state governments. However the government has, over time, begun to improve implementation of the regulatory framework, for example, increasing the number of common bio-medical waste treatment plants and approving more private incineration licenses so as to support the operations of HCS providers in India. The key policy maker in India is the Central Council of Health and Family Welfare. Key implementing agencies include the Union Ministry of Health and Family Welfare and Directorate General of Health Services (DGHS).

4.4.4 Supply Dynamics

Generally, doctors in India are sourced domestically. According to the Central Bureau of Health Intelligence (CBHI), India had approximately 300 medical colleges and 290 dental colleges with a total admission of 34,595 and 23,520 respectively in 2010. The existence of such educational infrastructure is important to meet the growing demand for doctors and other healthcare professionals in India. The majority of key specialists in India have foreign degrees and are largely concentrated in urban private hospitals.

7. INDUSTRY OVERVIEW (cont'd)

Supply-demand gap of trained hospital staff and number of beds in India

According to the Indian Brand Equity Foundation (IBEF)¹⁷, an additional 0.7 million doctors will be required by 2025 to reach a recommended ratio of 1 doctor per 1,000 people. To maintain the current nurse-to-doctor ratio of 2.2, an additional 1.6 million nurses will be needed by 2025. To achieve the recommendation of 2 beds per 1,000 people by 2025, India needs to make up for a shortage of approximately 1.75 million beds. The projected need for doctors, nurses and beds demonstrates the size of the demand-supply gap in the healthcare industry in India.

Healthcare Infrastructure Performance Indicators

Indicators	2006	2010
Total Healthcare Infrastructures		
Public Hospitals including CHC	7,663	12,760
Private Hospitals including Nursing Homes	12,739	22,000
Public Clinics	168,986	173,795
Total Hospital Beds*		
Public	492,698	576,793
Private	493,118	591,641
Total Healthcare Workforce**		
Total Doctors	1,349,521	1,564,040
Nurses / Midwives	1,402,297	1,698,384
Allied workers (Health Assistants & Workers)	239,521	282,609

Source: Central Bureau of Health Intelligence (CBHI), The WHO, Ministry of Health and Family Welfare (MOHFW)

*Notes: * The total beds have been derived based on 0.9 beds per 1,000 populations as per the WHO. Public bed numbers are as per CBHI.*

*** Information on the split of total healthcare workforce into public and private segment is not publicly available.*

4.4.5 Demand Dynamics**Faster Economic Growth and Greater Urbanization**

The high economic growth of around 8.4% in 2011 is expected to increase the middle-class population in India. With higher disposable incomes, the Indian population is likely to increase their spending on HCS. This is likely to favour private HCS providers, who are well positioned in secondary and tertiary care, given the inadequacy of public healthcare infrastructure.

Growing Medical Travel Industry

The Indian government promotes the growth of the medical travel industry in India by offering tax breaks and export incentives to participating hospitals as well as expedited clearance of medical visas. Some of the major countries to contribute to the medical travel revenues in India are the United States, Western Europe, Middle East, Africa, Southeast Asia and Australia. Some of the major specialities, where India has seen significant in-flow of patients, are cardiovascular, orthopaedic, cosmetic surgery, dental treatments and ophthalmic treatments. The growing medical travel market is likely to primarily benefit the private healthcare segment as they provide majority of secondary and tertiary HCS due to greater demand by medical travelers for advanced medical treatments.

Increased Coverage of Health Insurance

The private health insurance segment in India is one of the fastest-growing sources of healthcare expenditure in India and is making healthcare more affordable to the population. Patients with

¹⁷ India Brand Equity Foundation (IBEF) is an Indian organisation that collects collates and disseminates accurate, comprehensive and current information on India. IBEF is a public-private partnership between the Ministry of Commerce, government of India and the Confederation of Indian Industry (CII) with the primary objective of building positive economic perceptions of India globally.

7. INDUSTRY OVERVIEW (cont'd)

health insurance are more likely to visit private hospitals rather than public hospitals. Hence, the greater penetration and growth of the health insurance sector in India is expected to drive the private HCS industry segment. Insurance products have also increased in variety. Health insurance players have introduced new products covering dental diseases and expenses, diabetes, Human Immunodeficiency Virus (HIV), cancer, pre-existing diseases, outpatient charges and prescribed drugs.

India Healthcare Expenditure by source, 2006 and 2010

Year	Total Healthcare Expenditure (INR million)	OOP Expenditure (INR million)	OGS Expenditure (INR million)	Private Health Insurance (INR million)
2006	1,734,068	1,159,000	327,492	32,087
2010	3,037,569	1,857,851	650,466	98,884
CAGR (2006-2010)	15.0%	12.5%	18.7%	32.5%

Source: The WHO Healthcare Expenditure Database

Note: The breakdown of total expenditure is not exhaustive

4.4.6 Competitive Landscape

Major Private HCS Providers in India, 2010 and 2011^a

Names of hospital groups	Profile	Hospital network	JCI Accreditation	Estd number of licensed beds	Estd Revenue FY 2010 (US\$ million)
Fortis Healthcare	Specialties: Cardiology, Brain and Spine, Neurology, Minimal Access Surgeries, Orthopaedic, Nephrology and Urology	68	4	10,800 (4,100 operational beds)	251.0
Apollo Hospitals	Specialties: Cardiology, Oncology, Orthopaedics, Nephrology, Urology, Neurosciences and Spine	51	5	8,276 (7,762 operational beds)	340.0
Narayana Hrudayalaya ^b	Specialties: Cardiology, Neurology, Paediatrics, General Medicine, Gastroenterology, General surgery, Bone Marrow Transplant, Nephrology and Urology	13	1	>5,500	80.0
Manipal Health Systems	Specialties: Cardiology, Nephrology, Urology, Neurology, Oncology, Liver and Digestive, Sports and Exercise Medicine, Andrology and Reproductive Services	15	None	>4,300	170.0
Global Hospital	Specialties: Liver Transplant, Bariatric Surgery, Cosmetic Surgery, Bone Marrow Transplant, Spine surgery, Heart Transplant, Hip / Knee Replacement and Kidney Transplant	9	None	>2,000	58.0
Care Hospital	Specialties: Cardiology, Oncology, Urology, Nephrology, Orthopaedics, Critical and Gastroenterology	11	None	1,760	79.0
Max Healthcare	Specialties: Joint Replacement Surgery, Neurosurgery, Cardiology, Spine, Laparoscopic Surgeries, Gastroenterology, Oncology, Ophthalmology and IVF	10	None	>1,300	78.0
Medanta Medicity	Specialties: Cardio Thoracic Surgery, Neuro Sciences, Orthopaedics, Transplants	1	None	1,250	N/A
Healthcare Global ^c	Specialties: Oncology	25	None	>1,150	33.8
Columbia Asia	Specialties: Liver Transplant & Surgical Gastroenterology, Intestine Transplant, Paediatric Surgery, Intervention Cardiology, Cardiothoracic and Vascular Surgery	7	None	760	21.5

Source: Hospital Annual Reports, Websites, Primary interviews by Frost & Sullivan

Notes: N/A denotes data is not available

a) List is sorted by the estimated total beds in descending order.

b) Narayana Hrudayalaya operates as a trust run hospital group.

7. INDUSTRY OVERVIEW (cont'd)

c) All Healthcare Global facilities are cancer centres.

Hospital groups such as Apollo Hospitals, Fortis Healthcare and Manipal Health Systems occupy a large share in the India private healthcare industry by revenue. Groups such as Max Healthcare, Healthcare Global and Columbia Asia, although small in market share by revenue, are growing at a rapid pace.

Many state governments such as the ones in the states of Maharashtra, Andhra Pradesh and Karnataka are also collaborating with the private sector through Public Private Partnerships (PPP) models to improve operational efficiencies. For example, partnership initiatives range from super-specialty care hospitals (Seven Hills Hospital in Mumbai and Apollo Hospital in Raichur) to primary care hospitals (Karuna Trust in Karnataka).

4.4.7 Industry Outlook / Prospects

Moving forward, at an industry level, there is an emergence of medical cities such as Medanta Health Systems in New Delhi and Seven Hills Hospital in Mumbai, to name a few. In our opinion, such medical cities fit market needs of the growing middle income population in India. There is also an emergence of premium healthcare hospitals that serve the high income population largely concentrated in the urban areas, especially the large metros. These hospitals are mainly tertiary in nature, fully single suite with premium services and located in key residential and commercial districts such as Juhu in Mumbai, Saket in New Delhi and Jayanagar in Bangalore.

Private hospitals are likely to upgrade their services for medical treatment and diagnostic services in order to provide one stop HCS to domestic and international patients. In order to improve the quality of HCS, private hospitals are likely to outsource support service departments like laboratory, pharmacy and radiology.

Moreover, there is a rising demand for quaternary and tertiary care hospitals which focuses on lifestyle diseases and speciality treatment like neurology, cardiology, orthopaedics and oncology. There is a large market gap and opportunities exist for private HCS players in tier-2 cities, where the demand and supply gap is significant, largely driven by the rising purchasing power. Furthermore, an increasing trend of horizontal integration is expected wherein existing players will expand by either acquiring competitor players or adding more hospital beds. This corresponds to a rapid growth in the Indian HCS industry over the next 5 to 10 years from 2012. Hence, focusing on building new private healthcare facilities at strategic locations in India would be beneficial in the long term for private HCS players.

Private Equity (PE) investments in India healthcare sector have also witnessed significant growth in recent years and the trend is expected to continue. In 2010, the total PE and venture capital investment in Indian healthcare was nearly US\$ 600.0 million as compared with nearly US\$ 300.0 million in 2009. The most recent healthcare related PE investment in India is the investment made by the government of Singapore Investment Corporation Pte Ltd. (GIC) in India's eye and dental care provider Vasan Health Care Pvt. Ltd at US\$ 100.0 million for a minority stake in March 2012.

7. INDUSTRY OVERVIEW (cont'd)

4.5 THE PRC

4.5.1 Introduction and Background

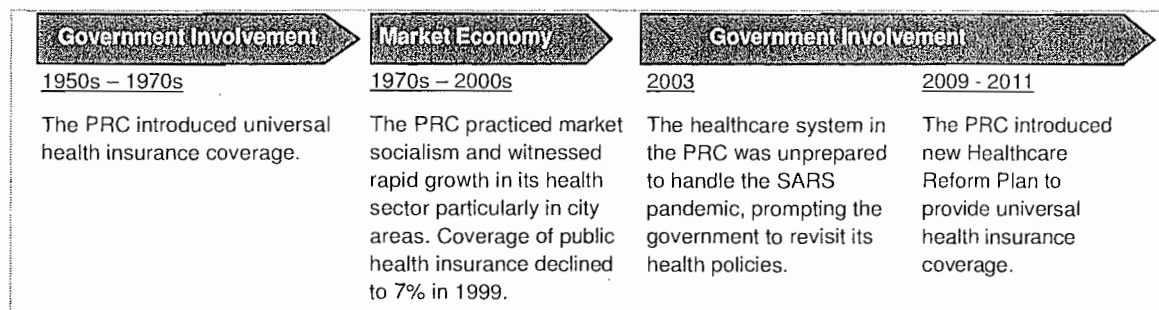
The PRC's GDP expanded from CNY 21.6 trillion (US\$ 2.7 trillion) in 2006 to CNY 39.8 trillion (US\$ 5.9 trillion) in 2010, making it the second largest economy in the world in 2010. The country's GDP growth is mainly driven by its agriculture, services and manufacturing industries. Its GDP per capita increased from CNY 16,456 (US\$ 2,066) in 2006 to CNY 29,706 (US\$ 4,393) in 2010 at a CAGR of 15.9%. The PRC's population was approximately 1.3 billion in 2010, making it the most populous country in the world. Approximately 119.2 million people (8.9% of total population) are above 65 years of age.

According to the IMF's World Economic Outlook Report, the PRC is a newly industrialised country. The country's urbanisation rate has been on an upward trend, increasing from 42.5% in 2005 to 47.0% in 2010. Going forward, UN forecasts the PRC's urbanisation rate to reach approximately 51.1% in 2015. The number of employed workers in the PRC grew from 758.0 million people in 2005 to 780.0 million people in 2010.

The healthcare industry in the PRC has experienced strong growth in the last decade from 2001 to 2011. Since the PRC's accession to the World Trade Organisation (WTO) in 2001, the country has been an attractive destination for foreign investment. The increase in domestic demand and the continuous rise in exports have contributed to growth in the healthcare industry. Going forward, the government's initiatives to reform the healthcare system will continue to drive growth.

The following chart shows the evolution of the PRC's healthcare system:

Evolution of the PRC's Healthcare System



Source: Compiled by Frost & Sullivan

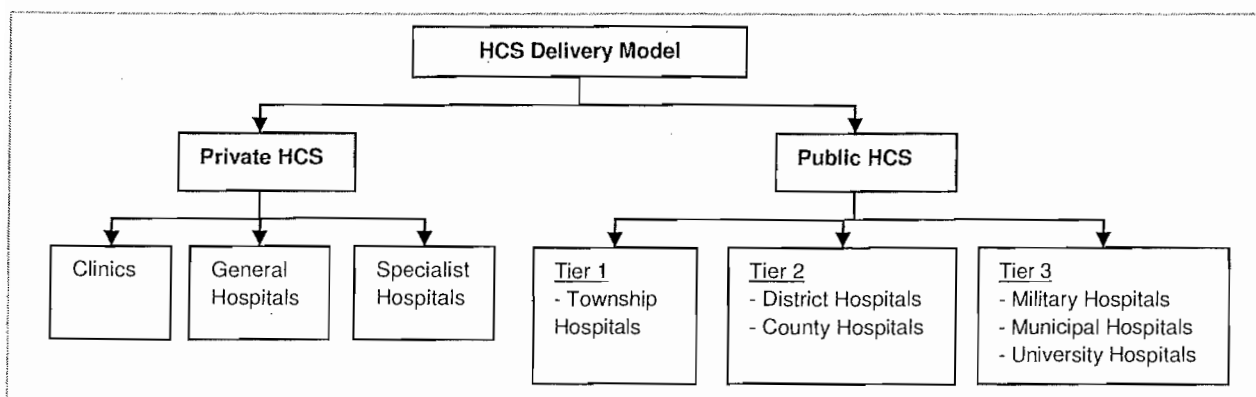
The PRC's National Ministry of Health (MOH PRC) and the Shanghai Municipal Government built the Shanghai International Medical Zone (SIMZ) in 2005, to support Shanghai's aim of building a first class medical centre by 2013. SIMZ provides HCS to meet the needs of both domestic patients and overseas medical travellers. In 2009, the government also unveiled a comprehensive healthcare reform plan as a key initiative to improve the country's HCS and infrastructure. Such measures have strongly underpinned the growth of the healthcare sector in the PRC.

4.5.2 Overview of HCS model and funding

MOH PRC oversees the healthcare system in the PRC. The majority of the healthcare infrastructure in the country is owned by the government. There are also locally invested private hospitals as well as private hospitals that are jointly invested with foreign investors. Public hospitals and locally invested private hospitals tend to attract lower income patients who are covered by social health insurance while foreign invested private hospitals cater to foreign expatriates and the population with higher income. Foreign invested hospitals typically charge premium prices in exchange for higher quality services. Generally, patients who visit foreign invested hospitals pay for their medical fees via OOP and private insurance.

7. INDUSTRY OVERVIEW (cont'd)

HCS Delivery Model in the PRC, 2011



Source: Compiled by Frost & Sullivan

In the PRC, the MOH PRC ranks public hospitals based on the following tier system:

Tier	Standard
Tier-3	Hospitals are well staffed and equipped with modern technology. They are generally located in urban areas.
Tier-2	Hospitals are adequately equipped, but lack the level of service, staff and equipment that are offered in tier-3 hospitals. Tier-2 hospitals are typically located in lower tier cities.
Tier-1	Hospitals are typically small, poorly equipped, underfunded and understaffed. Tier-1 hospitals generally provide basic primary HCS only.

4.5.3 Healthcare Funding Structure

Social Insurance

There are two main public social health insurance systems in the PRC: the Urban Basic Medical Insurance System (BIS) for urban residents and the New Rural Cooperative Medical Insurance System (NRCMS) for rural residents. Both of these insurance programs provide basic HCS to their members. As a result of the expanding coverage of social health insurance schemes, the proportion of OOP healthcare expenditure has dropped from approximately 47.5% in 2006 to approximately 37.5% in 2010. In 2011, a total of 1.3 billion Chinese, or approximately 95.0% of the population had basic insurance coverage. The government aims to achieve equal access to public healthcare for all its citizens by 2020.

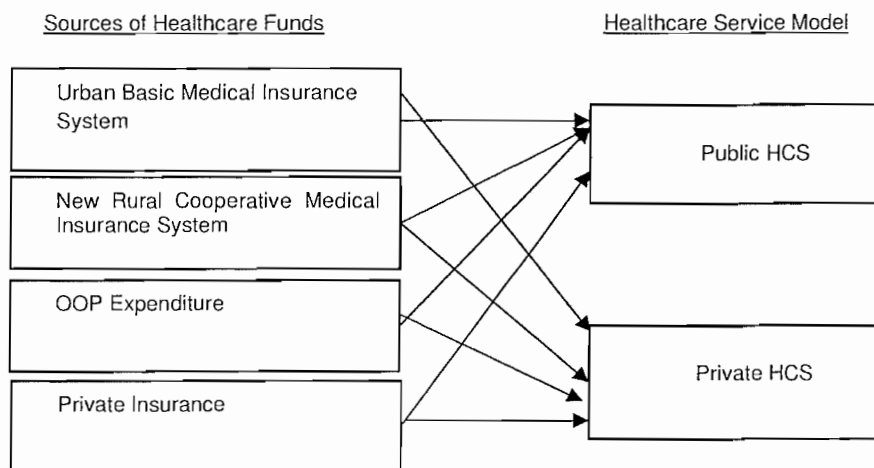
Private Insurance

Private health insurance companies provide complementary coverage for patients to “top up” their health coverage as state insurance schemes only provide coverage for basic medical services. Since 2005, the government has been encouraging the growth of private healthcare insurance schemes. The private insurance industry is expected to reach US\$ 90.0 billion by 2020 due to the growing population, increasing income per capita and relatively basic public health insurance coverage.

OOP Expenditure

Until early 2000, patients in the PRC generally paid their medical fees via OOP. This has been a norm since 1970s due to the lack of universal health coverage. However, the portion paid via OOP is expected to reduce to 28.1% in 2016 from 47.5% in 2006, due to the expanding social insurance.

7. INDUSTRY OVERVIEW (cont'd)

Healthcare Financing System in the PRC

Source: Compiled by Frost & Sullivan

4.5.4 Supply Dynamics

Healthcare Infrastructure and the Availability of Healthcare Workforce

The PRC's national healthcare expenditure grew from approximately CNY 1.0 trillion (US\$ 125.6 billion) in 2006 to approximately CNY 1.9 trillion (US\$ 281.0 billion) in 2010, registering a CAGR of 17.4% during this period.

Healthcare Infrastructure Performance Indicators

Indicators	2006	2010
Hospitals	19,278	20,918
Public	15,192	13,850
Private	4,086	7,068
Hospital Beds^a	2,560,041	3,387,437
Public	2,372,812	3,013,768
Private	187,229	373,669
Workforce	4,738,618	5,876,158
Doctors ^b	2,082,530	2,413,259
Registered Nurses	1,454,206	2,048,071
Allied workers	1,201,883	1,414,828

Source: MOH PRC

Notes:

- Exclude clinic beds and specialised institution
- Include registered doctors and assistant doctors

4.5.5 Demand Dynamics

Demand for Quality Healthcare

The annual income per capita in urban households increased from CNY 12,719 (US\$ 1,597) in 2006 to reach CNY 18,858 (US\$ 2,368) in 2009 (14.0% CAGR). Rising income and higher standards of living will exert pressure on healthcare providers as the demand for better HCS increases. Most public and local private hospitals are unable to provide high quality patient centric HCS. Hence, there is a high demand for high end foreign medical service providers to expand in urban areas in the PRC, especially in tier-1 cities such as Beijing, Shanghai, Shenzhen and Guangzhou. The table below highlights the income distribution in the PRC by region.

7. INDUSTRY OVERVIEW (cont'd)

Historical Trend of Annual Income Per Capita of Urban Households in the PRC (CNY)

Region	2006	2007	2008	2009	CAGR
National	12,719	14,909	17,068	18,858	14.0%
East	16,380	18,545	20,965	23,153	12.2%
Central	10,573	12,392	14,062	15,539	13.7%
West	10,443	12,131	13,917	15,523	14.1%
North East	10,490	12,306	14,162	15,843	14.7%

Source: PRC Statistical Yearbook and analysis by Frost & Sullivan

Rising Affluence in the PRC**Estimated Number of Millionaires in the PRC (2011)**

Province	Basin	No. of Millionaires ¹ in 2011
Beijing	Bohai	170,000
Guangdong	Pearl	157,000
Shanghai	Yangtze	132,000
Zhejiang	Yangtze	126,000
Jiangsu	Yangtze	68,000
Fujian	Pearl	36,000
Shandong	Bohai	33,000
Liaoning	Bohai	29,000
Sichuan	Sichuan	24,000
Henan	Yangtze	16,500
Total of top 10 provinces		791,500

Source: Hurun Wealth Report 2011

Note: 1) Millionaire is an individual with personal wealth of CNY10 million (US\$1.5 million) or more.

According to the Hurun Wealth Report 2011, there are approximately 791,500 millionaires in the top 10 provinces with most number of millionaires. These 10 provinces are mostly located around Bohai Economic Rim (Bohai), Yangtze River Delta (Yangtze), Pearl River Delta (Pearl) and Sichuan Basin (Sichuan). The concentration of wealth in these 4 basins of the PRC demonstrates the relatively higher purchasing power of the population in these regions as compared to other parts of the PRC. Therefore, it is likely that these populations demand better HCS, as compare to other parts of the PRC, which may include choice of renowned doctors for diagnosis, better medicine and even better hospitalisation services such as single bed services. Such demand is likely to drive the growth of the private HCS market in these regions.

Development of Private Health Insurance

Premiums for private healthcare insurance increased from CNY 36.8 billion (US\$ 4.2 billion) in 2006 to CNY 53.1 billion (US\$ 7.8 billion) in 2009 (13.0% CAGR). The private insurance market is expected to continue to grow significantly due to high medical costs.

Rise in Diseases and Ageing Population

The increase in diseases prevalence amongst the urban population, caused by a sedentary lifestyle, will continue to boost demand for HCS in the PRC. The following table shows the main causes of death in urban areas:

Causes of death in Urban Areas (% of total deaths)	2006	2007	2008	2009
Cerebrovascular diseases	17.7	18	19.6	20.4
Respiratory diseases	13.1	13.1	11.9	10.5
Heart disease	17.1	16.3	19.7	20.8
Cancer	27.3	28.5	27.1	27
Incidences of Selected Diseases (rate per 100,000)	2006	2007	2008	2009
Viral hepatitis	102.1	108.4	106.5	107.3
Pulmonary TB	86.2	88.6	88.5	81.1

Source: PRC Statistical Yearbook

7. INDUSTRY OVERVIEW (cont'd)

Meanwhile, the Chinese population is also rapidly ageing due to its falling mortality rate and the one child policy. The aged population in the PRC is expected to account for 25.0% of the total population by 2030. This is expected to further create a growing market for HCS in the PRC.

Increasing Urbanisation

The economic reform in the PRC has transformed the country into a newly industrialised country. The country's urbanisation rate has increased from 42.5% in 2005 to 47.0% in 2010 and is expected to reach approximately 51.1% in 2015. The growing population size in urban area particularly in tier-1 cities will further drive the demand for HCS in the PRC, providing opportunities for private sector.

Rural Population

In 2010, 53.0% of the PRC's population (approximately 710.1 million people) lived in the rural areas. The distribution of hospitals in the PRC is mainly concentrated in the eastern region and dense central region. As a result, people living in rural areas generally have poor access to private hospitals due to their geographical locations and low income.

Shortage of Medical Professionals

Private hospitals are facing difficulties in retaining qualified medical workforce. The increasing demand on these medical professionals has resulted in physicians and nurses commanding high salaries. In view of this situation, the government has allowed licensed physicians to practice across several hospitals and clinics at the same time.

New Healthcare Reform 2009-2011

In January 2009, the PRC introduced a new healthcare reform plan with the aim of improving the affordability, quality and accessibility of HCS in the PRC. Approximately CNY 1.13 trillion (US\$ 165.7 billion) was allocated to this initiative and the five major goals of the healthcare reform plan were:

- ***Expanding basic medical insurance coverage:*** The new healthcare reform aims to provide universal health coverage to the entire population by 2020. Additionally, the government is setting a higher reimbursement rate to encourage patients to get treatment from primary healthcare centres.
- ***Establishing a national essential drug list system:*** Under the Essential Drug System (EDS), the government will catalogue a list of necessary drugs to be produced and distributed by the MOH PRC. EDS aims to lower the price of medicines by streamlining the distribution channel in the medicine supply chain and setting a ceiling price for these drugs.
- ***Improving grassroots medical infrastructure:*** In PRC, most patients prefer to visit renowned hospitals, expecting to receive better and more reliable treatment. This has resulted in overcrowding and long waiting times at these hospitals. The government plans to invest in the construction and renovation of primary healthcare infrastructure, especially hospitals at county levels, township clinics, clinics in remote villages and community health centres in less-developed cities to enhance the quality of primary healthcare.
- ***Providing a more equitable access to basic HCS:*** The new healthcare reform aims to expand the network of local hospitals and clinics as well as improving the access and quality of public health services. This will allow healthcare facilities to be repositioned, such that primary care will be shifted from current tertiary care providers to community health centres and primary care clinics. These tertiary care providers such as university hospitals may then provide specialised HCS. Additionally, the government is also allocating subsidies to hospitals providing special HCS such as inoculation and health education in order to increase the emphasis on disease prevention.
- ***Pilot programs to improve public hospitals:*** Pilot programs have been launched to reform public hospitals to improve their services in terms of administration, operation, and supervision. New referral systems will encourage patients to seek outpatient services in local community hospitals or rural clinics before being referred to larger hospitals by the community hospital. This referral system will ease the problem of overcrowding hospitals.

7. INDUSTRY OVERVIEW (cont'd)

In order to encourage greater utilisation of smaller clinics and sanitation stations, public hospitals are expected to limit the provision of high-end operations services and complex medical procedures. Instead, the demand for such specialised high-end operations / procedures will be increasingly provided by private hospitals.

4.5.6 Healthcare Expenditure

In 2011, the PRC's total healthcare spending amounted to approximately CNY 2.1 trillion (US\$ 325.8 billion) having grown from CNY 1.0 trillion (US\$ 127.0 billion) in 2006 at a CAGR of 15.7%. The PRC's total healthcare expenditure comprises government healthcare expenditure, social healthcare expenditure and OOP expenditure accounts. In 2011, the government, social healthcare and OOP expenditure contributed approximately CNY 594.1 billion (US\$ 92.0 billion), CNY 759.2 billion (US\$ 117.6 billion) and CNY 750.0 billion (US\$ 116.2 billion) respectively. The CAGR for government, social healthcare and OOP expenditure during the period 2006 to 2011 was 23.5%, 18.6% and 9.3% respectively. OOP expenditure, as a percentage of the total healthcare expenditure, has been on a downward trend, due to increased healthcare spending by social health insurance and the government.

4.5.7 Competitive Landscape

There were approximately 7,068 private hospitals in the PRC in 2010. The government had approved approximately 200 healthcare institutions with foreign ownerships until 2010, of which, approximately 65 private hospitals were in operation by then, which accounted for approximately 1.0% of the total private hospitals in the PRC. The table below summarises major foreign private HCS players in the PRC in alphabetical order.

List of Major Foreign Private HCS Players in the PRC

Healthcare Groups	Location(s)	Estimated number of institutions	Estimated number of hospital beds	Estimated number of Medical Centres	Estimated number of Hospitals
Global Doctor	Beijing Chongqing Nanjing, Chengdu Dongguan Shenyang Changsha Guangzhou	9	N/A	9	N/A
Global Healthcare	Shanghai	2	N/A	N/A	2
Healthway Medical Center	Shanghai Hangzhou	10	N/A	9	1
Parkway Pantai Group	Shanghai Chengdu	8	20	8	N/A
Raffles Medical Clinic	Shanghai	1	N/A	1	N/A
Shanghai East International Medical Center	Shanghai	1	26	N/A	1
Shanghai Landseed Hospital	Shanghai	1	N/A	1	N/A
Shanghai Sun-Tec Medical Center	Shanghai	1	20	N/A	1
United Family Hospitals	Beijing Shanghai Guangzhou Tianjin, Wuxi	12	196	9	3

Source: Compiled by Frost & Sullivan from various sources through primary and secondary research

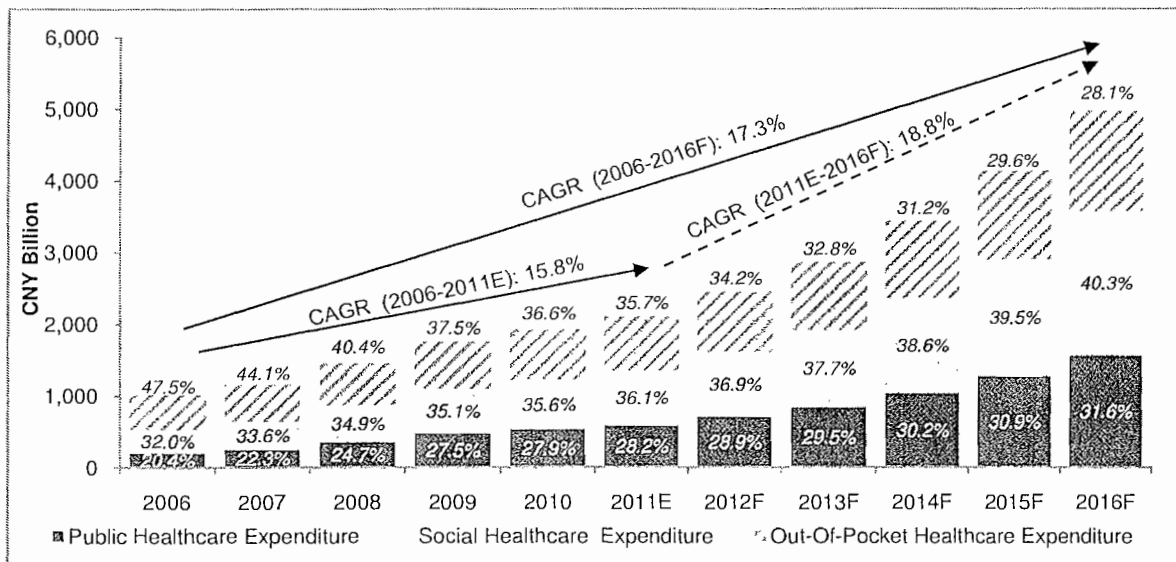
Note: This list is non-exhaustive. Institutions include medical centres as well as hospitals. Medical centres include dental clinics. Hospitals include general hospitals and specialised hospitals.

7. INDUSTRY OVERVIEW (cont'd)

In addition to the list above, foreign private companies like Asia Pacific Medical Group (APMG), which operates a network of six hospitals and a clinic, are working in close partnership with public hospitals in the PRC.

4.5.8 Industry Outlook / Prospects

The HCS market in the PRC will continue to grow due to the growing and ageing population, increasing income and purchasing power and increasing prevalence of lifestyle diseases. The total healthcare expenditure is forecast to reach CNY 5.0 trillion (US\$ 789.8 billion) in 2016, growing at a CAGR of 18.8% from 2011 to 2016. The government has recently indicated that it is opening up the HCS sector for investment from the private sector by encouraging foreign private healthcare groups to collaborate with local hospitals. OOP expenditure is expected to contribute to CNY 1.4 trillion (US\$ 221.9 billion) in 2016, recording an estimated CAGR of 13.2% during the period from 2011 to 2016. This is expected to create significant growth opportunities for private hospitals in the PRC especially those that are foreign owned. Collectively, both local and foreign entities will leverage each other's strengths to provide management expertise, financial investment and brand awareness in the private healthcare sector. The foreign owned private hospital sector in the PRC is still in its nascent stage. However, opportunities fuelled by demand from the expanding upper middle classes in the tier-1 cities like Shanghai and increasing demand and lack of supply of better quality HCS, especially in the tertiary acute care segment, present market opportunities for foreign private healthcare groups.



Source: The PRC Statistical Yearbook. Forecast by Frost & Sullivan

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7. INDUSTRY OVERVIEW (cont'd)

4.6 HONG KONG

4.6.1 Introduction and Background

Hong Kong's GDP expanded from HKD 1.5 trillion (US\$ 193.1 billion) in 2006 to HKD 1.7 trillion (US\$ 218.8 billion) in 2010. The country's GDP is mainly driven by its international trade, tourism and finance service industries. Its GDP per capita increased from HKD 213,826 (US\$ 27,527) in 2006 to HKD 244,577 (US\$ 31,484) in 2010 (3.4% CAGR). Hong Kong's population was approximately 7.1 million in 2010. It has a growing ageing population with 12.7% of its population above 65 years of age in 2010.

Hong Kong is a developed country with an urbanisation rate of 100.0% based on the United Nation's World's Urbanisation Prospects report. The number of employed workers in Hong Kong grew from 3.5 million people in 2005 to 3.7 million people in 2010 and approximately 28.6% of its working population having a monthly household income within the top 50th percentile of the household income scale (approximately HKD 30,000 (US\$ 3,862) and above).

4.6.2 Overview of HCS model and funding

HCS Delivery Model in Hong Kong

The Hong Kong healthcare system is broadly categorised into public healthcare and private healthcare. The private sector is the main provider of primary care whilst the public sector concentrates on prevention, secondary and tertiary care services.

The public HCS in Hong Kong is subsidised by the government and is financed by taxation. As a result, the system is often crowded and patients are subjected to long waiting lists. Nevertheless, some public hospitals allow private inpatient care but for a fee which eventually may cost more than treatment at a private hospital.

Hong Kong's health matters are regulated by the Food and Health Bureau which is the policy-making body. The bureau oversees two departments: the Department of Health which is responsible for the management of public health matters, and the Hospital Authority which is responsible for the management of Public Hospitals.

- **The Department of Health of Hong Kong (DOH)** is focused on the provision of primary care services, health promotion and disease prevention services. As the advisor to the government, the DOH is responsible for executing healthcare policies and statutory functions. The department operates a number of specialised clinics, treatment centres, child assessment centres, travel-health centres and other clinical services.
- **Hospital Authority** provides medical treatment and rehabilitation services to Hong Kong residents, which include citizens and permanent residents. The Hospital Authority also manages 74 primary care clinics.

The DOH is tasked with monitoring private hospitals' compliance with regulations. The Hong Kong Private Hospital Association is an independent body that further encourages the monitoring of the private hospitals in Hong Kong. All medical practitioners that practice western medicine must register with the Medical Council of Hong Kong, which oversees the conduct of all medical professionals.

7. INDUSTRY OVERVIEW (cont'd)

Healthcare Funding

Government Subsidies: Hong Kong's public healthcare system is heavily subsidised and financed mainly by taxes. All medical and surgical costs including surgeons' fees and operating rooms are paid for by the government, whereas patients need only pay for hospital lodging. The waiting list for surgery in public hospitals is much longer as compared with the private hospitals, as patients are treated according to the urgency of their need for surgery. Hong Kong residents that are under 11 years of age receive public sector services at a subsidised price.

Insurance: Expatriates working in Hong Kong do not qualify for public healthcare. Their employers typically subscribe to group medical insurance schemes to cover their medical expenses as part of their expatriate packages. However, these insurance packages differ from company to company and some coverage may not be as comprehensive as other companies, thus employees may have to top up or pay OOP for some of the procedures.

35.0% of Hong Kong's population is covered by private insurance¹⁸. The insurance is an enabler for the general public to seek medical treatment in private hospitals with reduced waiting time. The government has recognised the need to reform the health sector to reduce pressure on the demand for public healthcare and the burden on tax payer's money, thus they are formulating plans and currently consulting working groups, organisations and government bodies for feedback. In the interim, the government is encouraging the general public to subscribe to private insurance to reduce the burden in the public sector.

OOP expense: OOP expenses accounted for 69.0% of the total private health expenditure in Hong Kong in 2007/2008¹⁹. Hong Kong private hospitals also receive many medical travellers from the PRC who pay OOP.

4.6.3 Regulatory Overview

Act / Regulation	Key Provisions
Hospitals, Nursing Homes and Maternity Homes Registration Ordinance	The law dictates that any person who intends to operate a healthcare institution in the form of a private hospital, maternity home or nursing home must obtain prior approval from the Director of Health, subject to having obtained approved land for building in advance.
Medical Registration Ordinance 1884	The Hong Kong Medical Council was established as the regulating body for the medical sector, whose functions include assessment and registration of medical practitioners, formulation of industry guidelines and standards, investigation of misconducts and supervision of medical education and training.
Insurance Companies Ordinance	The Commissioner of Insurance was established to regulate the insurance industry in Hong Kong. Its function includes supervision and formulation of industry guidelines for the protection of policy holders, however its jurisdiction exclude pricing of policies.

4.6.4 Supply Dynamics

Workforce Development

In 2009, there were 12,424 doctors registered in Hong Kong, out of which 5,700 were specialists. Approximately 60.0% of the doctors in Hong Kong were private doctors. In 2010, the doctor per 1,000 population ratio was approximately 1.78 which is less than the OECD average (2009 – 2.9). The government is increasing training opportunities for local healthcare professionals and is seeking to attract additional international medical talent to promote the exchange of expertise, research and professional training. Hong Kong is also suffering from a shortage of nurses and the

¹⁸ Source: US Commercial Service to Hong Kong, export.com

¹⁹ Source: Food & Health Bureau

7. INDUSTRY OVERVIEW (cont'd)

industry is importing nurses mainly from the Philippines²⁰. The Health Authority is considering opening extra nursing schools to address the problem in the long term.

Public-Private Partnership (PPP)

One of the biggest initiatives by the government is to enhance Public-Private Partnerships (PPPs) within the healthcare sector. Encouraging PPP is likely to increase cost effectiveness as both public and private hospitals could buy bulk supplies and share expertise/human resources (such as having private hospital doctors participate in services or operations in public hospitals on a part time basis to relieve the overburdened public sector). Some initiatives to promote PPPs include the development of a city wide electronic healthcare record system, instituting a series of pilot projects for treatment of chronic diseases with the private sector and co-payment funding/relief of up to HKD 5,000 (US\$ 644.4) for cataract surgeries in private healthcare centres.

Four New Private Hospital Sites Allocated

The government has identified 4 parcels of land located at Wong Chuk Hang, Tseung Kwan O, Tai Po and Lantau Island, for developing private hospitals. As of 13th April 2012, tenders for two of the four land sites (Tai Po and Wong Chuk Hang) have been called for, with a closing date of 27th July 2012. The call-for dates of the other two tenders are yet to be announced. All four identified land sites are drawing many interested parties to bid for the limited offering and will result in Hong Kong potentially having an additional four private hospitals within the next 1-5 years.

Capacity Building in the Public and Private Healthcare Sectors

In 2010, Hong Kong's hospital bed to 1,000 population ratio was 4.4 which is higher than the OECD average (2009 – 3.1). Nevertheless, the ratio has declined from 4.5 in 2006. The government has planned to establish a public paediatric medical centre with more than 400 beds at the Kai Tak Development Area²¹. The Tsuen Wan Adventist Hospital is currently adding a new wing and this would add over 300 hospital beds to the private healthcare system.

Medical Equipment and Supplies

Hong Kong is heavily dependent on imports of medical equipment. In 2009, medical equipment imports amounted to US\$ 1.46 billion, and the United States was the leading supplier of high end equipment with 28.0% of total import market in that year. In addition, an estimation of 55.0% (US\$ 0.8 billion) of Hong Kong's total medical equipment re-export is geared towards the PRC as Hong Kong is a sourcing agent for medical products for the PRC. Medical supplies in Hong Kong are mainly procured from international vendors such as Johnson and Johnson and Baxter International, among others.

4.6.5 Demand Dynamics

Availability of Insurance and Government Incentives

Due to the high government subsidy on public healthcare, the waiting list for public hospitals is constantly on the rise. Furthermore, public healthcare treatment is administered to patients on a priority basis. Hence patients with slow progressing illness may not be able to get immediate treatment to curb the illness in its early stages in public hospitals. The availability of insurance either through employers or private funding is allowing patients the option to choose more expensive private healthcare as an alternative method of obtaining treatment. In the survey conducted by the Census and Statistics Department in 2008²², 2.42 million people (around 34.0% of Hong Kong's population) were covered by private health insurance, out of which 45.0% were through private purchase, 35.0% covered by employers and 20.0% covered by both privately purchased and employers.

²⁰ GMA News in Philippines on 26th July 2011

²¹ US Commercial Services to Hong Kong, <http://export.gov/hongkong/>

²² Thematic Household Survey 2008