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# The Future of Singapore

Growing Old With You



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## Growing Old With You

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## Executive Summary

**Singapore's society is ageing and the impact is increasingly being felt.** In the past decade, Singapore's residents over 65 years old have grown at a faster rate than the rest of its population. In preparation for this demographic change, the Singapore government published the Population White Paper in 2013, projecting that the number of citizens aged 65 and above will triple to 900,000 by 2030 and the dependency ratio will fall to 2.1 by 2030 from 4.9 in 2015.

**Healthcare expenditure to triple by 2030.** Based on the projected population in 2030, we estimate total healthcare expenditure (THE) to triple, rising to S\$44 billion from S\$17 billion in 2013. The projected THE is expected to grow at a cumulative annual growth rate (CAGR) of 5.9%, and healthcare expenditure as a percentage of gross domestic product (GDP) is expected to increase to 7.3% in 2030 from 4.6% in 2013.

Meanwhile, personal healthcare expenditure (PHE) would rise from S\$11 billion in 2013 to S\$28 billion by 2030, comprising 64% of total healthcare expenditure and implying potential growth in private healthcare. PHE is expected to grow at 5.7% CAGR. Healthcare cost inflation and ageing are the two largest contributors to the growth, rising at a CAGR of 2.6% and 1.7%, respectively.

**Public hospital to bear the bulk of the demand while private hospitals have available headroom.** We estimate that hospital admissions will grow to 791,000 per year in 2030, from 520,000 currently; driving the need for 7,000 more hospital beds, 5,000 physicians, and 17,000 nurses. However, the public versus private bed additions ratio is uneven at 6:1. Our estimates suggest that private hospitals currently have existing capacity to add around 500 beds – half the beds required by 2030, while public hospitals will require around 6,000 beds by 2030; newly completed and planned hospitals such as Ng Teng Fong Hospital and Sengkang General Hospital would add only 2,000 beds by 2018.

**Opportunities in primary healthcare and long-term care.** The primary healthcare segment in Singapore has matured, but it is still fragmented, with big players comprising only 15% of all primary healthcare clinics. We believe that there is room for consolidation in the primary healthcare segment as players seek economies of scale, and the expansion of healthcare insurance and employer-provided healthcare benefits, especially in a predominantly private-funded healthcare system. We also believe the need for long-term nursing care will grow with ageing demographics. ❌



# Ageing Population – A Driver of Demand for Healthcare

## Higher Consumption of Healthcare

Over the past decade, Singapore's residents over 65 years old have grown at a faster rate than the rest of its population. Residents aged 65 years old and above has grown at a 10-year CAGR of 5.1% versus 0.8% for residents younger than 65; the working population aged between 20 and 64 years old has grown at an average of 1.4% per annum. The segment above 65 years old hit its highest year-on-year growth rate of 7.4% in 2012 when Baby Boomers celebrated their 65th birthdays. Since then, this segment has been growing at a fairly fast pace of 6.5-6.8% per annum.

As is the case in other developed and urbanised societies like Japan and Hong Kong, Singapore's low (and declining) fertility rate, and high (and rising) life expectancy accentuate the potential impact of an ageing population. Singapore's fertility rate, at 1.2, is below the replacement rate of 2.1 and the world's second-lowest, after Hong Kong. Life expectancy is 83 years old, only one year behind Japan's. As at the end of 2015, Singapore's over-65s comprised 12% of the total population and was ranked the highest among its peers in the Association of Southeast Asian Nations (ASEAN). Singapore's old-age support ratio – working persons aged 20 to 64 per elderly aged 65 years old and above – fell to 5.7, the lowest among its ASEAN peers, but is above the Organization for Economic Co-operation and Development (OECD) average of 3.9.

*In Singapore, Prime Minister Lee Hsien Loong had said: "We are going to be growing old faster than any society in the world"*

During his speech in 2012 on the Healthcare 2020 Masterplan, Health Minister Gan Kim Yong said studies have shown that older people are four times more likely to be hospitalised than younger Singaporeans. Based on hospital admissions data in 2014, hospital admissions for people aged 65 years and above were five times that of the working population. This leads to higher healthcare costs for the individual and the government. According to an article published by HealthAffairs<sup>1</sup>, the average health spending per capita for Americans aged 65 and older was more than triple that for Americans in the benchmark group (ages 34-44) in 1999. In Singapore, Prime Minister Lee Hsien Loong had said: "We are going to be growing old faster than any society in the world", meaning that the economic burden is being placed on the working population.

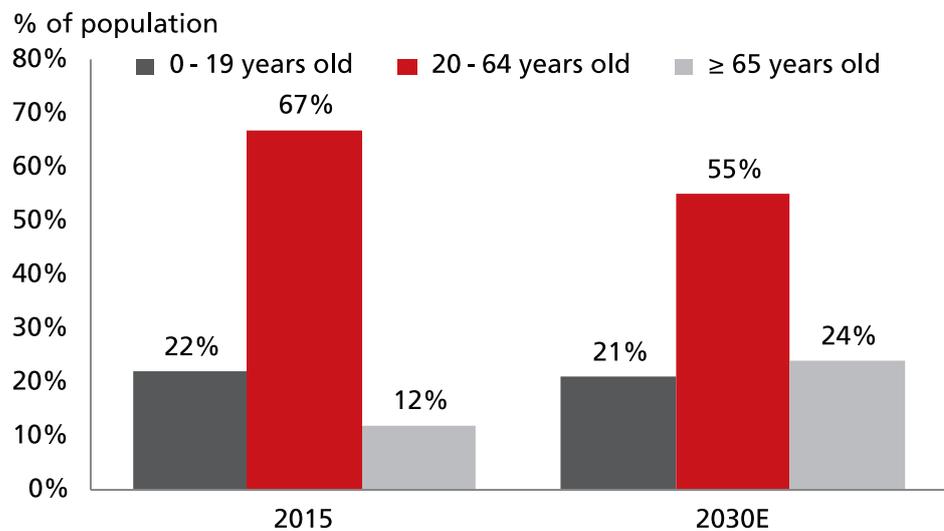
## Healthcare Expenditure Estimated to Triple by 2030

In 2013, the Singapore government published the Population White Paper, mapping out demographic changes and challenges, as well as key policies for a sustainable population. It projected that

- Singapore's population could range between 6.5 million and 6.9 million by 2030
- Citizens aged 65 and above will triple to 900,000 by 2030 (as at 2015, residents aged 65 stood at 460,000)
- Old-age support ratio for citizens will fall to 2.1 by 2030 from 4.9 in 2015.

Based on the parameters projected in the Population White Paper, we estimate that the aged population would account for 24% of the total population in 2030, up from 12% in 2015; the working population (aged 20 to 64) is estimated to decrease from 67% of total population to 55% in 2030.

**Diagram 1: Changes in Singapore's demographics (2015-2030E)**



Source: Singstat, DBS Bank's estimates

Based on the above projected population, we estimate the THE and PHE will nearly triple by 2030, rising to S\$44 billion from S\$17 billion, and S\$28 billion from S\$11 billion in 2013, respectively. The projected THE is expected to grow at 5.5-5.9% CAGR and as a percentage of GDP, it is expected to increase to 6.9-7.3% of GDP from 4.6% in 2013. Dissecting the data further, we highlight our key findings below.

- Contrary to popular belief, the largest component in THE growth is healthcare cost inflation which accounts for 2.6% CAGR. Nevertheless, ageing is a big factor, comprising 1.7% CAGR while population growth contributes 1-1.4% CAGR in THE growth. This implies that while the ageing population plays a part in rising healthcare cost, the inflationary pressures are higher. In our estimates, we have assumed that healthcare cost inflation will remain flat. That said, advances in medical technology could potentially drive healthcare cost higher or lower.
- As a percentage of GDP, inflation accounts for 2.5-2.6% while the age factor comprises 1.1-1.2%.
- Based on our sensitivity analysis, a 0.5-point change in dependency ratio would have a 0.3-0.7 percentage point impact on THE's CAGR

- Based on our sensitivity analysis, a 0.5-percentage-point change in inflation to THE would have a 0.5-percentage-point impact on THE's CAGR.

Our key assumptions in the estimation of 2030E healthcare expenditure are listed below:

**Diagram 2. Population assumptions based on parameters projected in the Population White Paper, 2013**

	2013	2030E (L)	2030E (U)
Singapore's total population	5,399,162	6,500,000	6,900,000
Singapore's residents	3,844,751	4,200,000	4,400,000
Singapore's non-residents	1,554,411	2,300,000	2,500,000
Age: 0 - 19 years	870,309	900,000	935,000
Age: 20 - 64 years	2,570,005	2,300,000	2,415,000
Age: 65 years and above	404,437	1,000,000	1,050,000
Dependency ratio for residents	6.4	2.3	2.3

17-year CAGR (%)			
Singapore's total population	2.3%	1.1%	1.5%
Singapore's residents	1.3%	0.5%	0.8%
Singapore's non-residents	5.7%	2.3%	2.8%
Age: 0 - 19 years	-0.2%	0.2%	0.4%
Age: 20 - 64 years	1.6%	-0.7%	-0.4%
Age: 65 years and above	4.1%	5.5%	5.8%

Source: DBS Bank

**Diagram 3. Key assumptions to estimates of healthcare expenditure**

Key assumptions	2013	2030E (L)	2030E (U)	Remarks
Avg healthcare cost per capita	1,695	4,125	4,103	Cost by age group based on the composition for healthcare cost in US (according to government body CMS)
Healthcare inflation	2.6%	2.6%	2.6%	Based on five-year CAGR for healthcare consumer price index (CPI)
Government healthcare expenditure (% of GDP)	1.5%	2.5%	2.6%	
GDP growth	3.9%	3%	3%	

Source: DBS Bank

*The government takes the idea of 'individual responsibility' a step further to prevent any misuse of the system and over-consumption of healthcare*

## Who Pays the Medical Bills?

Singapore has successfully kept healthcare costs low; the country spent 4.6% of GDP on healthcare in 2013, a moderate increase from 3.6% a decade ago. While Singapore's healthcare cost is marginally higher than that of its ASEAN peers', except Thailand's 4.6% (Malaysia at 4%; Philippines at 4.4%; Indonesia at 3.1%), its healthcare spending is half that of most developed countries'. Incorporating the ageing factor (2030 healthcare expenditure estimates), Singapore's healthcare expenditure – at 6.9-7.3% of GDP – is still below the 9-17% number for most developed countries. Japan, with a similar ageing profile as Singapore in 2030, spends 10.3% of GDP on healthcare.

Singapore's private funding comprises 60% of healthcare expenditure while the government funds the remaining 40% (led by a revision of healthcare financing in 2013 to increase the government's share of healthcare costs from 30% to 40%). This puts Singapore way below its peers (in terms of the government's share of total healthcare spending), except developing countries such as Indonesia, India, Philippines, and Myanmar.

## Healthcare Financing System in Singapore

Singapore adopts a 3M+subsidies approach – Medisave, MediShield Life (replacing MediShield), and Medifund + government subsidies. This system delegates the responsibility for healthcare to individuals (Medisave and MediShield Life) while the government ensures that every Singapore resident has access to affordable basic medical care (Medifund and government subsidies). The government takes the idea of 'individual responsibility' a step further with a co-payment system to prevent any misuse of the system and over-consumption of healthcare.

**Medisave** – Compulsory savings account for immediate and future healthcare bills. Introduced in April 1984, Medisave is a national savings scheme (via compulsory monthly contribution of 8-10.5% of income) which helps individuals pay for healthcare bills, including those that will be incurred after retirement. Medisave can be used for self and one's dependents. Medisave claims account for about 5% and 7% of total healthcare expenditure and private healthcare expenditure per year, respectively.

**MediShield Life** – A basic national health insurance plan to pay for large hospital expenses and selected expensive outpatient treatments, including those with pre-existing conditions. MediShield Life replaced MediShield from November 1, 2015 and is an enhanced policy that has i) better protection and higher payouts, ii) protection for all citizens and permanent residents including those with pre-existing conditions, and iii) it is a protection for life. The previous MediShield claims accounted for 2% and 3% of total healthcare expenditure and private healthcare expenditure per year, respectively.

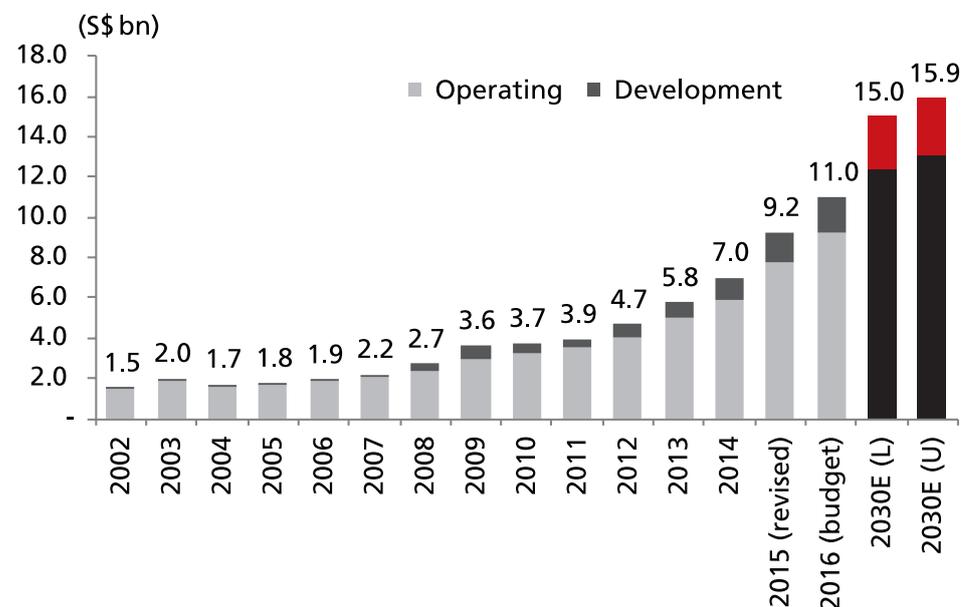
**Medifund** – Government's safety net to help Singaporeans in need. Medifund is an

endowment fund set up to provide for Singaporeans who face difficulties on the remaining bills after deducting payments from cash, government subsidies, Medisave, Medishield Life, and private integrated shield plans. It started with an initial capital of S\$200 million and has grown to S\$4 billion as at end of financial year 2013.

Government subsidies – While there are various subsidies and schemes in place, the largest component is from the government, covering 20-80% of the cost of treatment at public medical centres based on income. These means-tested subsidies are also given for intermediate and long-term care (ILTC).

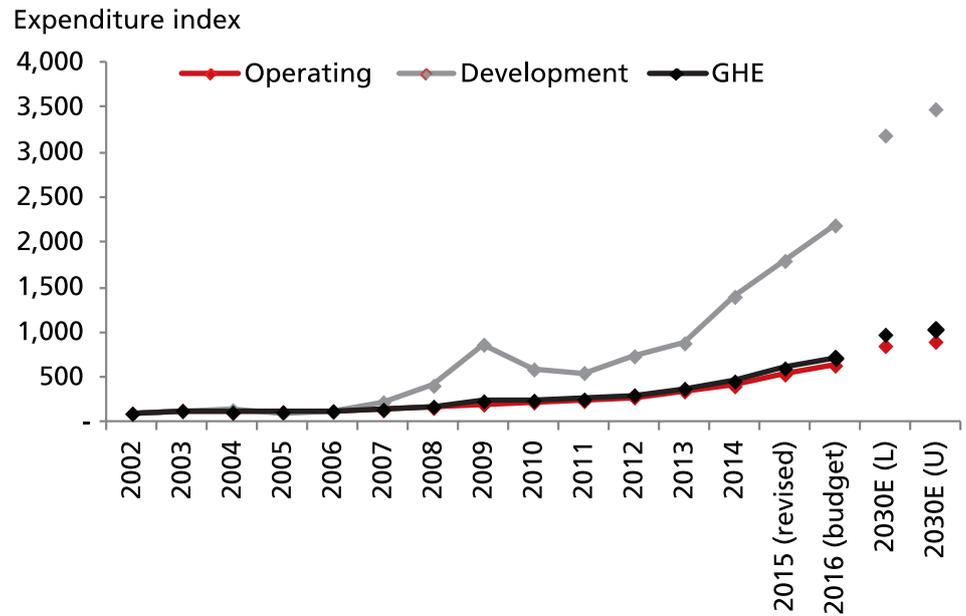
The government’s healthcare expenditure has been growing at 15% CAGR, and has increased significantly since 2012 upon the implementation of the Healthcare 2020 Masterplan and the issuance of Population White Paper, during which the government recognised the need to increase healthcare infrastructure to support an ageing population. The government’s healthcare budget in 2016 has almost tripled since 2011, led by both operating expenditure (i.e. subsidies) and development expenditure. The development component has increased from 11% of the government’s total government healthcare budget to 16% in the 2016 budget as the government continues to add capacity to public medical centres.

**Diagram 4. Government’s healthcare expenditure**



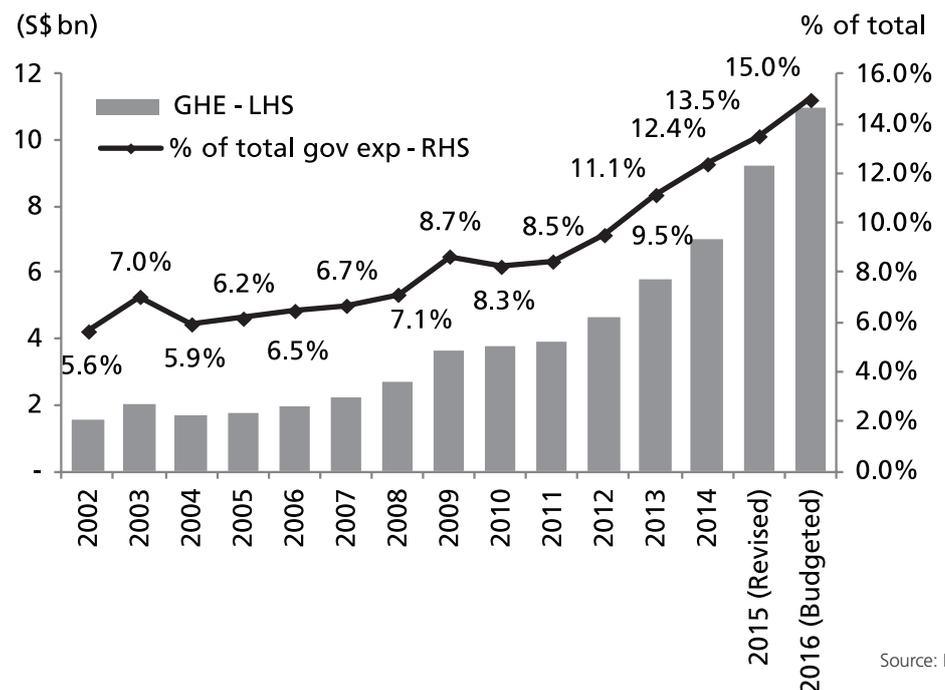
Source: Singstat, WHO, DBS Bank’s estimates  
 (L) – lower range of estimated population in 2030E  
 (U) – upper range of estimated population in 2030E

**Diagram 5. Government's development spending**



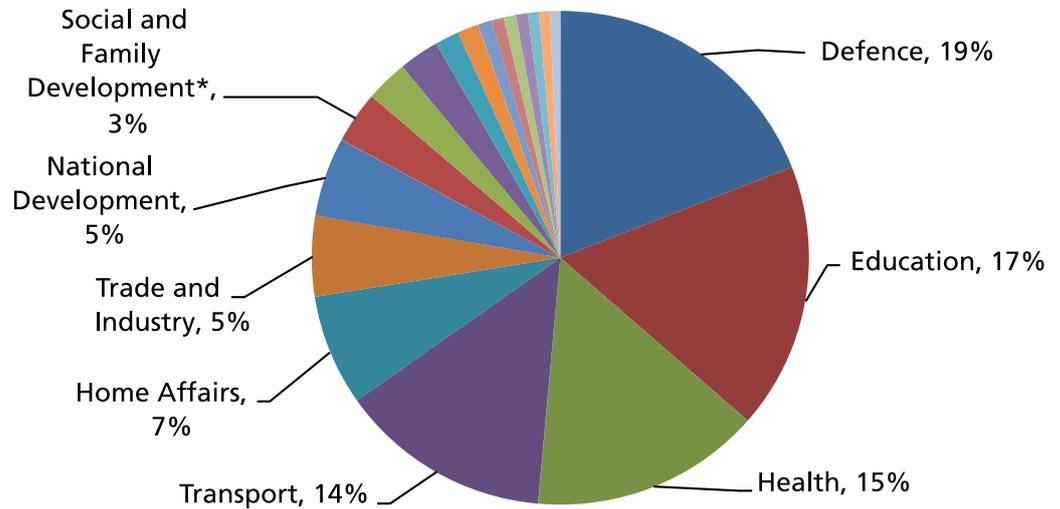
Source: Singstat, WHO, DBS Bank's estimates  
(L) – lower range of estimated population in 2030E  
(U) – upper range of estimated population in 2030E

**Diagram 6. Healthcare expenditure as a percentage of total spending**



Source: MOF

**Diagram 7. Allocation of 2016 Budget by segment**



Source: MOF

**Diagram 8. Singapore's institutions for healthcare financing**

Medisave	A national medical savings scheme to help Singaporeans prepare for their healthcare expenses, especially after retirement.	
Medishield Life	A basic national health compulsory insurance scheme that will cover all Singaporeans for life, including those with pre-existing conditions.	
Medifund	Government safety net to help needy Singaporeans with their healthcare expenses to ensure that no one will be denied essential healthcare because of inability to pay.	
Subsidies & Schemes	<b>Community Health Assist Scheme (CHAS)</b> Scheme by the Ministry of Health (MOH) that enables Singaporeans from lower- and middle-income households to receive subsidies for medical and dental care at participating general practitioners (GP) and dental clinics near their homes	<b>Drug Subsidies</b> Patients receive drug subsidies based on their paying status and the scheme under which the drug is covered
	<b>Eldershield</b> An affordable severe disability insurance scheme designed to help Singaporeans meet expenses incurred in the event of severe disability	<b>Interim Disability Assistance Programme for the Elderly (IDAPE)</b> Provides financial help to those who become disabled; caters to Singapore citizens who are not eligible for ElderShield.
	<b>Marriage and Parenthood Schemes</b> Government grants for each newborn baby. Medisave can also be used for delivery, pre-delivery expenses, assisted conception procedures.	<b>Pioneer Generation Package</b> Package provides healthcare benefits for all Pioneers (approximately 450,000 Singaporeans) for life. Healthcare benefits include subsidies for Medishield Life Premiums and a Disability Assistance Scheme.

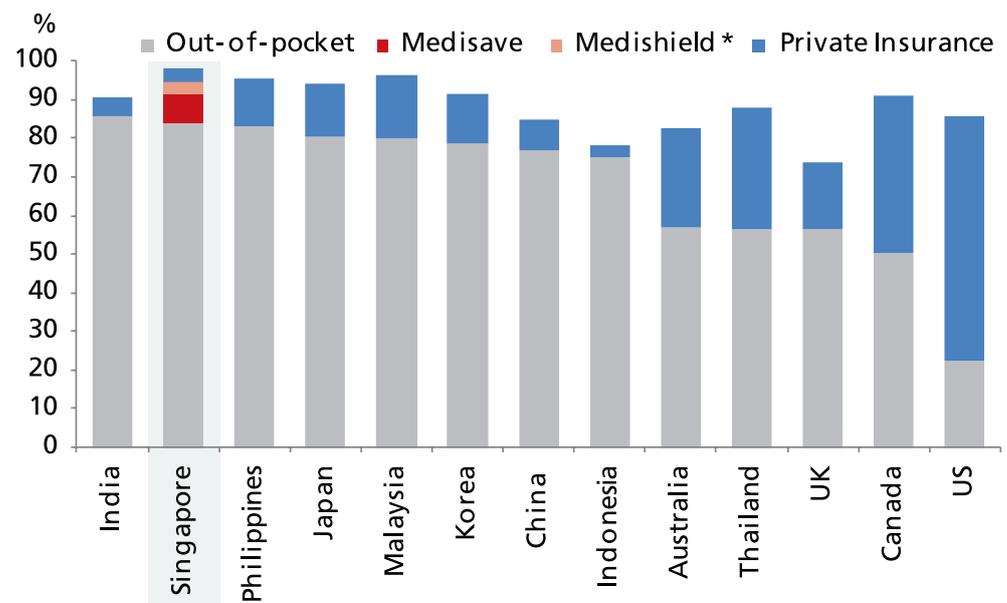
Source: Singstat, OECD, MOH, WHO

\* Medishield in 2013 is estimated based on 9-yr CAGR of 16%

## Private Funding of Healthcare

While the government has put in place national savings and medical insurance schemes to ensure that its residents are sufficiently covered for basic medical needs, out-of-pocket funding remains a large component of private funding, accounting for 84% of total private healthcare expenditure. Singapore's out-of-pocket funding is the second-largest, only after India, among ASEAN countries and developed nations. We believe the large out-of-pocket component has driven the demand for private hospitals and medical centres in Singapore. Nevertheless, Medisave, Medishield, and private insurance schemes are gaining traction and expenditure funded by these schemes has been growing rapidly. ❌

**Diagram 9. Different sources of private funding**



Source: Singstat, OECD, MOH, WHO  
\* Medishield in 2013 is estimated based on 9-yr CAGR of 16%

## Healthcare Infrastructure

Following on from the notion that an ageing population increases demand for healthcare, we have done an analysis to determine if Singapore's healthcare infrastructure can support the rising consumption.

Our analysis shows that while private hospitals are well positioned to cope with the additional demand, public hospitals may face some constraints. Based on historical trends and estimates, the number of doctors added per year, with the support from non-resident doctors, is sufficient to cover the new capacity required per year by 2030, *ceteris paribus*.

### Singapore's Medical Infrastructure Versus Peers

Singapore is known for its state-of-the-art medical facilities and services, especially in the ASEAN region, and is one of the top destinations for people from ASEAN. Here, we review the availability of medical infrastructure for Singapore's population compared to its ASEAN peers and developed nations. Given the limited information available on medical infrastructure across the region, we reviewed a few parameters on Singapore's medical infrastructure, namely, i) number of hospitals, ii) number of hospital beds, iii) physicians, iv) nurses, and v) hospital admissions. Here are some of our observations:

- As expected, Singapore fares better than most ASEAN countries, China, and India in terms of the number of hospitals, hospital beds, physicians, and nurses. However, Singapore lags the developed nations and the OECD average.
- Singapore has 90 hospital admissions per 1,000 people, which is the lowest among OECD and G7 countries. The OECD average is 143 admissions and Germany has the most, with 251 admissions. We believe the reason could partly be the result of the healthcare financing system in Singapore under which the individual bears most of the cost.
- Singapore's hospital admissions of 40 per bed per year are significantly higher than the OECD average of 24 admissions. Japan has the lowest, at only nine admissions per bed while the UK has the highest at 48 admissions. This could be correlated with the average length of stay (ALOS) in the individual countries.
- Singapore's ALOS is 5.8 days, compared to the OECD average of 8.5 days. Japan has the highest number at 31 days while Australia has the lowest, at 5.6 days, a notch lower than Singapore.

*Our analysis shows that while private hospitals are well positioned to cope with the additional demand, public hospitals may face some constraints*

## Growth in Hospital Admissions Driving Increase in Beds and Manpower

### Hospital admissions

Since 2012, the increase in hospital admissions has outpaced population growth. Singapore's population grew 6.8% from 2012-2015 (CAGR of 1.7%). Residents older than 65 increased 30% (6.9% CAGR) in the same period. Hospital admissions jumped 12% to 520,000 in a year, representing a CAGR of 2.9%. Hospital admissions at private hospitals have increased 22% while admissions at public hospitals rose 9% (implying 5.2% CAGR at private hospitals and 2.2% at public hospitals). Accordingly, private hospitals' share of total admissions increased from 23% to 25% in 2015.

### Hospital beds

The number of hospital beds has increased by 10% from 2012 to 2014 to 12,500 beds, growing at 3.1% CAGR. Public hospital beds increased 7.5% (2.4% CAGR) while private hospital beds increased by 18% at 5.7% CAGR.

### Number of doctors and nurses

The number of doctors and nurses has grown almost six times and four times to 11,000 and 32,000, respectively. Over the past five years, the number of doctors and nurses grew 44% and 43% respectively at CAGR of 7.5%.

### Capacity Required and Ability to Meet This by 2030

Based on projections published in the Population White Paper, we estimate that hospital admissions will grow to 750,000-791,000 per annum by 2030 from 520,000 currently. The country will need 7,000 hospital beds, 15 hospitals, 6,000 physicians, and 17,000 nurses. Based on our analysis, private hospitals are well positioned to meet the additional demand, but public hospitals may face some constraints.

Private hospitals currently have the potential to add around 500 beds with existing licensed beds capacity, which is approximately half of the 1,000 beds required by 2030. Public hospitals need an additional 6,000 beds by 2030, which is approximately 375 beds per year. However, in the past five years, public hospitals have only added an average of 229 beds per year. Based on the Healthcare 2020 Masterplan, the additional 1,900 beds coming from the newly completed Ng Teng Fong Hospital (about 700 beds are not included in the current operational number of beds) and Sengkang General Hospital (1,000 beds to be completed by 2018) represent only a quarter of the total number of beds needed by 2030. Nevertheless, the government has four acute hospitals in the pipeline, subject to review in 2020.

While it may be easier to add 'brick and mortar' medical facilities, it is more challenging to boost manpower in the near to medium term, especially specialists. The number of new physicians needed by 2030 is around 6,000, or 371 physicians per year. Singapore has been able to add an average of 677 physicians per year, double the number required per year. The increase is typically drawn from around 300 doctors who are Singapore residents, and 300-350 non-resident doctors, of which around 200 are graduates from Singapore's medical institutions.

**Diagram 10. Infrastructure additions required per year versus historical capacity**

	Based on Singapore's current ratios		Based on OECD average ratios	
	Ageing (U) additions p.a	No Ageing (U) additions p.a	Ageing (U) additions p.a	No Ageing (U) additions p.a
<b>Total</b>				
Hospital beds	7,037	3,119	20,059	13,633
Hospitals	15	8	50	34
Physicians	5,930	2,875	5,117	1,913
Nurses (incl. midwives)	17,421	8,055	15,650	6,296
<b>Public</b>				
Hospital beds	6,007	2,209	15,403	10,468
Hospitals	9	3	24	16
Physicians	4,586	1,686	3,136	1,213
Nurses (incl. midwives)	14,229	5,233	10,585	4,386
<b>Private</b>				
Hospital beds	1,030	910	4,657	3,165
Hospitals	6	5	26	17
Physicians	1,344	1,188	1,980	699
Nurses (incl. midwives)	3,193	2,823	5,064	1,910

**Key Assumptions**

	Singapore's current ratio (2014)			Based on OECD average ratios			Remarks
	Public	Private	Total	Public	Private	Total	
Admissions per bed	39.8	43.4	40.6	24.8	22.6	24.3	
Hospital beds per hospital	640	181	403	640	181	403	Singapore's ratios
Hospital admissions per doctor	52	33	46	59	30	49	
Hospital admissions per nurse	17	14	16	19	12	17	

Source: Singstat, OECD, MOH, WHO, DBS Bank  
(U) – upper range of estimated population (6.9 million) by 2030

## Plans to Increase Public Medical Services Infrastructure – Healthcare 2020 Masterplan

In 2012, the Singapore government presented the Healthcare 2020 Masterplan. In summary, the Masterplan targets three key areas to ensure

- i) accessibility to healthcare services,
- ii) affordability of healthcare services, and
- iii) quality for Singaporeans.

The table below presents the highlights of the government’s plan in building new capacity.

**Diagram 11. Healthcare 2020 Masterplan – plan, progress and completion**

	2012	Healthcare 2020 Masterplan (Announced in 2012)	Completed new capacity (2013 – 2015E)	Planned capacity (post 2016)
Increasing accessibility – Infrastructure				
<b>Acute hospital and beds</b>	Seven hospitals (7,000 hospital beds)	<ul style="list-style-type: none"> <li>• <b>add 1,900 beds (+30% capacity)</b></li> <li>• <b>expand an existing hospital</b></li> </ul> <p>Ng Teng Fong General Hospital (NTFGH) (700 beds)</p> <p>Sengkang General Hospital (SKGH) (1,000 beds) expected to open by 2018</p> <p>Expand Changi General Hospital (CGH) (add 250 beds)</p>	<p>Est no. of hospitals as at end-2015 = eight (~8,200 beds)</p> <ul style="list-style-type: none"> <li>• NTFGH (700 beds) opened in Jun 2015</li> <li>• Expansion in existing hospitals by 482 new beds, including CGH (opened in Jul 2014) &amp; NUH</li> <li>• NUH’s renovation added 79 new beds in Dec 2013</li> </ul>	<p>Est no. of hospitals by 2020 = nine (~9,200 beds)</p> <ul style="list-style-type: none"> <li>• Sengkang General Hospital (SKGH) (1,000 beds) target to complete by 2018</li> <li>• In 2013, MOH announced plans to build four new acute hospitals between 2020 and 2030, subject to review nearer to end of 2020 e.g. Woodlands Integrated Healthcare Campus (WIHC), expected to open by 2022</li> </ul>

	2012	Healthcare 2020 Masterplan (Announced in 2012)	Completed new capacity (2013 – 2015E)	Planned capacity (post 2016)
<b>Community hospital and beds</b>	Five hospitals (822 beds)	<ul style="list-style-type: none"> <li>• <b>add 1,800 beds Four new community hospitals</b></li> <li>St Andrew's Community Hospital (SACH) (225 beds)</li> <li>Jurong Community Hospital (JCH) (400 beds), Yishun Community Hospital (YCH) (428 beds)</li> <li>Sengkang Community Hospital (SKCH) (400 beds) expected to open by 2018</li> <li>Outram Community Hospital (OCH) (550 beds) to be built next to Singapore General Hospital</li> </ul>	<p>Est community hospitals as at end-2015 = seven (1,900 beds)</p> <ul style="list-style-type: none"> <li>• JCH and YCH, opened in June and December 2015, respectively</li> <li>• expansion of existing community hospitals - incl SACH (2014), Ang Mo Kio Thye Hua Kwan Hospital (AMKTHKH) (50 beds; 2013), St Luke's Hospital (SLH) (50 beds; 2013)</li> </ul>	<p>Est community hospitals as at end-2020 = nine (~2,800 beds)</p> <ul style="list-style-type: none"> <li>• SKCH (400 beds) target completion by 2018</li> <li>• OCH (550 beds) target completion by 2020</li> <li>• WIHC's community hospital; target opening in 2022</li> </ul>
<b>Nursing homes and beds</b>	64 nursing homes (9,500 beds)	<ul style="list-style-type: none"> <li>• <b>approx. 560 every year from 2013 – 2015</b></li> </ul>	<p>Est homes by end-2015 = 68 (11,200 beds)</p> <ul style="list-style-type: none"> <li>• two new nursing homes opened in 2013</li> <li>• two new nursing homes opened in 2015; Ren Ci Nursing Home (257 beds) &amp; All Saints Home Yishun (183 beds)</li> </ul>	<p>Est homes by 2020 = 78 (17,000 beds)</p> <ul style="list-style-type: none"> <li>• three new homes to open in 2016 (All Saints Home Jurong East target to open in May 2016)</li> <li>• seven new homes and add ~6,000 new beds by 2020</li> <li>• WIHC's nursing home, target opening in 2022</li> </ul>
<b>Increase Specialist Outpatient Clinics (SOC) capacity</b>		<ul style="list-style-type: none"> <li>• National University Cancer Institute (NUH Medical Centre); expected to complete by 2013</li> <li>• New National Heart Centre (NHC) expected to complete by 2013; capacity to increase by three times</li> </ul>	<ul style="list-style-type: none"> <li>• Completed NUH Medical Centre in 2013</li> <li>• NHC building opened in 2014</li> </ul>	

	2012	Healthcare 2020 Masterplan (Announced in 2012)	Completed new capacity (2013 – 2015E)	Planned capacity (post 2016)
<b>Increase polyclinics</b>	18 polyclinics		<ul style="list-style-type: none"> <li>In 2013, two polyclinics (Geylang &amp; Tampines) completed expansion to take in more capacity. Two polyclinics - Ang Mo Kio Polyclinic and Bedok Polyclinic - announced upgrading works</li> <li>In 2014, redevelopment plans for Bedok Polyclinic announced - to be redeveloped within an integrated campus</li> <li>In 2015, expansion plans for Marine Parade Polyclinic started</li> </ul>	<p>Est polyclinics by 2020 = 22</p> <ul style="list-style-type: none"> <li>Identified four new polyclinics at Yishun (by 2017), Jurong West (by 2017), Sembawang (by 2020), Bukit Panjang (by 2020)</li> <li>Marine Parade Polyclinic to be expanded from single- to double-storey by 2016</li> <li>In 2013, MOH announced plans to build 6-8 more polyclinics by 2030, on top of 2020's target</li> </ul>

Source: MOH, DBS estimates

Healthcare 2020 Masterplan (announced in 2012)	Progress Update
<p><b>Increasing accessibility - Private sector engagement</b></p> <p><b>Aim:</b> Expand public hospital beds by tapping on spare capacity in private hospitals (average occupancy rate in private hospitals is approx. 55%)</p> <ul style="list-style-type: none"> <li>- NUH has been leasing 30 beds from Westpoint Hospital (WH) since 2009</li> <li>- Parkway East Hospital (PEH) has agreed in-principle to lease beds to Changi General Hospital (CGH)</li> <li>- Patients to pay similar rates as-if staying in CGH, enjoy applicable subsidies</li> <li>- MOH will sign MOU with Raffles Hospital for similar arrangements</li> </ul>	<p><b>Updates in 2013:</b> 50 beds leased from WH and PEH</p>



## Increasing accessibility - Private sector engagement

**Aim:** Increase healthcare workforce (i.e. doctors, nurses, dentists, pharmacists, and allied health professionals) by 50%, or approx. 20,000 more, by 2020

- **Doctors (locally trained):** Second medical school, Lee Kong Chian School of Medicine, opened in 2013. Intake to increase from 50 in 2013 to 150 eventually. Third medical school in the works. Targeting 500 locally-trained doctors from three schools
- **Dentists:** Increase intake at National University of Singapore from 48 to 80
- **Nurses:** Increase annual intake from 1,700 to 2,700
- **Pharmacy:** Increase intake at National University of Singapore from 160 to 240
- **Foreign trained professionals:** Giving pre-employment grants for overseas-trained Singaporean medical students, 89 grants given out since 2010. Continue efforts to attract overseas-trained foreign medical professionals
- **Salary enhancement:** Increase doctors total compensation of around 20% by 2014. Increments and adjustments for doctors and dentists thereafter. One-time base pay increase of 4-17% from April 2012 for nurses, pharmacists, allied professionals

**Updates in 2013:** About 100 pre-employment grants given out in the last year. MOH will give out S\$50 million for training of healthcare professionals for FY2013

**Updates in 2014:**

- Lee Kong Chian School of Medicine opened, increasing national intake by 17% to 413
- Annual nursing intake increased to 1,682, with target increased to 2,750
- 4,000 senior public sector doctors will be remunerated under new framework, increased funding for intermediate to long-term care providers to increase pay and hire more staff
- Singapore Institute of Technology to introduce healthcare-related degree programmes

**Updates in 2015:** Funding for selected doctors for postgraduate training in family medicine

**Updates in 2016:**

- Added 11,000 to healthcare workforce since 2011
- Various schemes introduced to attract non-practising local nurses and mid-career professionals for management roles, as well as Healthcare Skills Future Study Awards for upgrading and training

Source: MOH, DBS estimates

## Private Sector Has Sufficient Capacity in the Near Term

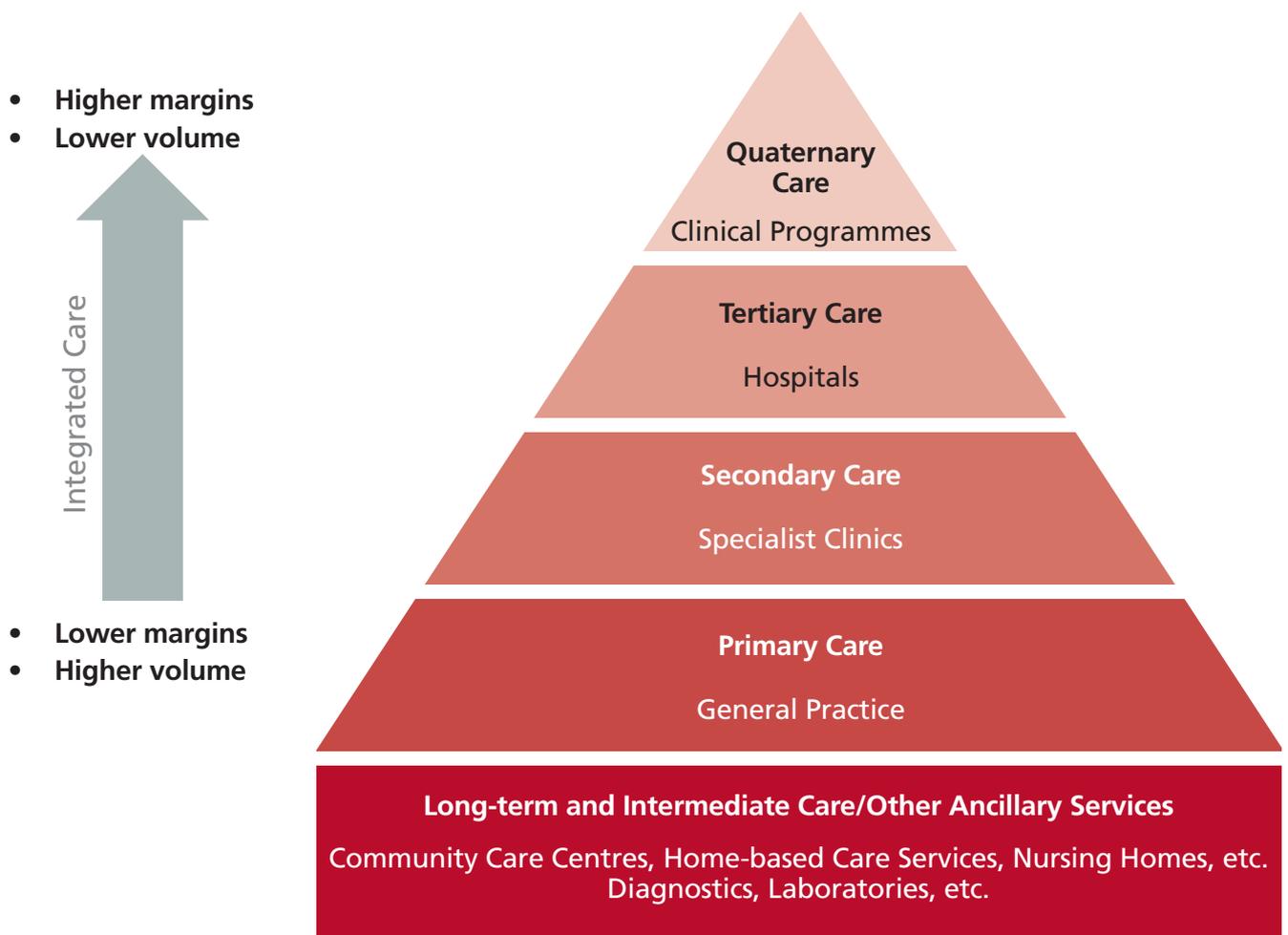
As mentioned earlier, the private sector has 532 licensed beds available, which is half of the 1,000 estimated to be required by 2030. Raffles and IHH both have the largest number of potential new beds that can be added at 212 and 173 beds, respectively. Farrer Park Hospital, the newest hospital, has 117 potential beds. ❌

# The Healthcare Marketplace

## Market Segments Within the Healthcare Industry

Healthcare services are typically divided into four levels – primary, secondary, tertiary, and quaternary – depending on the level of specialisation and complexity in the services performed. Ancillary services are supplemental services that include diagnostic services, physical therapy, and occupational therapy. The four levels form the pyramid of healthcare where primary care, which is usually high in volume and low in profit margins, forms the base. Margins increase with the level of specialisation and complexity of services provided.

**Diagram 12. Healthcare services by level of service**



Source: IHH Prospectus

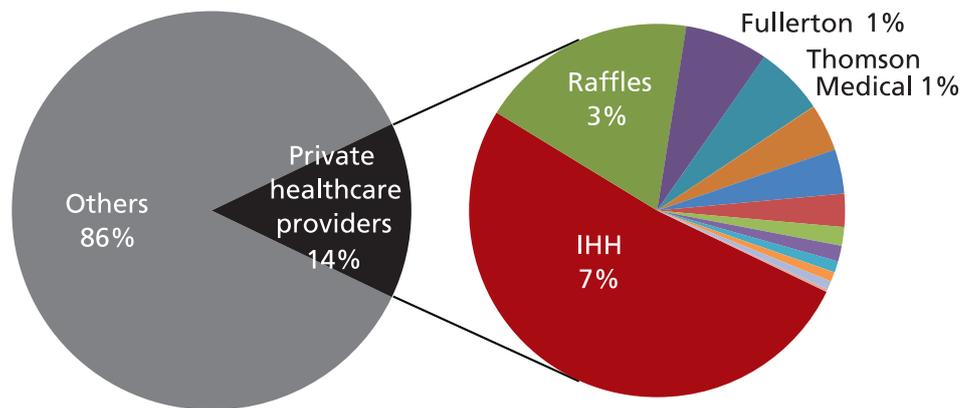
Based on data from listed healthcare service companies in Singapore, primary healthcare margins are typically below 10% while margins for tertiary care (such as oncology) ranges

between 60% and 80%. Hospital service providers report blended margins, ranging from 20% to 30%, depending on the level of complexity and specialisation of the service provided.

## Healthcare Value Chain in Singapore

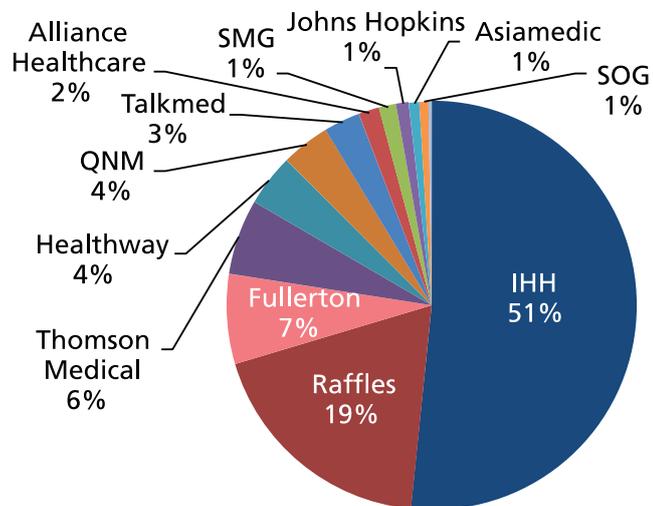
The key players in the industry are healthcare service providers, namely hospital operators/owners IHH and Raffles. The larger private healthcare providers account for approximately 14% of total private healthcare spending. Of this, IHH and Raffles are the two largest with a market share of 51% and 19%, respectively.

**Diagram 13. Revenue of private healthcare providers comprises only 14% of private healthcare spending (FY15E)\***



Sources: Individual company's latest full year financial statement, Singstat  
 \* list is not exhaustive

**Diagram 14. Market share by revenue of private healthcare providers' operations in Singapore\***



Sources: Individual company's latest full year financial statement  
 \* list is not exhaustive

**Diagram 15. Healthcare Value Chain\***

		Companies listed on SGX	Private companies
Payers	Governments, insurers, and individuals	Great Eastern Holdings, Prudential PLC	NTUC
Sponsors/ Investors	Sovereign wealth funds, private equity, and institutional investors		
Healthcare Providers	Hospitals, clinics (general practitioners, specialists, alternative medicine), nursing homes, elderly care, laboratories, and diagnostics centres	Health Management International, Healthway Medical Corporation Ltd, IHH Healthcare Berhad, ISEC Healthcare Ltd, Q&M Dental Group, Raffles Medical Group, Singapore Medical Group, Singapore O&G Ltd, Talkmed Group, Asiamedic	Alliance Healthcare, Ma Guang (TCM), Pacific Healthcare, Prohealth Medical Group, Thomson Medical Centre, Econ Healthcare, Farrer Park Hospital, Concord Cancer
Asset Owners	REITS, hospitals, nursing homes, and pharmaceutical warehouses	First Reit, Parkway Life REIT, Religare Health Trust	
Distributors	Pharmacies, distributors and wholesalers, healthcare logistics and service providers		Unity
Producers	Manufacturers of pharmaceutical drugs, biologics, medical equipment and devices, health consumables, personal healthcare products, other medical technology and biotechnology firms, information systems providers, and medical facilities builders	Cordlife Singapore, Eu Yan Sang, Haw Par Corporation, IX Biopharma QT Vascular, Riverstone Holdings, Tianjin Zhongxin Pharmaceutical Group, UG Healthcare Corporation, VicPlas International	

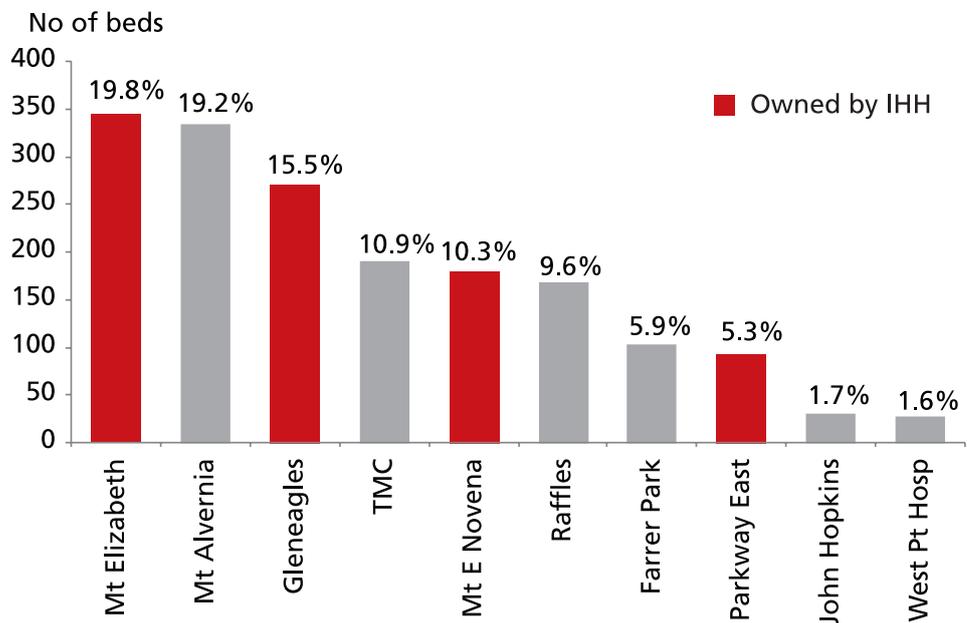
Source: DBS Bank  
\* list is not exhaustive

## Private Hospitals

Singapore's private hospitals operate in an oligopoly, with IHH being the largest hospital operator. Four out of Singapore's ten private hospitals are owned by IHH – Mount Elizabeth, Gleneagles, Mount Elizabeth Novena, and Parkway East. IHH's operational beds account for half the total number of private-hospital beds. By revenue, IHH has an estimated market share of 71%, followed by Raffles at 18%, and Thomson Medical Centre at 9%. Farrer Park Hospital is the newest kid on the block, having started operations in 2015. Based on licensed beds, Farrer Park has a market share of 10%.

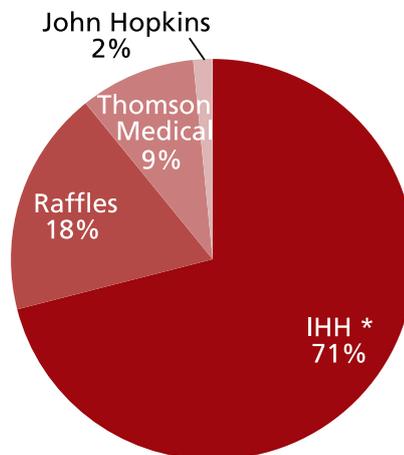
As mentioned previously, private hospitals have yet to fully utilise their licensed capacity, translating to some 530 beds yet to be put to use. Raffles Hospital has the largest spare capacity with 212 beds, potentially to be used at its extension building which is slated for completion in 2017. IHH and Farrer Park have spare capacity of 173 beds and 117 beds, respectively.

**Diagram 16. Market share of private hospitals by number of operational beds**



Source: Hospitals' website

**Diagram 17. Market share of private hospitals by revenue**



Source: Companies' latest full-year financial statement  
 \* estimates  
 Note: list is not exhaustive

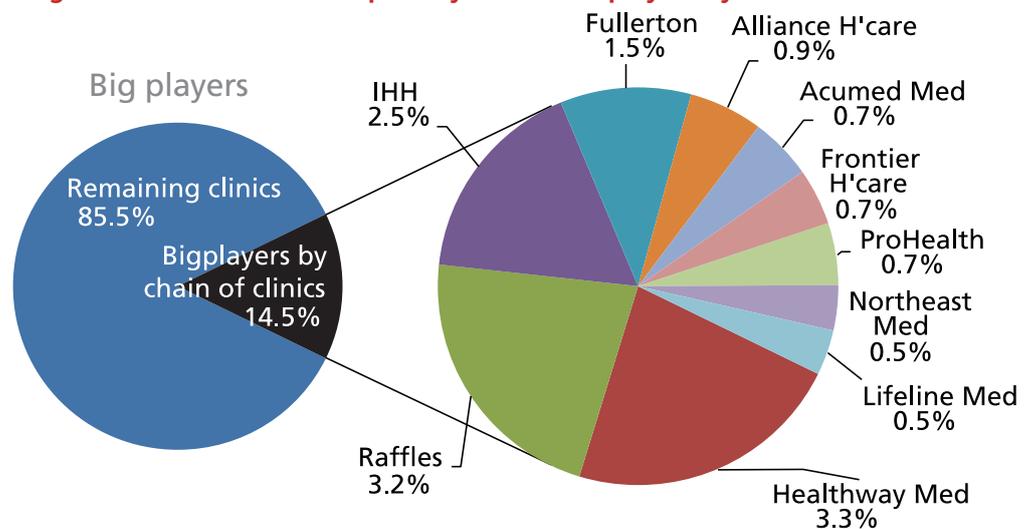
*There are still consolidation opportunities in the primary healthcare segment as players continue to seek volume growth to benefit from economies of scale*

## Primary Healthcare

The primary healthcare segment in Singapore has progressed and matured from a large number of fragmented and predominantly individually-owned clinics to primary healthcare providers with large chains of clinics and some providing integrated services, and the development of enterprise healthcare services. Nevertheless, the primary healthcare segment in Singapore is still very fragmented with the big players comprising only 15% of the primary healthcare market by number of clinics. The key players in this segment are Healthway Medical (3.3%), Raffles (3.2%), IHH (2.5%), and Fullerton Healthcare (1.5%). By revenue, Fullerton Healthcare leads with a market share of 28%, followed by Raffles at 27% and IHH (via Parkway Shenton) at 23%.

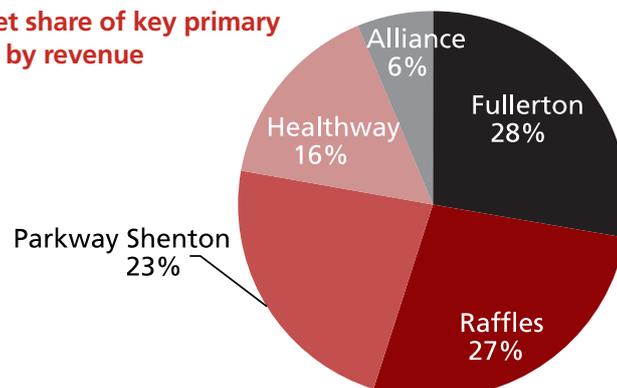
There are still consolidation opportunities in the primary healthcare segment as players continue to seek volume growth to benefit from economies of scale. We believe demand for enterprise healthcare services will continue to grow especially as healthcare insurance expands in a predominantly private-funded healthcare system.

**Diagram 18. Market share of primary healthcare players by number of clinics\***



Source: Companies' website  
\* list is not exhaustive

**Diagram 19. Market share of key primary healthcare players by revenue**



Source: Companies' latest financial statement

## Long-Term Care Services

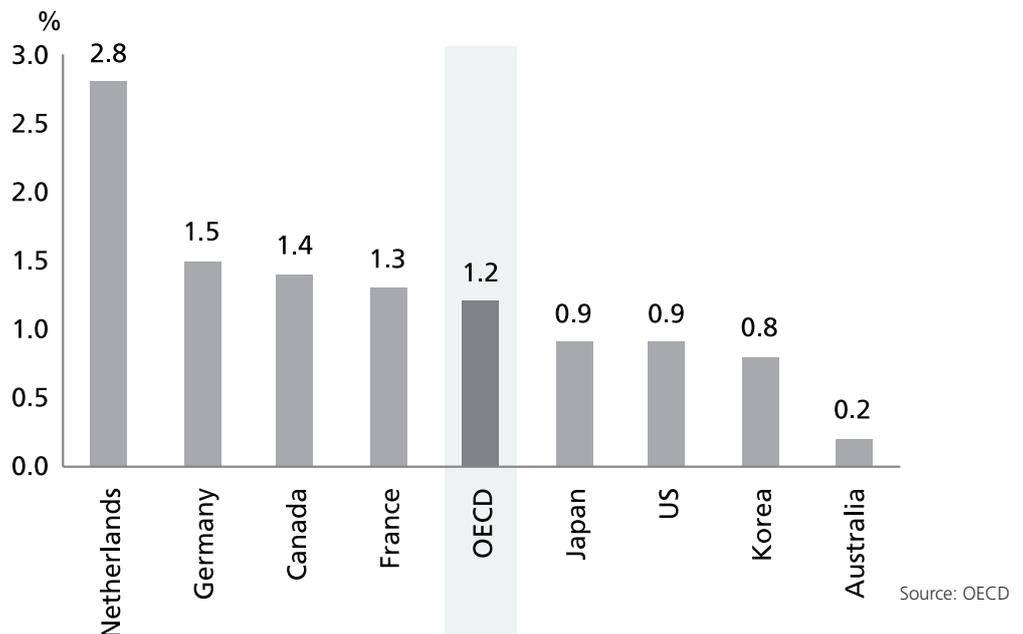
An ageing society has driven the evolution of long-term care services to better meet its needs. Long-term care is not limited to just nursing care, it also encompasses health, personal care, and supportive services for frail seniors and adults with limited self-care capabilities due to health-related conditions. Long-term care can come in various settings, including adult day services centre, home health agency, hospice, nursing homes, and residential care community.

Currently, long-term care in Singapore is largely provided by the government and individually-owned or charity-based elderly homes. Supply of private long-term care services is still low due to the social stigma of placing dependents in such facilities and the relative affordability of hiring domestic help. But with dependency ratio falling and rising cost of domestic help, we believe the elderly may soon be left with few options when assisted living is required. That, coupled with a change in mind-set among the “new” elderly generation, could break down the social stigma, albeit gradually.

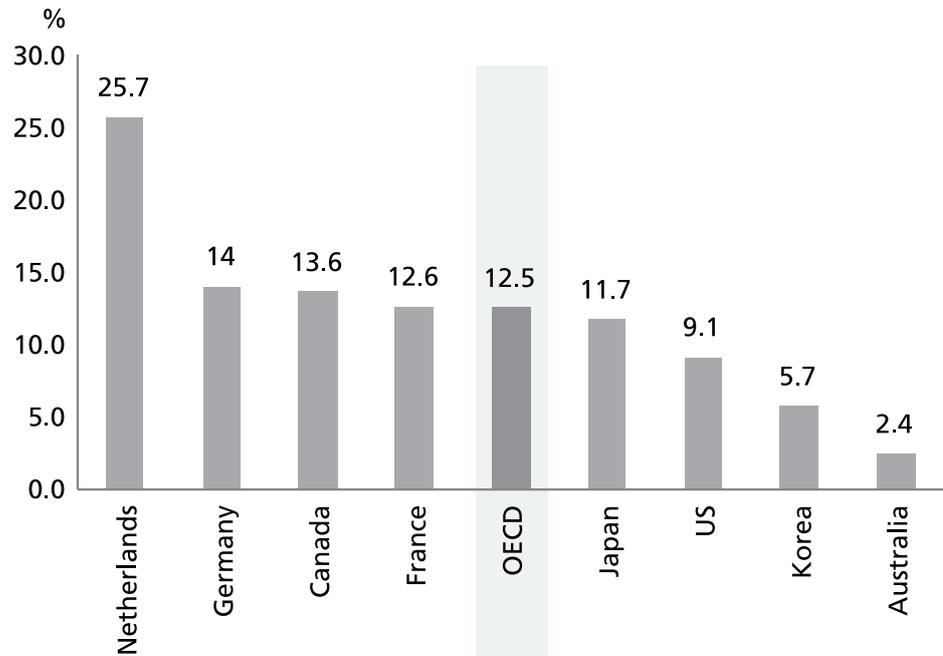
Singapore has the lowest number of long-term care beds per 1,000 people at two beds versus six beds in other OECD countries. Singapore’s number of long-term care beds per 1,000 aged population at 28 beds is below the OECD average of 38 beds, but fared better than Japan (25 beds), Korea (23 beds), and Italy (18 beds).

Based on the OECD average, long-term nursing care expenditure comprises approximately 1.2% of GDP and 12.5% of total healthcare expenditure. Drawing parallels to the OECD countries, the long-term nursing care segment could grow to S\$7.3 billion from S\$5.4 billion. ❌

**Diagram 20. Long-term care expenditure (% of GDP)**



**Diagram 21. Long-term care expenditure (% of total healthcare expenditure)**



Source: OECD

*Drawing parallels to the OECD countries, the long-term nursing care segment could grow to S\$7.3 billion from S\$5.4 billion*







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