HSOR NEWS
The evidence behind your decisions
Health Services & Outcomes Research, **Issue 2010/1**

COST OF AN AGEING POPULATION

INSIDE THIS ISSUE

Good health at low cost. Singapore is unique amongst developed countries in achieving excellent health outcomes at a low economic cost. Part of this success can be attributed to the health care financing system, which has succeeded in keeping costs low by focusing on individual responsibility. Within the public health care subsidy framework, deductibles and co-payment features were incorporated to prevent over-consumption. However, this low level of spending is supported by a relatively young population, which has helped restrain the demand for healthcare.

The ageing population. Singapore has undergone significant demographic changes over the last three decades. As a result of declines in fertility and mortality, the share of resident elderly (>65 years old) has increased almost two-fold over the last two decades from 4.9% in 1980 to 7.3% in 2000. Over the next thirty years, fuelled by the post-war baby boom cohort and increased longevity, population ageing will accelerate. According to recent demographic projections by the United Nations (UN), the share of aged as a percentage of total population is expected to reach 27% by 2030 and 34% by 2050.

Expenditure drivers: population, medical inflation and service enrichment

Current national spending on healthcare stands at 3.9% of Gross Domestic Product (GDP), of which 25% is accounted for by the government. A recently completed HSOR study investigated the growth in public healthcare burden by projecting public healthcare spending and GDP as functions of their structural determinants within a growth accounting framework (Figure 1 & Figure 2). This traditional method of projecting the impact of an ageing population on healthcare involved multiplying the projected population numbers in the different age-sex specific groups by constant utilisation rates.

Economic growth drivers: population and productivity

Fundamentally, economic growth is driven by the rate of growth in labour productivity and employment, which are in turn dependent on the pool of labour resource available. Singapore's growth potential may slow down in the future, given the projected decline in the labour force resulting from low levels of fertility and the retirement of the baby boomers from the workforce.

The results of our model suggest that public healthcare expenditure as a share of GDP will double by 2030 and increase by almost three-fold by 2050 (Figure 3). As the last of post-war baby boomers move into the 65 years or older group in 2030, population ageing is estimated to account for between 43% and 61% of increase in government healthcare burden between 2005 and 2050. Baseline projections show that government spending will reach 1.8% in 2025 and 3.4% of GDP in 2050. This is lower than countries with similar share of older persons, and is approximately half of the current Organisation for Economic Co-operation and Development (OECD) average of 6.4%.

Figure 1: Government Healthcare Spending

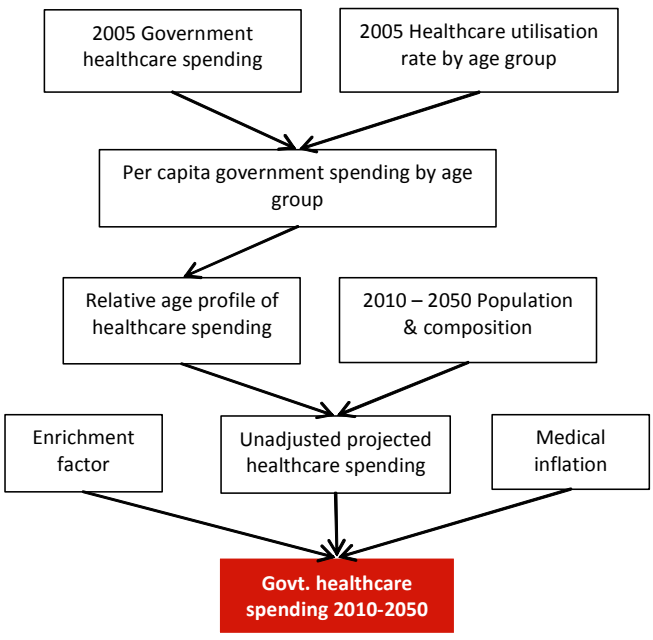

Figure 2: Gross Domestic Product (GDP) Projection Method

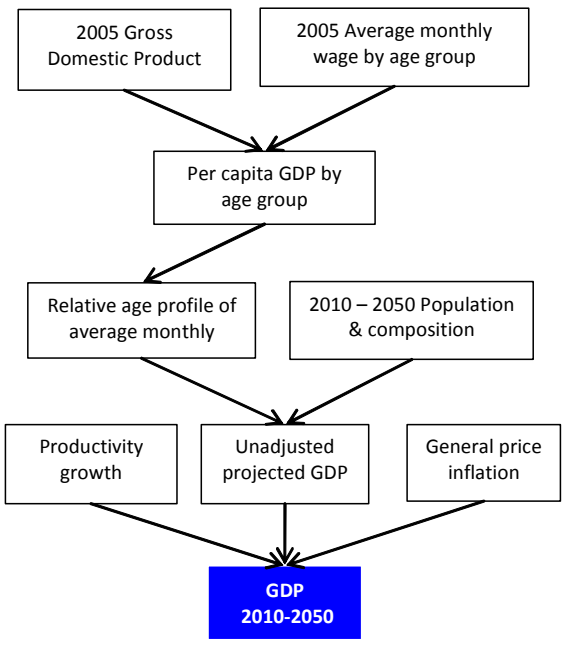

Figure 3: Impact of Ageing on Healthcare Expenditure

	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
No Ageing	0.9%	1.0%	1.1%	1.1%	1.2%	1.4%	1.5%	1.7%	1.8%	1.9%
With Ageing	0.9%	1.0%	1.2%	1.5%	1.8%	2.2%	2.6%	2.9%	3.2%	3.4%

Our sensitivity analyses showed that even if total fertility rates (TFR) were to increase from 1.27 to between 1.77 and 2.14 over the 40-year projection timeframe, GDP growth will not outstrip increases in healthcare spending. However, medical inflation and the rate of expansion of healthcare services as represented by the enrichment factor will have a direct impact on public healthcare spending. For instance, supply-side decisions by the public healthcare sector regarding the expansion of healthcare services such as the addition of new surgical procedures or pharmaceutical products will have significant influence on future spending.

End of life considerations – Future work. However, there are some limitations due to the simple method employed. Recent health economics literature have raised doubts regarding the common belief that health care spending rises steeply with age. Studies have shown that older persons do not consume more health care because they are old but because they are approaching death. The policy implications arising from these two scenarios are different. If spending were to increase with age because of the direct age effect, the increase in ageing population will increase health spending significantly. However, if spending were to increase with age because more people are closer to death, then an increased life expectancy will not necessarily increase the health cost for society. To establish the validity of these arguments, the above analysis has to be extended.

Tan Woan Shin, M. Soc. Sc. (Economics)

Woan Shin, Senior Research Analyst, has been a PI on several projects. She has conducted technical analyses for studies evaluating quality improvement interventions, chronic disease interventions, health resource utilisation and costs. Her current research interests include evaluating the impact of risk-adjustment methods on outcomes and the application of economic evaluation in healthcare. She was one of the three recipients of the ISPOR (Virginia) Contributed Research Award for Best New Investigator Podium Presentation in 2007. Prior to joining NHG in 2006, Woan Shin worked as a Research Economist with Singapore's Ministry of National Development.