MARSH & McLENNAN COMPANIES

ASIA PACIFIC RISK CENTER

ADVANCING INTO THE GOLDEN YEARS

COST OF HEALTHCARE FOR ASIA PACIFIC'S ELDERLY

EXECUTIVE SUMMARY

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FOREWORD

"Advancing into the Golden Years – Cost of healthcare for Asia Pacific's elderly" is the inaugural publication from Marsh & McLennan Companies' Asia Pacific Risk Center (APRC). It is the first in a series of publications by APRC assessing the risks that societal ageing presents to societies, industries, and governments in the Asia Pacific region (APAC).

Asia Pacific is the fastest ageing region in the world and already has some of the oldest societies. However, APAC is also home to some relatively young populations, and there are many unanswered questions regarding the readiness for ageing of the region as a whole.

Governments need to understand how well prepared they and their citizens are to finance healthcare requirements for the elderly. Our findings will influence government policies and decisions on healthcare infrastructure spending. Individuals need to carefully consider how well prepared they are to fund their retirement healthcare needs, especially given the limited range of affordable insurance products. Insurers are searching for ways to price risk despite uncertainty over future increases in healthcare costs and lifespans. Companies seeking to provide the best employee benefits packages may start considering post-retirement offerings, but they need much more information and significantly more products than are currently available.

In our opening chapter we examine the speed of ageing in Asia Pacific compared to the rest of the world. In particular, this report focuses on 14 economies that generate a quarter of the global GDP, but house half of the world's elderly population. In the body of the report, we assess the problems associated with rising healthcare costs in ageing societies through three lenses: i) the absolute size of the problem, ii) the complexity of factors involved, and iii) the urgency with which stakeholders in the elderly healthcare ecosystem need to take action. We quantify the financial impact of elderly healthcare between 2015 and 2030 in APAC countries, by modelling key drivers of direct healthcare costs. The report concludes with a summary of the key implications of rising elderly healthcare costs, and the identification of areas within the healthcare ecosystem, such as funding sources and workforce, that warrant urgent intervention. These will be the focus of subsequent research.

This report serves as a call to action for all parties in elderly healthcare ecosystems. The challenges are large, urgent and complex, but Marsh & McLennan is dedicated to working with a range of stakeholders to analyse the key risks and identify practical ways to build resilience and make the most of any new opportunities.

Wolfram Hedrich
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EXECUTIVE SUMMARY

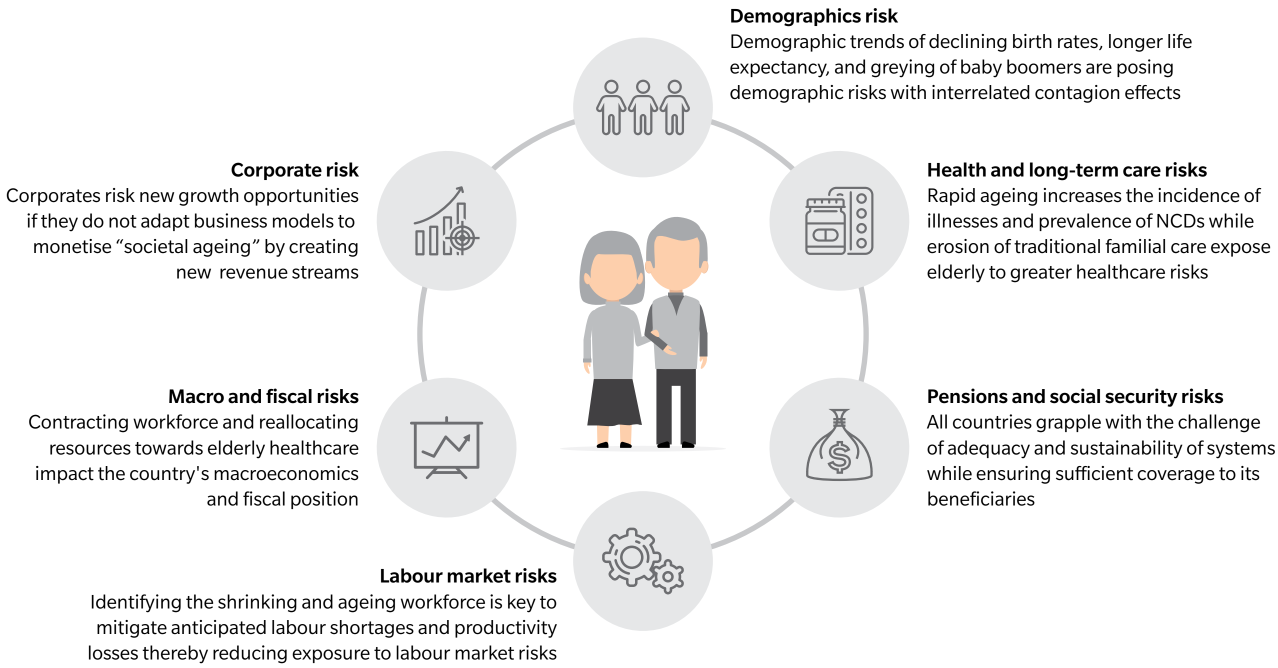
ASIA PACIFIC – THE GLOBAL HOME OF THE ELDERLY?

Asia Pacific (APAC)[1] is the fastest ageing region in the world with more than 200 million people expected to move into the ranks of the elderly (aged 65 years and above) between now and 2030. This represents an increase of 71 percent in the number of elderly people, compared to increases of 55 percent in North America and 31 percent in Europe over the same period.

Driven by improving socio-economic conditions and increasing life-expectancy, the speed at which societies in APAC are ageing poses an unprecedented challenge. For comparison, Singapore's elderly population will rise from 11 to 20 percent in the next 15 years, while it took France 49 years to do the same. By 2030, Japan will become the world's first "ultra-aged" nation, with the elderly accounting for more than 28 percent of the population, while Hong Kong, South Korea, and Taiwan will be considered "super-aged", with more than 21 percent.

Many APAC countries are moving from a period when they reaped a "demographic dividend" to one where they face the prospect of paying a "demographic tax". Such a significant demographic shift will be accompanied by a host of financial and socio-economic risks affecting multiple stakeholders, as shown in Exhibit 1. Consequently, there is an urgent need to evaluate each country's readiness to manage increasingly aged societies and to develop solutions that mitigate the associated risks. This report takes a deeper look into the **impact of societal ageing on elderly healthcare costs** in APAC.

EXHIBIT 1: RISKS ASSOCIATED WITH SOCIETAL AGEING



Source APRC analysis adapted from World Bank and ADB

1. For the purposes of this report we use a definition of Asia Pacific that includes East Asia, South Asia, South-East Asia and Oceania, but excluding central Asia and the countries of the Eastern Pacific (North and South America).

The APAC region as a whole faces a common challenge in societal ageing, however, due to the differences in demographics and epidemiological factors, and the level of healthcare and economic development, the nature and magnitude of the risks will vary. We define three broad groups within APAC, based on the extent of ageing and GDP per capita (Exhibit 2).

As discussed in the full report, these three groups also show distinct patterns in the profile of healthcare cost drivers, infrastructure, and human capital. In turn, this allows the identification of key group-specific imperatives to manage the impact of societal ageing on elderly healthcare expenditure.

THE SPIRALLING COST OF ELDERLY HEALTHCARE

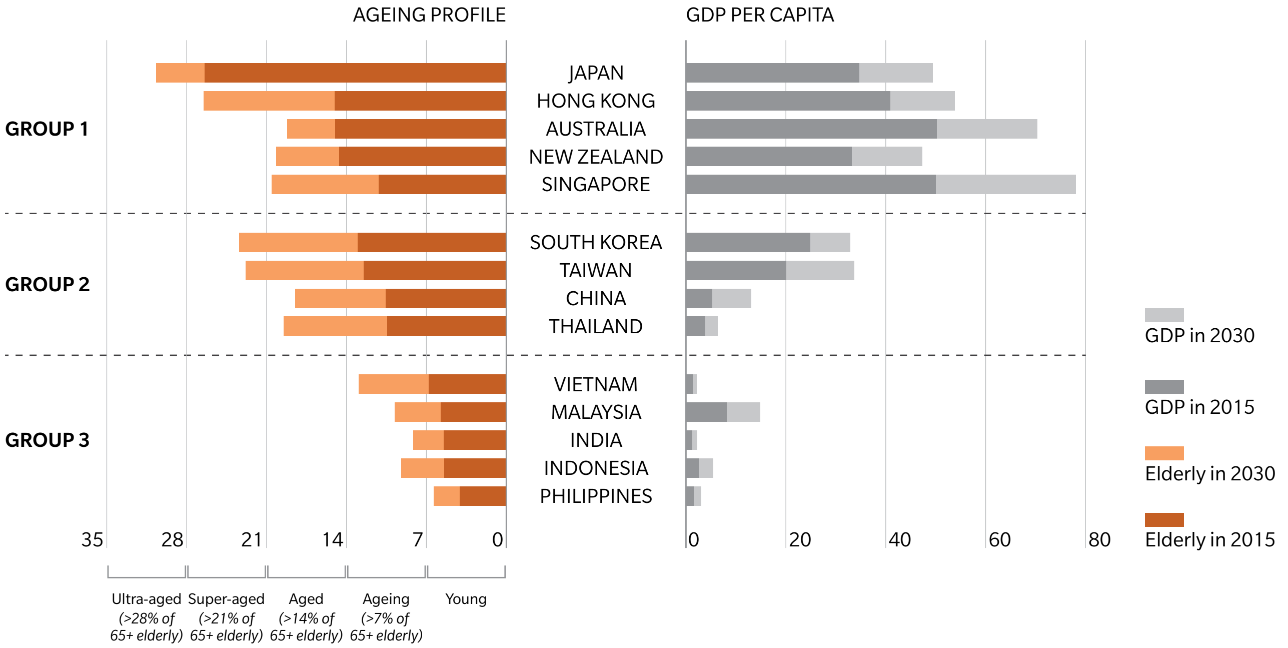
Societal ageing and the greater need for elderly healthcare poses significant risks to APAC countries for the following reasons:

US$20 TRILLION IN HEALTHCARE EXPENDITURES

Elderly healthcare represents an immense financial burden and a risk to the fiscal health of countries. We estimate the cumulative elderly healthcare expenditure from 2015 to 2030 at over US$20 trillion in APAC.

EXHIBIT 2: AGEING GROUPS IN APAC ACCORDING TO ELDERLY PROPORTION AND GDP PER CAPITA[2]

PROPORTION OF ELDERLY VS. GDP PER CAPITA
% VS. US$ THOUSANDS



Source APRC analysis of data from Oxford Economics, World Bank, UN Population Division

2. This approach serves as a useful tool for discussion of key challenges faced, however it does not fully capture many of the differences in health care provisions and level of preparedness for an ageing society that we discuss later in the report. Ultimately, solutions will have to be both country-specific, and involve cross-border collaborations.

NEED FOR URGENT ACTION GIVEN STRESS ON EXISTING INFRASTRUCTURE

Addressing the gaps in funding sustainability, efficiency of healthcare models, and workforce and infrastructure capacity will take time. Consequently, urgent action is needed on the part of governments, providers, insurers, and individuals.

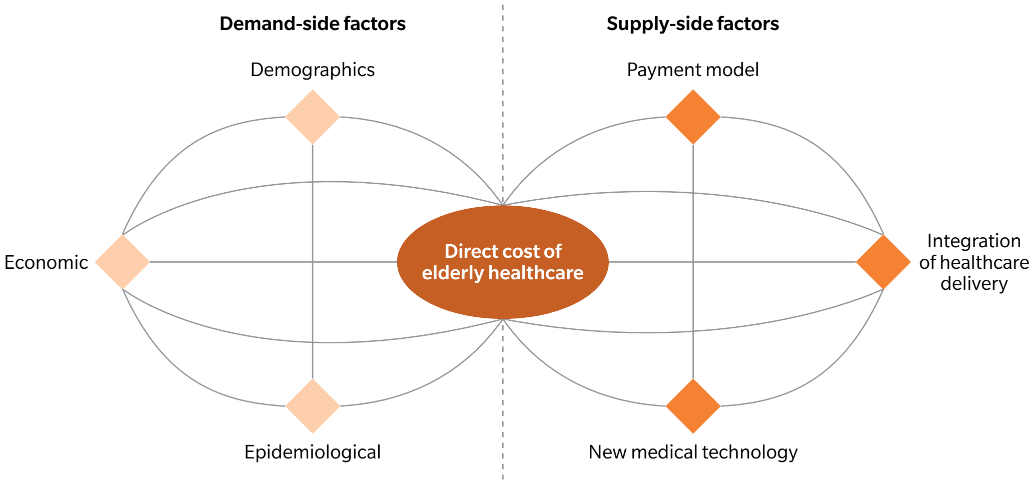
COMPLEXITY OF SOLUTIONS

Solving these challenges is complex and will require building a consensus among multiple stakeholders in the healthcare ecosystem, and taking into account the heterogeneity of the APAC region.

ELDERLY HEALTHCARE: THE TRILLION-DOLLAR CHALLENGE

Elderly healthcare expenditure is determined by multiple, interconnected supply- and demand-side cost drivers (Exhibit 3).

EXHIBIT 3: INTER-CONNECTION OF MULTIPLE COST DRIVERS OF ELDERLY HEALTHCARE



Source APRC analysis

In the present study, we have developed a macro-level projection model to estimate the potential cost of elderly healthcare in 14 APAC markets (which are home to half of the world's elderly population).

The factors considered in the model are:

- Growth of elderly population (≥65 years)
- GDP growth rates
- Medical cost trends, which include demand- and supply-side drivers such as price inflation and utilisation patterns (such as changes in the incidence of non-communicable diseases (NCDs), and of regulations)
- Cost and growth in the utilisation of long-term care (LTC)

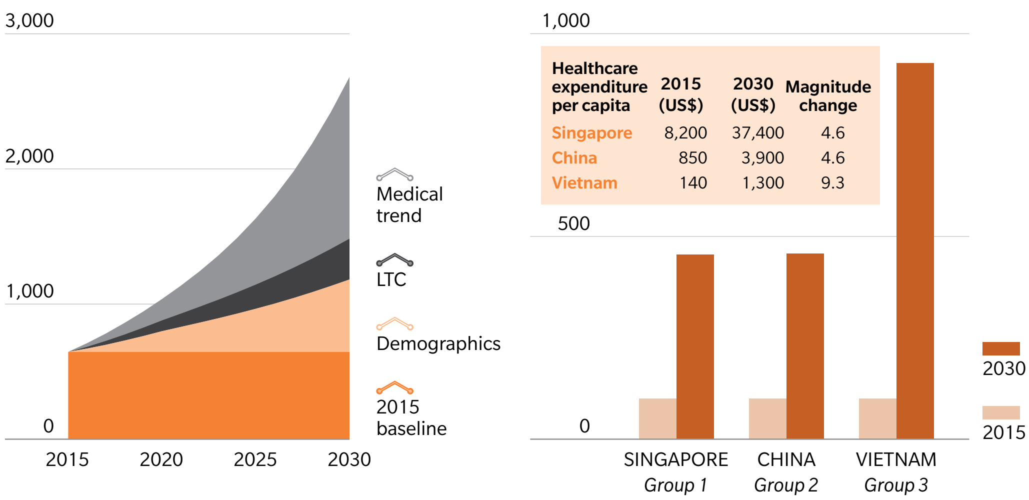
We estimate that the cumulative elderly healthcare expenditure from 2015 to 2030 will reach US$20 trillion, which represents approximately half of region's healthcare expenditure during that period. To put this into perspective, this amount is equivalent to the combined GDP of the 14 markets in 2015. The annual cost by 2030 is US$2.5 trillion, five times the annual expenditure of US$500 billion in 2015, representing a compound annual growth rate (CAGR) of 7-21 percent across the respective markets.

We believe these estimates are still conservative, as indirect costs (e.g., productivity loss by family carers) and capital costs (e.g., infrastructure construction) have not been included. The key driver in the growth of elderly healthcare expenditure is the medical cost trend, accounting for more than half of the incremental growth.

EXHIBIT 4: ESTIMATION OF ELDERLY HEALTHCARE EXPENDITURE IN 14 APAC MARKETS FROM 2015 TO 2030

ELDERLY HEALTHCARE EXPENDITURE BREAKDOWN BY COST COMPONENTS
US$ BILLION

HEALTHCARE EXPENDITURE PER ELDERLY
INDEX TO 2015 = 100



Healthcare expenditure per capita	2015 (US$)	2030 (US$)	Magnitude change
Singapore	8,200	37,400	4.6
China	850	3,900	4.6
Vietnam	140	1,300	9.3

Source APRC analysis

PROBLEMS IN NEED OF URGENT ACTION

As a result of the rising demand and cost of elderly healthcare, societal ageing poses three critical challenges that will significantly impact multiple stakeholders in the health ecosystem.

SUSTAINABILITY OF FUNDING SOURCES

The combination of increasing life expectancies, a sustained low-interest-rate environment, and growth in medical costs that exceeds growth in GDP present challenges to the following:

Insufficiency of government healthcare funds. Escalating elderly healthcare costs may force governments to reduce non-healthcare expenditure, increase taxation, expand borrowing and fiscal deficits, and/or shift the burden of financial support for the elderly more to the private sector and individuals.

Unviable medical insurance products for the elderly. The difficulty in accurately forecasting longevity risk and future medical costs results in premiums that are prohibitively expensive for most (if coverage is offered at all), who will also face steep increases in premiums as they grow older.

Inadequacy of personal retirement income. Elderly healthcare costs will place a strain on retirement savings due to the inadequacy of social security and pension systems, the decline in intra-family support, and the high out-of-pocket payments for healthcare in many APAC countries. This could force elderly individuals to choose between spending on health and other living expenses.

ADEQUACY OF HEALTHCARE CAPACITY

Our analysis shows there is a significant gap in healthcare capacity in most APAC countries and that significant investment in both infrastructure and human capital will be required to meet future demand.

Shortfall in human capital capacity. Long-term care is of particular importance to an ageing population. Our projections show that APAC will face a deficit of 18.2 million LTC workers, with China alone requiring 9.3 million more professional caregivers, by 2030.

Shortage of infrastructure. The shortfall in LTC workers is mirrored by a lack of LTC facilities. For example, we estimate that Japan and South Korea each require 100,000 or more LTC beds by 2030. In many developing countries, the poor "bankability" of healthcare infrastructure projects, due to the legal and financial uncertainty faced by foreign investors, results in an infrastructure gap. While healthcare capacity building is normally a natural consequence of economic development, due to the speed of ageing in APAC, many young and developing countries may not have sufficient time to achieve a high level of economic development before the detrimental effect of societal ageing occurs.

IMPACT ON ECONOMIC GROWTH

Excess healthcare expenditure risks diverting resources away from the rest of economy. Governments may be forced to increase access to healthcare, while relying on a shrinking workforce (and reduced income tax revenue). This could lead to increased fiscal deficits, which may trigger a rise in government borrowing and the diversion of funds from areas that can fuel economic growth, such as education, infrastructure, and R&D. The increase in debt might also necessitate an increase in taxes and interest rates, which could place further downward pressure on economic growth.

The above challenges highlight the need for radical changes to present public policy and business models of healthcare delivery and financing. However, solutions to tackle these issues are complex and need time to evolve. Consequently, there is an urgent need for countries to prioritise these issues and start to implement reforms now.

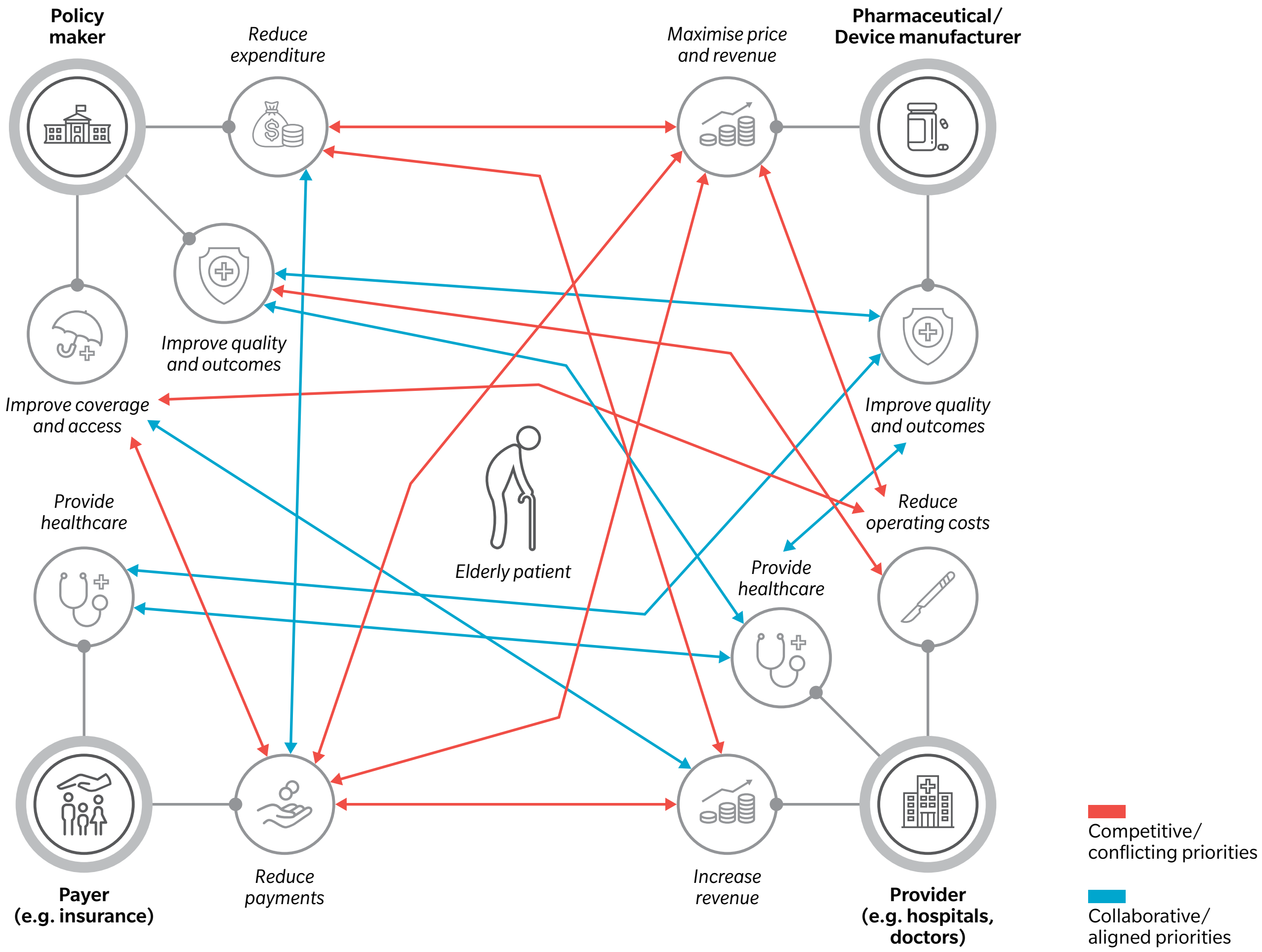
MANY STAKEHOLDERS, COMPLEX SOLUTIONS

The unsustainable increase of elderly healthcare costs highlights the urgent need for solutions. However, the healthcare ecosystem is complex, with multiple stakeholders, who often have conflicting priorities (Exhibit 5). The elderly individual (patient) at the heart of the ecosystem bears a particular responsibility, since his/her physical and financial health ultimately drives the demand for healthcare services.

Consequently, solutions that align the objectives of multiple stakeholders (e.g., value-based healthcare) will be the most successful in effecting change.

Complexity in the healthcare ecosystem also extends across countries. Differences in the type and immediacy of ageing-related challenges mean that each country will need customised solutions to address its unique set of issues and constraints. These differences in demographics, epidemiology, and economic development also present opportunities for arbitrage in the form of cross-border solutions, including healthcare tourism and the migration of workers from Asia and beyond, such as Africa where half of the global population growth will occur through to 2050.

EXHIBIT 5: INTER-CONNECTION OF STAKEHOLDER PRIORITIES



Source APRC analysis

THE ROAD AHEAD: INNOVATIONS IN ELDERLY HEALTHCARE

Taking into consideration the cost drivers and stakeholders of elderly healthcare, we have identified four aspects of the ecosystem that most urgently require improvements. In this report, instead of discussing "traditional" strategies to combat societal ageing and healthcare costs, we discuss several "green shoots" – innovative solutions and concepts that could be cultivated to improve the sustainability of healthcare provision for the elderly in APAC.

FUNDING SOURCES FOR ELDERLY HEALTHCARE

- **Development of viable and affordable medical insurance for the elderly.** The "Internet of Things" and use of Big Data analysis (e.g., through telematics, wearable technologies, and online behaviour tracking) have the potential to improve the measurement of risk. This could allow more accurate insurance pricing that reflects the individual's risk and the distribution of healthcare costs during a person's later years. Together with innovative approaches to structuring premium payments (e.g., front loading of premiums during working years), this may enable insurers to offer insurance at lower premiums
- **Innovative reverse mortgages schemes.** Equity reverse mortgages are challenging for insurers due to the longevity risk, interest rate risk, and asset price risk that they have to assume. As a consequence, their products may not be financially attractive for consumers. In addition, there are cultural and social barriers to selling of family assets, particularly in Asia. Accordingly, innovative products are needed to improve the take-up rate. For example, hybrid products combining reverse mortgages with life- and non-life insurance products, minimising the inherent risks and providing an option for the asset to be retained by the borrower's spouse (or heirs) at the termination of the loan period

IMPROVEMENTS IN EFFICIENCY OF THE HEALTHCARE DELIVERY MODEL

- **Integrated value-based health delivery models.** The introduction of integrated value-based health delivery models enabled by digital health technologies (e.g., electronic health records and remote patient monitoring) have shown promising initial results in bending the cost curve through lower utilisation of services and better clinical outcomes. These are achieved by improving the coordination of the care process, including both the prevention and the management of health conditions
- **Disruptors in healthcare.** The development of innovative digital healthcare technologies, such as wearable health trackers, have the potential to improve patient outcomes through greater adherence to treatments and timely access to care. With rapid advancements in this technology, an ever larger set of disruptors in the healthcare ecosystem will transform the management of elderly healthcare

INFRASTRUCTURE DEVELOPMENT TO SUPPORT ELDERLY HEALTHCARE DEMANDS

- **Closing the infrastructure financing gap.** The current period of low interest rates presents opportunities for more affordably tapping international funds and well-organised public-private partnerships. Consequently, it is imperative for governments in developing APAC countries to address the main obstacles impeding foreign investments, such as uncertainty in the legal and financial systems. This will mitigate the risks and uncertainty for private foreign investors, while upgrading and commoditising infrastructure investment as a viable alternative asset class
- **Crowdfunding.** In addition, the continued growth of crowdfunding opens its potential use in healthcare infrastructure projects (e.g., a multi-purpose community centre was successfully crowdfunded through Spacehive.com). However, the ability to scale up this approach to fund billion-dollar infrastructure projects will require further developments in regulation, technology and financing options

HUMAN CAPITAL INITIATIVES

- **Innovations to develop healthcare workforce.** Two such innovative human capital strategies are:
  - Human capital analytics (e.g., Mercer's Strategic Retention Analysis platform) identify and quantify key drivers of employee retention, enabling the development of effective strategies that have been shown to reduce turnover rates and provide significant cost savings
  - The application of Uber-style collaborative consumption business models to home nursing and caregiving services could alleviate workforce shortages in LTC. Two start-ups (Homage.sg, Jaga-Me.com) in Singapore have started to offer on-demand, part-time professional nursing and caregiving services. Such services have the potential to be cost-saving through the avoidance of institutionalisation and reducing family carers' opportunity costs
- **Robotic assistance to bridge workforce shortages.** The development of robotic technology that improves the mobility of the elderly, assists care workers, and monitors elderly patients is fast becoming a viable solution to fill gaps in elderly healthcare. For example, the Robear robot in Japan reduces the burden on caregivers by lifting patients onto their beds
- **Phone app-driven health and wellness.** The expanding applications and continued advancement in mobile phone technology, such as augmented reality (AR), offer a powerful medium for health promotion strategies for the general public. As evident from the success of Pokémon Go, phone apps have the potential to encourage physical activity, and AR can be used to educate people on healthy lifestyles. This can potentially result in improvements in the health of the population, reducing the strain on existing infrastructure and healthcare services

KEY TAKEAWAYS

1 **US$20 trillion between 2015-2030.** The annual cost of elderly healthcare in APAC is expected to increase five-fold from US$500 billion in 2015 to US$2.5 trillion in 2030. Key cost drivers are the increase in healthcare demand from an elderly population, poised to increase 71 percent, as well as medical cost inflation.

2 **Current funding sources are unsustainable** due to escalating medical costs, increased longevity and pension schemes with poor adequacy, sustainability and integrity. Innovative products are required to address three major concerns of funding: i) affordability of elderly medical insurance, ii) low investment yield and inadequacy of retirement savings/pensions, and iii) lack of attractive reverse mortgage products to release equity from fixed assets.

3 **Inefficiencies in healthcare models** threaten the long-term sustainability of healthcare provision. Three areas to focus improvements are: i) payment models such as fee-for-service that drive over-utilisation, ii) uncoordinated delivery of healthcare, and iii) pricing of new medical technology.

4 **Inadequacy of long-term care capacity** in terms of infrastructure and workforce. Governments need to work with corporations to alleviate infrastructure financing gap, and develop cross-border solutions such as healthcare tourism and labour migration.

5 **Customised solutions needed** for each country due to differences in demographics and healthcare models. This also presents the opportunity for young, developing countries to leapfrog to more efficient and sustainable healthcare models to mitigate the impact of societal ageing.

6 **Improved data collection systems** are needed for the accurate and comprehensive collection and analysis of healthcare data in order to allow informed decision-making and development of actionable insights.

To read the complete digital version of Advancing into the Golden Years publication, visit **www.mmc.com/asia-pacific-risk-center.html**

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About Asia Pacific Risk Center

Asia Pacific Risk Center (APRC) is Marsh & McLennan Companies' research institute dedicated to analysing the key risks facing industries, governments, and societies in Asia, and identifying practical ways to build resilience and realise opportunity in light of them. APRC will assist decision makers to address these risks through research and insight that combine MMC's rigorous analytical approach to risk management with leading thinking from renowned research partners.

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