

AGING WORKFORCE

COST AND PRODUCTIVITY CHALLENGES OF ILL HEALTH IN SINGAPORE



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IMPACT OF AGING WORKFORCE IN SINGAPORE



Employees aged over 50 years are the fastest growing demographic

Cost and productivity loss due to ill health

By 2030:

55%

increase in employees aged over 50 years



Account for **40%**



of the workforce

Doubling of medical costs per employee:

2016

\$946

2030

\$1,973

Productivity loss due to sickness absenteeism:

\$3.3 billion

Approximately 1% of GDP

Strategies to mitigate aging workforce challenges

WORKFORCE ANALYTICS

Identifying drivers of productivity



WORKPLACE STRATEGIES

Health & Wellness Initiatives

Integration and coordination of health programs **reduce claims by 17%** and sickness absenteeism **by 1 day**



Health screening:

Early detection of breast cancer increases likelihood of returning to work, and **could reduce treatment cost by 6x**

Return-to-Work programs

60% reduction in incurred costs

19% reduction in indemnity claims

Re-design of workplace

Reduce risk of physical-related injury & improve operational efficiency

KEY TAKEAWAYS

- 1** The Singapore workforce is aging rapidly. Between 2016 and 2030, employees aged over 50 will be the fastest growing demographic and their number is projected to increase by 55 percent, representing 40 percent of the workforce.
- 2** In Asia-Pacific, the combined economic impact of absenteeism, presenteeism, early retirement, and premature death due to ill health has been estimated at 9 to 12 percent of national GDP.^{1,2} As health risks increase with age, organizations with an aging workforce will face the challenge of managing healthcare cost and productivity.
- 3** Analysis of Mercer's medical claims database, comprising 560 companies in Singapore, revealed that the aging workforce and medical cost inflation are projected to drive up average medical cost per employee by 108 percent, from S\$946 (US\$700) per employee in 2016 to S\$1,973 in 2030.
- 4** Productivity loss due to sickness absenteeism as measured by days lost per employee is projected at 5.6 days in 2030. Based on the national median salary, this translates to a cost of S\$1,812 per employee. At a national level, based on gross national income (GNI) per capita, this represents a total productivity loss of S\$3.3 billion.
- 5** The top 10 percent of claimants accounted for 60 percent of all medical claim costs. This highlights the potential value of interventions especially among high-risk groups, such as health and wellness programs to reduce the incidence of disease, and screening for earlier detection of disease.
- 6** While an aging workforce may present challenges related to higher healthcare needs, older workers are associated with advantages such as greater firm-specific knowledge, and lower turnover rates. If managed appropriately, diversity of age at work is shown to improve productivity.
- 7** Organizations need to adapt to current demographic trends by implementing strategies to mitigate the higher costs of ill health and capitalize on the productivity of an older and potentially shrinking workforce. This includes workforce analytics to characterize productivity drivers, as well as, evidence-based workplace strategies such as health initiatives, workplace redesign, and return-to-work programs.

1. Rasmussen et al. 2016. Economic Costs of Absenteeism, Presenteeism and Early Retirement Due to Ill Health.

2. Sweeny et al. 2015. The Impact of Health on Worker Attendance and Productivity in Twelve Countries.

INTRODUCTION

Asia-Pacific (APAC) is the fastest aging region in the world, with an expected increase of 200 million elderly people (aged 65 and above) between now and 2030. This is contributed to by increasing life expectancy and a decline in fertility rates. As previously reported, the cumulative elderly healthcare expenditure in APAC from 2015 to 2030 is expected to reach over \$20 trillion.³ In addition, societal aging will have serious implications on the workforce, which includes:

A decrease in the working age population (aged between 15 and 64 years) across many key markets in APAC (Exhibit 1).

A shift in the age composition of the workforce with an increasing proportion of older employees, who are at higher risk of chronic diseases, such as diabetes, cancer, and heart disease.

To complicate matters, many Asian economies, such as China, Japan and Singapore, are struggling with declining labor productivity.⁴ Consistent with this, Mercer's 2017 Global Talent Trends Study revealed that 93 percent of business leaders plan to make organizational changes within the next two years to drive increased productivity, agility, and customer engagement.⁵ In the development of such strategies, it would be prudent for organizations to consider the implications of an aging workforce.

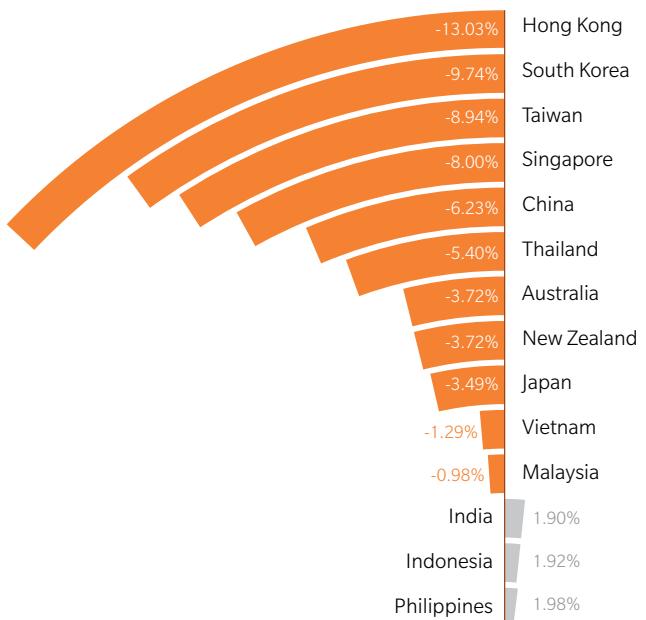
Governments and organizations need to plan for a future where older employees, who are significantly more prone to health risks, represent an increasing proportion of the workforce. In countries where employer-provided healthcare is prominent, this presents a potential fiscal burden for companies from increased medical claims costs and loss of productivity.

However, research has shown that older workers present certain advantages such as greater firm-specific knowledge, and lower turnover rates.⁶ Therefore, if managed appropriately, diversity of age at work can have positive effects. This highlights the imperative for organizations to adapt to the current demographic trends by implementing strategies to capitalize and maximize the productivity of an older and potentially shrinking workforce.

Singapore is an advanced economy with a well-developed healthcare system. However, it faces the challenges of stagnating productivity growth, and a rapidly aging population. In Singapore, where public expenditure accounts for less than 50 percent of healthcare costs, employer-provided insurance is commonplace. Consequently, Singapore provides an informative case study to examine the financial impact of ill health of an aging workforce for employers that is relevant for countries in a similar position.

Exhibit 1: Workforce in APAC countries expected to shrink 2-13% from 2016-2030

CHANGE IN WORKING POPULATION (15-64) BETWEEN 2015 AND 2030 IN ASIA PACIFIC



Source: APRC analysis on data from UN Population Division

3. Asia Pacific Risk Center 2016. Advancing Into the Golden Years: Cost of Healthcare for Asia Pacific's Elderly.

4. Oliver Wyman 2017. Singapore Productivity Challenge: Role of the Private Sector.

5. Mercer 2017. Global Talent Trends Study 2017.

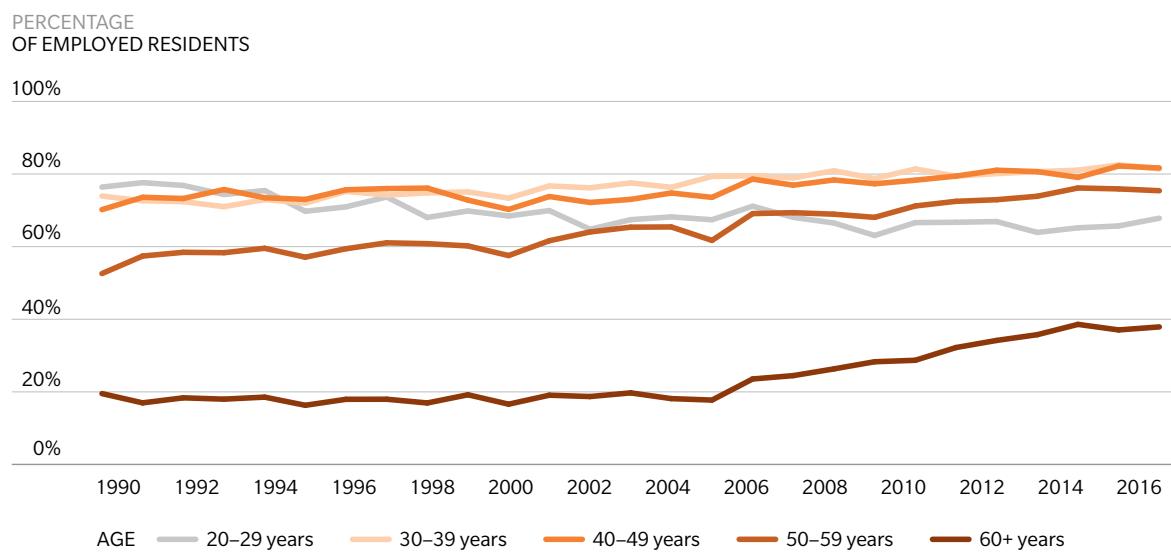
6. Nalbantian 2014. Gauging the productivity of older workers. Adapting to an aging workforce. Stanford Center on Longevity.

A RAPIDLY AGING SINGAPORE RESIDENT WORKFORCE

The rapidly aging population of Singapore, together with the increasing rate of employment among older workers, translates to an aging workforce.

The employment rate among Singapore residents aged 50 years and over is rising faster compared to other age groups (Exhibit 2). This is likely due to several factors including improved management of health conditions permitting individuals to stay in the workforce longer, increasing financial needs in retirement,⁷ as well as more flexible employment options (such as working from home, and on-demand jobs in the gig economy).^{8,9}

Exhibit 2: Employment rate among the resident population in Singapore, 1990-2016



Source: Singapore Department of Statistics (retrieved April 2017)

This report examines the impact of an aging workforce on employers through the lens of the ill health burden (including direct medical costs, productivity loss). Accordingly, we focus on residents employed full-time due to the lower prevalence of employer provided insurance among individuals working part-time or who are self-employed.

Based on population growth projections, the proportion of full-time employees over 50 years old will increase from 29 percent in 2016 to 40 percent in 2030 (Exhibit 3). In absolute numbers, there were 460,000 employees aged over 50 in 2016, and this is expected to increase by 56 percent to 718,000 in 2030 (Exhibit 4).

The projected change in the age composition of the workforce is estimated based on resident population projections, and historical trends in age-specific employment rates. The percentage of part-time and self-employed residents by age band is assumed to remain constant and is based on the latest available data from the Singapore Department of Statistics.

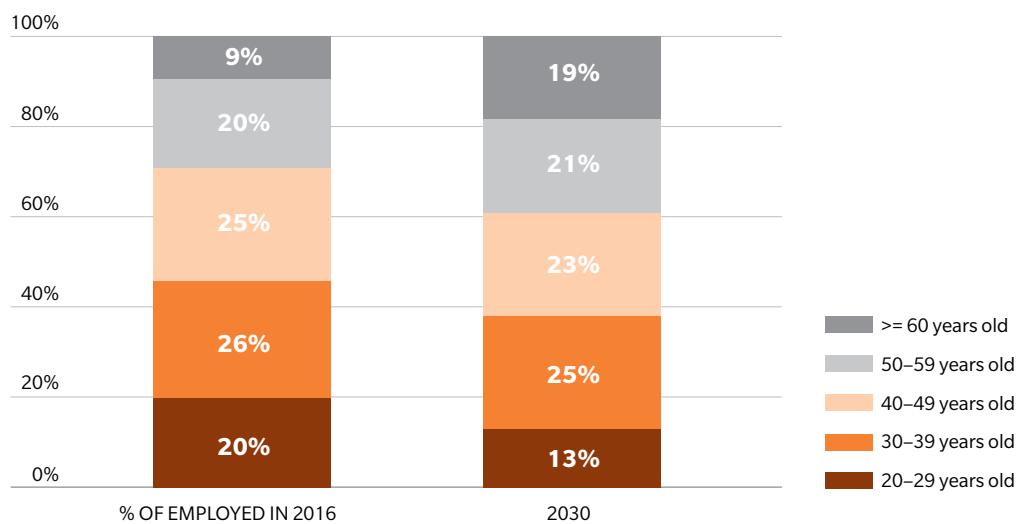
7. Khalik and Aw 2016. More in Singapore Remaining in Workforce Past 65.

8. Atkinson and Sandiford 2016. An Exploration of Older Worker Flexible Working Arrangements in Smaller Firms.

9. Singapore Tripartite Alliance for Fair & Progressive Employment Practices (TAFEP) 2010

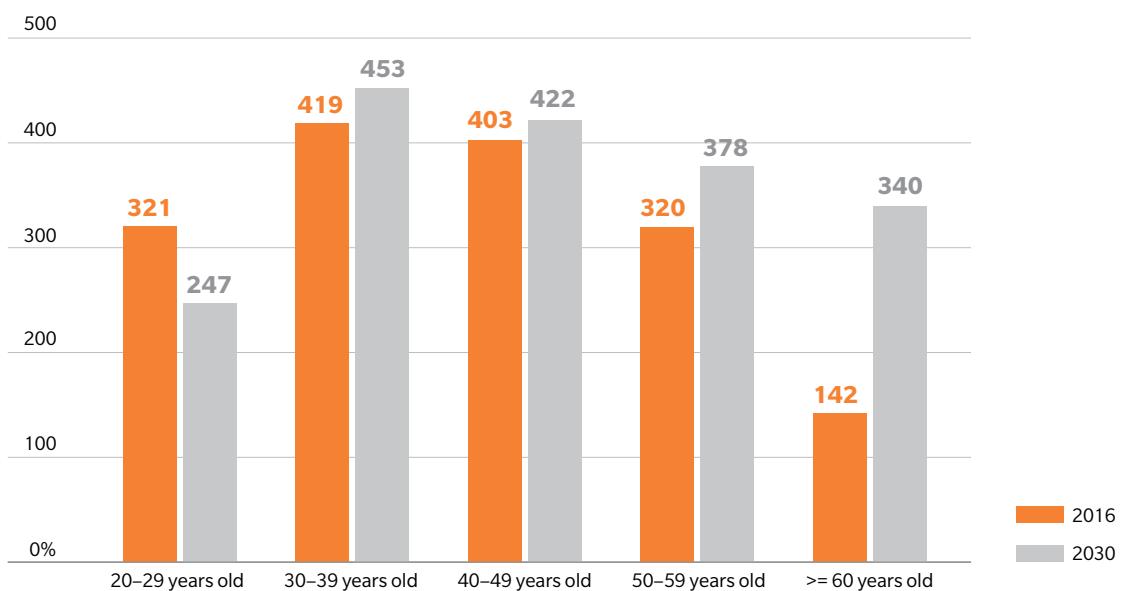
10. Provided by Singapore Department of Statistics (retrieved April 2017)

Exhibit 3: Projected change in age composition among employed persons in Singapore, 2016-2030



Source: APRC analysis of data from Singapore Department of Statistics

Exhibit 4: Projected change in number of full-time employees by age group in Singapore



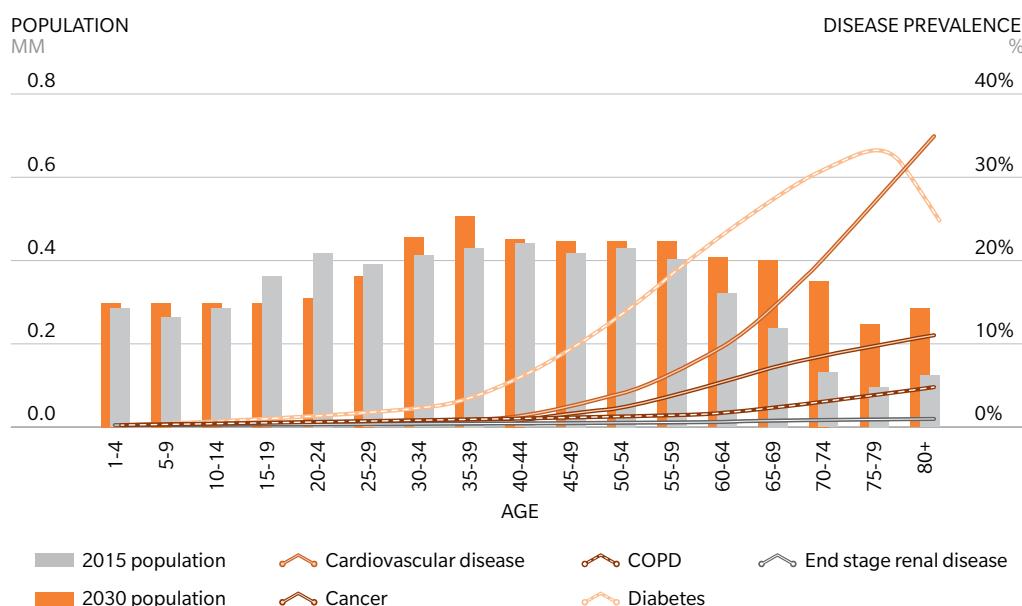
Source: APRC analysis of data from Singapore Department of Statistics

HEALTH RISKS AND AGING

Increasing age is related to higher health risks, ranging from diminishing motor and sensory functions to a greater incidence of non-communicable diseases (NCDs) such as heart disease and cancer (Exhibit 5).¹¹

Furthermore, as NCDs share common risk factors, many individuals with NCDs do not suffer from just one NCD (termed multi-morbidity), which compounds the impact of ill health. Results from the Well-being of the Singapore Elderly (WiSE) showed that 52 percent of the elderly in Singapore suffer from multi-morbidity.¹²

Exhibit 5: Singapore population and disease prevalence by age bracket, 2015



Source: APRC analysis of data from UN Population Division and Global Health Data Exchange

The relationship between age and ill health presents a significant challenge for societies with aging populations. In Singapore, societal aging is estimated to drive the increase in the prevalence of NCDs such as cancer and diabetes by up to 200 percent by 2030.¹³ Previous research has examined the impact of societal aging on the cost of elderly healthcare, and the impact of rising NCD prevalence in aging societies to insurance premiums. However, less attention has been paid to the consequences of an aging workforce for employers.

In this report, based on the projections of Singapore's aging workforce, we analyze the financial impact on employers through two channels: the cost of direct medical claims, and productivity loss from absenteeism due to ill health.

11. World Health Organization 2015. World Report on Aging and Health.

12. Picco et al. 2016. Economic Burden of Multimorbidity among Older Adults: Impact on Healthcare and Societal Costs.

13. Asia Pacific Risk Center 2017. Societal Aging's Threat to Healthcare Insurance: Impact of Rising Prevalence of Non-Communicable Diseases.

ILL HEALTH AND PRODUCTIVITY

Productivity is crucial to sustainable growth both at the national and business level. With a global decline in productivity, raising productivity has become a priority for many countries and organizations.¹⁴ Singapore is no exception: At the 2016 Singapore Business Federation Productivity Conference and Exhibition, Minister for Manpower Lim Swee Say warned of stagnating productivity growth in the past five years and stressed the importance of increasing workforce productivity as opposed to relying solely on the influx of migrant workers to drive economic growth.¹⁵

In an effort to boost productivity, organizations are increasingly recognizing employees' health as an important determinant. Good health can enhance both the physical and mental capability of employees,¹⁶ while industry specialists have identified health and engagement as key ingredients to productivity.¹⁷

Ill health in the workplace impedes productivity through increasing rates of absenteeism^{18,19} and presenteeism.²⁰ Due to the subjectivity and difficulties in measuring presenteeism reliably,²¹ in this report, we focus on the impact of absenteeism on an organization's productivity.

The impact of illness on productivity can be divided into two key components (Exhibit 6):

1. The initial short-term disruption due to sickness absenteeism, including hospital stay and recovery.
2. Over the longer term, if an employee does not return to "full health", productivity will be impacted due to decreased efficiency or even the loss of the labor resource permanently due to early retirement or death.

At the societal level, the financial impact of ill health is substantial. In APAC, the combined economic impact of absenteeism, presenteeism, early retirement and premature death has been estimated at 9 to 12 percent of national GDPs.^{22,23}

Therefore, strategies that maintain or improve the health of employees play an important role in minimizing productivity challenges associated with an aging workforce.

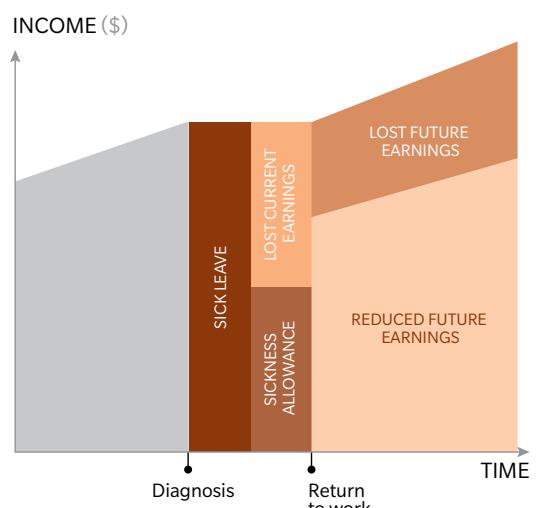
ABSENTEEISM

An employee's absence from work can be voluntary, or involuntary. In this report, we will be focusing on sickness absenteeism, defined as an employee's involuntary absence from work due to health problems.

PRESENTEEISM

The reduced productivity of an employee while at work due to illness or lack of engagement. Presenteeism is often harder to identify than absenteeism as the impact to performance is less apparent.

Exhibit 6: Short-term and long-term potential impact of illness on productivity



Source: Adapted from Access Economics 2007

14. Pan and Ray 2016. Employing Analytics to Enhance Workplace Productivity.

15. Mr. Lim's full speech can be accessed at <http://www.mom.gov.sg/newsroom/speeches/2016/1101-speech-by-minister-at-sbf-productivity-conference-and-exhibition-2016b>

16. Bloom et al. 2005. Health and Economic Growth: Reconciling the Micro and Macro Evidence.

17. Seidl 2014. Evidence-Based & Data-Driven Approaches to Corporate Health Management.

18. Gosselin et al. 2013. Presenteeism and Absenteeism: Differentiated Understanding of Related Phenomena.

19. Loepke et al. 2009. Health and Productivity as a Business Strategy: A Multi-Employer Study.

20. Hemp 2004. Presenteeism: At Work-but out of It.

21. Soeren Mattke et al. 2007. A Review of Methods to Measure Health-Related Productivity Loss.

22. Rasmussen et al. 2016. Economic Costs of Absenteeism, Presenteeism and Early Retirement Due to Ill Health.

23. Sweeny et al. 2015. The Impact of Health on Worker Attendance and Productivity in Twelve Countries.

WHY PRODUCTIVITY MATTERS

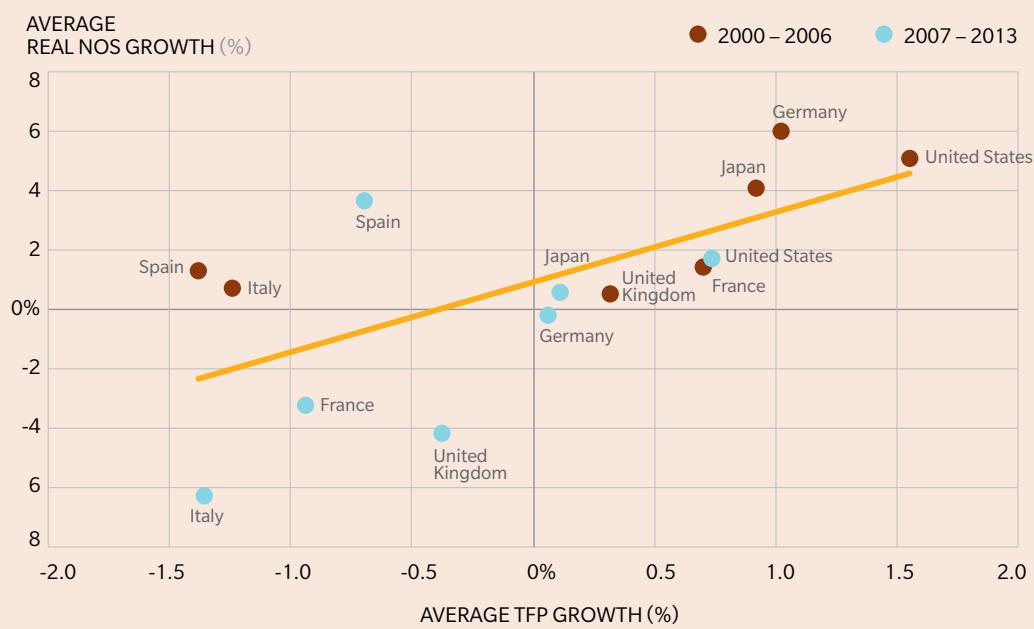
"Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker."

Paul Krugman, *The Age of Diminishing Expectations* (1994)

Productivity denotes the relationship between input and output. It is measured by output quantity (for example, the number of cars manufactured, or more generically profit and revenue) per input unit (typically labor and capital). Both labor and capital (such as equipment, factories and other resources) are often observed to have diminishing returns, where marginal gains in output decrease with each unit increase in labor or capital. As such, in the long run, productivity is crucial in keeping the economy growing.

In most developed markets, there has been a slowdown in both productivity growth and output (Exhibit 7). The Singapore government's gradual shift in emphasis on improving productivity over labor force expansion in recent years reflects the importance of productivity in achieving sustainable growth.²⁴ The same holds true for businesses, with many industry leaders recognizing the role of productivity in firms' profitability, and are investing in strategies to ensure long term growth and competitiveness.

Exhibit 7: Overall slowdown in productivity and real net operating surplus growth between 2000 and 2013²⁵



Note: Total factor productivity (TFP) takes into account not only labor as an input but also the contributions of physical, human, and other intangible capital to the production of goods and services.

Source: Adapted from Pan and Ray 2016 - Employing Analytics to Enhance Workplace Productivity.

24. Hawyee Auyong 2016. Singapore's Productivity Challenge: A Historical Perspective.

25. Pan and Ray 2016. Employing Analytics to Enhance Workplace Productivity.

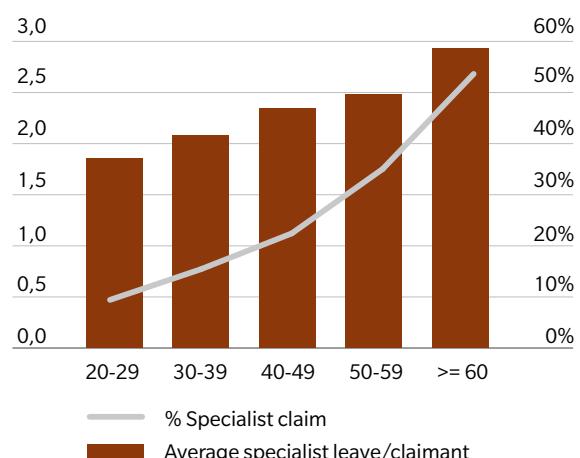
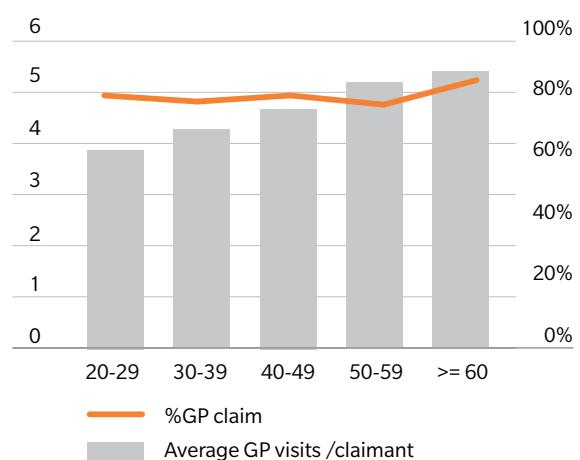
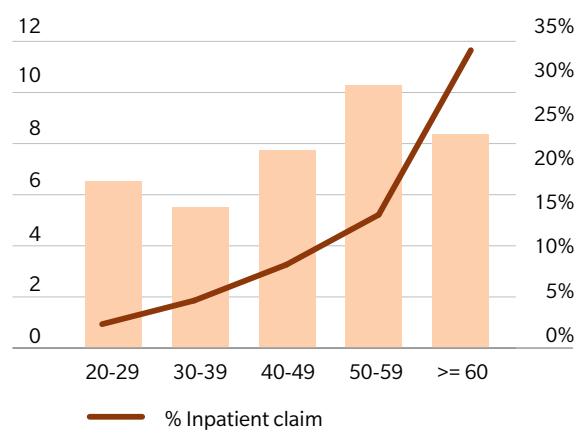
HEALTHCARE UTILIZATION WITH INCREASING AGE

To examine age-related health trends in the workforce we analyzed information from Mercer's longitudinal medical claims database. The dataset comprises 560 organizations in Singapore (including both small- and medium-sized enterprises as well as multi-national companies) with a combined headcount of approximately 68,000 employees (additional details in Appendix A).

Consistent with existing literature, our analysis shows that older employees have a significantly higher rate of healthcare utilization (Exhibit 8).

- Inpatient hospitalization – As employees age, the proportion that require inpatient hospitalization increases from 2.4 percent in those aged between 20 and 29, and peaks at 34 percent in those aged 60 and older. This is compounded by a general trend of longer hospital stays with increasing age.
- Specialist visits – Similarly, the proportion of employees visiting a specialist each year rises steeply with age, from 10 percent in 20-29 year olds, to 53 percent in employees aged 60 years and over. The average duration of medical leave following specialist visits were also higher in older age groups.
- General Practitioners (GP) visits – While most employees, irrespective of age, visited a GP at least once per year, the average number of GP visits increased with age.

Exhibit 8: Prevalence of claims and the duration of medical leave by age group



Source: APRC analysis of Mercer medical claims dataset

CASE STUDY 1

EMPLOYEE-CENTRIC HEALTH INTERVENTION PROGRAM

Targeted intervention programs have proven effective in the prevention and management of diseases. For example, Mercer Marsh Benefits together with wellness partners deliver customized workplace wellness programs to improve employees' knowledge on key chronic diseases (including diabetes, obesity, and cancer), disease prevention, and management strategies (such as nutrition and fitness programs). Through a 12-week targeted intervention program for weight management at one organization, the participants lost an average of 1.7 kg with the highest weight loss at 7.6 kg. In general, after the 12 months of wellness programs, the employees of healthy weight range increased from 23 to 46 percent while overweight and obese employees decreased from 69 to 52 percent (Exhibit 9).

Exhibit 9: Benefits of customized health and wellness intervention programs

12-WEEK TARGETED INTERVENTION PROGRAM

IMPROVE KNOWLEDGE ON DISEASE AWARENESS, PREVENTION, AND MANAGEMENT STRATEGIES

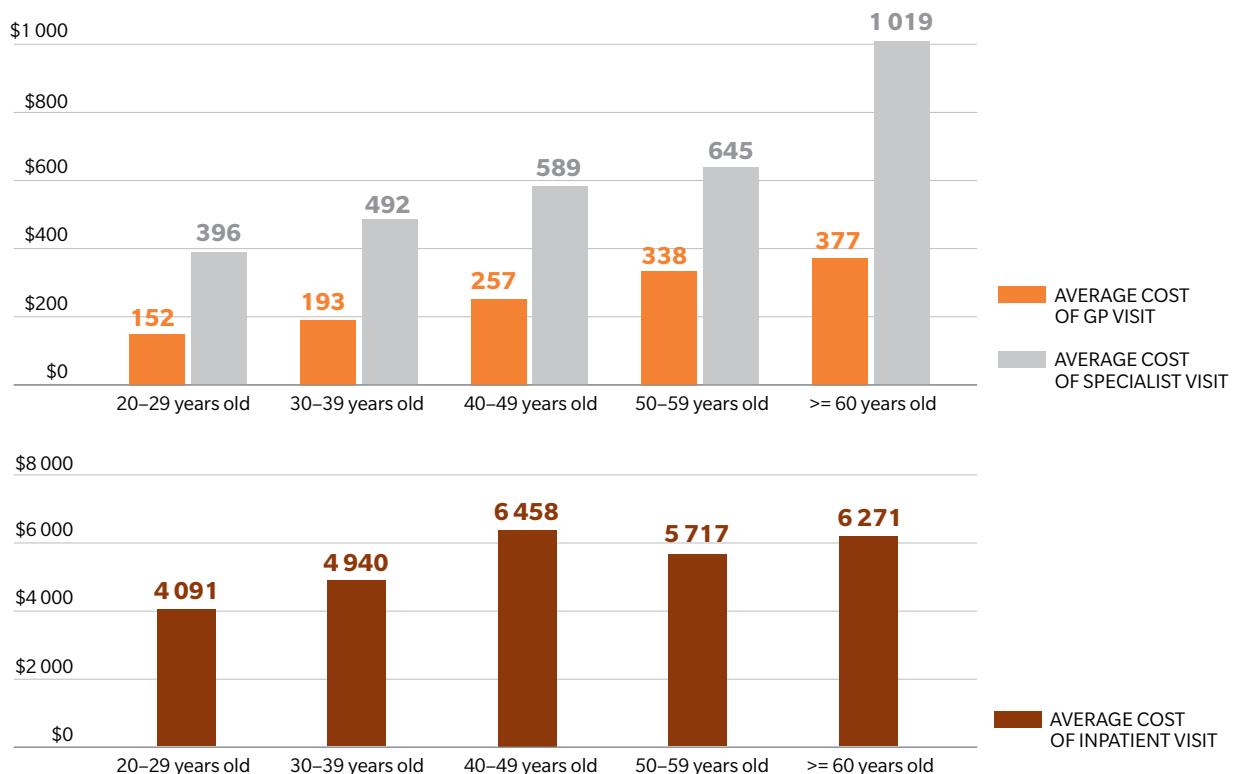


Source: APRC and Mercer analyses

HEALTHCARE COSTS WITH INCREASING AGE

As with healthcare utilization, the average cost of each outpatient and inpatient visit is also found to increase with an employee's age (Exhibit 10). However, the highest average cost for inpatient visits is seen in the 40-49 years age group. This may, in part, be due to attrition bias where individuals who suffer severe and costly medical ailments in their 40s (when chronic illnesses typically emerge) are more likely to retire early. For example, a study in Australia found that people aged 45-55 years are most likely to cite health as the reason for early retirement.²⁶ Indeed, an examination of the profile of medical conditions in the present dataset reveals the progression, from acute conditions such as injury and poisoning to chronic diseases such as neoplasms and diseases of the circulatory system (Exhibit 11).

Exhibit 10: Average cost per inpatient and outpatient visit, by age group



Source: APRC analysis of Mercer medical claims dataset

Exhibit 11: Top four medical conditions (based on total claims cost), by age group

	20-29 years	30-39 years	40-49 years	50+ years
1	Injury and poisoning	Neoplasms	Neoplasms	Neoplasms
2	Diseases of the digestive system	Diseases of the digestive system	Diseases of the digestive system	Diseases of the circulatory system
3	Neoplasms	Diseases of the genitourinary system	Diseases of the genitourinary system	Diseases of the digestive system
4	Diseases of the musculoskeletal system and connective tissue	Diseases of the musculoskeletal system and connective tissue	Diseases of the musculoskeletal system and connective tissue	Diseases of the musculoskeletal system and connective tissue

Source: APRC analysis of Mercer medical claims dataset

26. Australian Center for Financial Studies 2014. Involuntary Retirement: Characteristics and Implications.

CASE STUDY 2

BENEFITS OF SCREENING PROGRAMS AND EARLY DETECTION

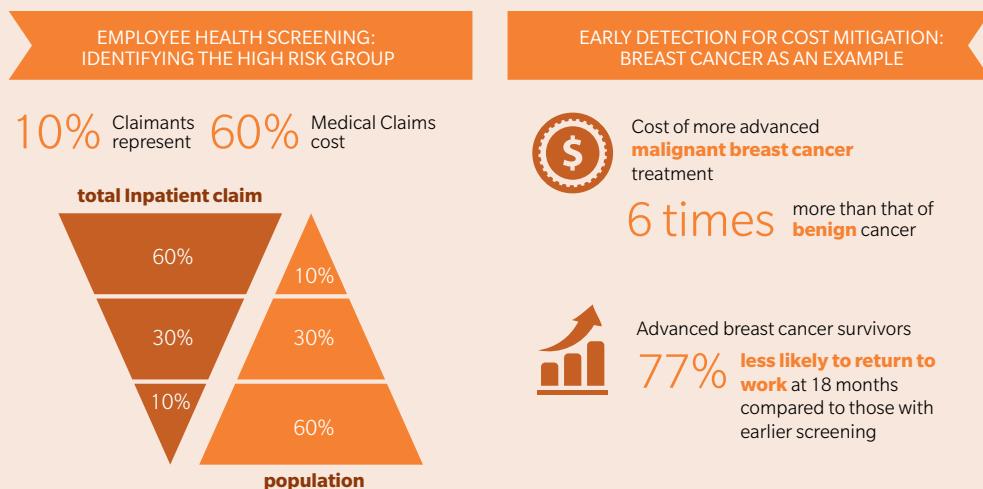
Analysis of Mercer Medical Claims data in Singapore reveals that 10 percent of claimants represent 60 percent of inpatient medical claims costs for employers (Exhibit 12). Consequently, screening programs for high-risk groups can enable earlier detection of disease, which can reduce the need for more expensive medical treatment.

Taking breast cancer as an example, analysis of claims data reveal the potential benefits of earlier detection

- Medical costs – Treatment of more advanced malignant breast cancer is six times more expensive than treatment of benign breast cancer
- Productivity – Among breast cancer survivors, those with advanced breast cancer are 77 percent less likely to return to work (at 18 months) compared to those diagnosed at an early stage.²⁷

Analysis of medical claims data to identify and characterize high risk groups enables Mercer Marsh Benefits to offer customized screening packages to suit the needs of each organization based on its employee profile. This will allow earlier detection of diseases, and avoid the need for high-cost treatment for severe diseases, as well as to reduce productivity loss from employees not returning to work.

Exhibit 12: Potential for cost avoidance through early detection and early treatment



Source: APRC analysis of Mercer medical claims dataset

27. Bouknight et al. 2006. Correlates of return to work for breast cancer survivors.

IMPACT OF AN AGING WORKFORCE: PROJECTIONS FOR SINGAPORE IN 2030

The impact of ill health in an aging workforce for employers in Singapore is examined based on two components:

1. Direct medical cost, based on age-specific medical claim costs per employee
2. Productivity loss due to absenteeism, based on the total work days lost due to medical illness and the opportunity cost (estimated by median salary and gross national income (GNI) per capita)

Projections for these parameters in 2030 are based on the demographic trends of the resident, full-time employed workforce as described in the previous sections.

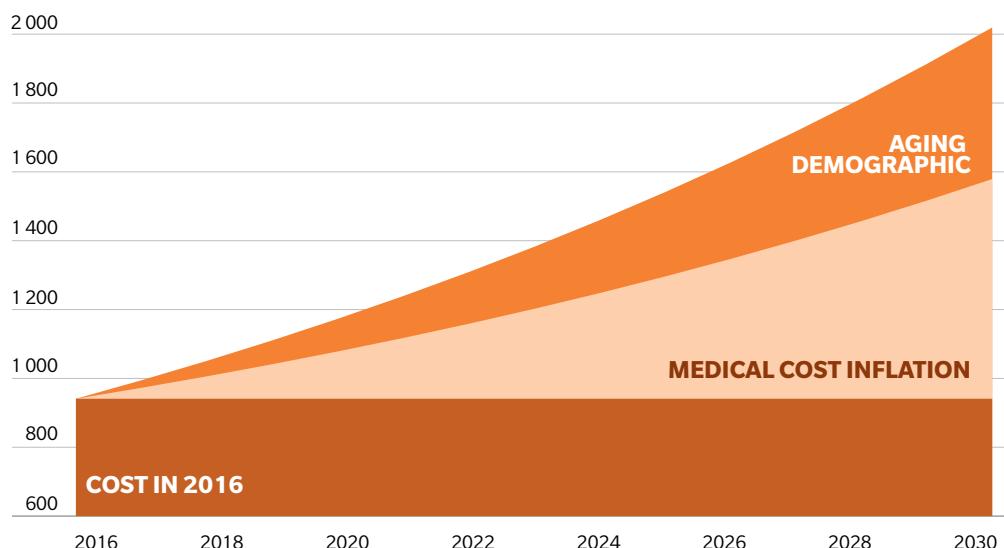
In this report, based on the projections of Singapore's aging workforce, we analyze the financial impact on employers through two channels: the cost of direct medical claims, and productivity loss from absenteeism due to ill health.

RISING DIRECT MEDICAL COSTS OF AN AGING WORKFORCE

With employers providing healthcare insurance for their employees, the increase in medical expenses are the most visible and direct cost for employers. In addition to inflation for the unit cost of healthcare products and services, aging of the workforce will drive an increase in the utilization of healthcare services, which will result in a significant increase in overall costs.

Based on current trends the average medical cost per employee is projected to increase 108 percent, from S\$946 per employee in 2016 to S\$1,973 in 2030 (Exhibit 13), representing a mounting financial burden for employers. Through an increase in demand for medical services, the aging demographic contributes to 41 percent of the increase in medical costs, while inflation accounts for the remaining increase.

Exhibit 13: Projected medical claim cost increase composition



Source: APRC analysis of Mercer medical claims dataset

CASE STUDY 3

INTEGRATION OF EMPLOYEE HEALTH PROGRAMS

Mercer Marsh Benefits designs integrated healthcare “hubs” or platforms for employers to coordinate and deliver health programs across multiple vendors (Exhibit 14). In addition to improving efficiency and cost savings, the platform includes analytics capabilities to enable data capture (including expenditure on programs, health outcomes), allowing the measurement, assessment, and continued improvement of health programs.

Exhibit 14: Benefits of customized health and wellness intervention programs

INTEGRATION OF EMPLOYEE HEALTH PROGRAMS

DESIGN OF INTEGRATED PLATFORM TO COORDINATE AND DELIVER PROGRAMS AND CAPTURE DATA

Increase coordination and accounting of health program spending



16.6%
decrease in total
paid medical claims after 18 months

Absenteeism due to sickness reduced by

1 FULL DAY



Total cost savings of **\$6.4 million**

The estimated increase in medical costs is likely conservative as the base case analysis focuses on the impact of societal aging, and does not account for several other potential cost drivers:

- Age-specific incidence rates of diseases are assumed to remain constant. Change in disease risk factors such as smoking, inactive lifestyles, and unhealthy diets have been on the rise, and will further increase healthcare expenditure.
- Increase in medical services delivered to each patient, due to increased access, introduction of new technology, or medical over-servicing, will further drive costs upwards. Indeed, if medical over-servicing contributed a two percent increase in healthcare services each year, medical costs per employee would rise by 175 percent by 2030.
- Potential change in healthcare funding by the Singapore government. A reduction in governmental spending or subsidies on healthcare would shift a greater burden of medical cost to the private sectors, namely to individuals and employers.²⁸
- Demand for healthcare services is expected to rise due to societal aging and other factors. However, the volume of care provided may be limited by the supply capacity of healthcare services. Unless there is significant change in the healthcare system, such as the deployment of managed care or value-based care techniques, this could potentially result in higher price inflation or restrict access to adequate healthcare for patients.

Source: APRC and Mercer analyses

28. Asia Pacific Risk Center 2017, Societal Aging’s Threat to Healthcare Insurance: Impact of Rising Prevalence of Non-Communicable Diseases.

PRODUCTIVITY LOSS DUE TO SICKNESS ABSENTEEISM

Productivity loss from sickness absenteeism per employee is estimated to increase by 89 percent from 2016 to 2030 due to aging of the workforce. The financial impact of increasing days lost due to ill health of an aging workforce was estimated using two measures:

- The national median salary was used. It is likely a conservative approach as salary often underestimates the opportunity cost for the firm, as typically potential revenue generated per employee is higher than their salary.²⁹
- To reflect the impact at the national level, GNI per capita was applied.

Exhibit 15: Projected increase in productivity loss due to sickness absenteeism in an aging workforce

Financial Indicator	Estimated annual growth rate ³⁰	2016 (per employee)		2030 projections (per employee)		
		Days lost	Productivity loss	Days lost	Productivity loss	% change vs 2016
Median salary	3.7%		S\$1,041		S\$1,903	83%
GNI per capita	0.9%	5.13	S\$1,455	5.64	S\$1,812	25%

Source: Analysis from claims data

Based on our analyses, the productivity loss due to sickness absenteeism at the national level, estimated using GNI per capita, is projected at S\$3.3 billion in 2030, a 43 percent increase from 2016. The three main drivers of this trend are (1) the aging workforce, which leads to an increase in days lost, (2) the increase in the number of full-time resident employees, and (3) GNI per capita growth rate. For reference, research has found that the cost of presenteeism due to ill health is estimated at 2.3-2.8 times the cost of absenteeism.³¹ Using the lower bound estimate, presenteeism could cost S\$7.6 billion by 2030.

29. CIRCADIAN 2005. Absenteeism: The Bottom-Line Killer.

30. Singapore Department of Statistics 2017. Average growth rate taken for the three year period 2014-2016.

31. Rasmussen et al. 2016. Economic Costs of Absenteeism, Presenteeism and Early Retirement Due to Ill Health.

STRATEGIES TO ADDRESS CHALLENGES OF AN AGING WORKFORCE

Our analysis shows that an aging workforce is associated with significant financial impact, through increase in direct medical claim cost and productivity loss due to ill health. Therefore, addressing the fast-changing demographic in the workplace and its consequences on health is increasingly pertinent for employers in Singapore.

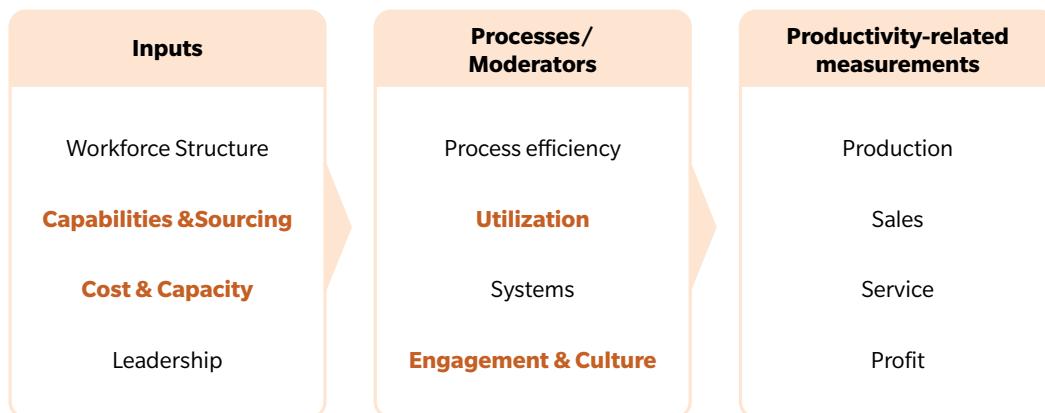
However, while an aging workforce may present challenges related to higher healthcare needs, older workers are associated with advantages such as greater firm-specific knowledge, and lower turnover rates.³² Accordingly, if managed appropriately, diversity of age at work can serve to improve productivity.

Examination of the Mercer Workforce Productivity Drivers framework³³ (Exhibit 16) highlights the impact of an aging workforce on multiple drivers. While many organizations typically focus on business outputs, it is important for organizations to examine productivity inputs and processes to drive sustainable improvements.

Among productivity inputs, an aging workforce has an impact on:

- Capabilities and sourcing – In an aging workforce, a significant proportion of employees will be reaching retirement age. Consequently, companies risk losing the valuable skills and experience of departing older employees.
- Cost and capacity – As analyzed in this report, the higher risk of ill health in an aging workforce will impact labor costs and available man-hours.

Exhibit 16: Mercer Workforce Productivity Drivers framework and the areas affected by an aging workforce and associated health risks



Productivity Drivers affected by the aging workforce and associated health risks

32. Nalbantian 2014. Gauging the productivity of older workers. Adapting to an aging workforce. Stanford Center on Longevity.
33. Pan and Ray 2016, "Employing Analytics to Enhance Workplace Productivity."

Related to processes and moderators:

- Utilization – The higher incidence and severity of illnesses will impact on the available productive hours in the workforce. This can manifest in absolute lost time (absenteeism), as well as decreased productivity at work (presenteeism). While this can be conceived as an input problem (cost and capacity), organizations can struggle to accommodate the health needs of older employees to maximize their productivity.
- Engagement and culture – Employers will need to ensure that organizational conditions enable high levels of employee engagement. Flexible working arrangements, as well as health and benefits programs are important in addressing the changing and varied needs of both young and old employees.

Organizations need to adapt to the current demographic trends by implementing strategies to mitigate the higher costs of ill health and maximize the productivity of an older and potentially shrinking workforce. This includes workforce analytics to characterize productivity drivers, as well as, evidence-based workplace strategies such as health initiatives, workplace redesign, and return-to-work programs.

CASE STUDY 4

RETURN-TO-WORK (RTW) PROGRAMS

Workplace strategies such as RTW programs are an important tool for organizations to retain valued employees and to enhance the productivity of the workforce.

Such programs are designed to return an injured, disabled, or temporarily impaired worker to the workplace as soon as medically feasible. This is an effective way to increase productivity and manage cost of employees' medical, workers' compensation or disability claims. These programs can be implemented for occupational injuries as well as non-occupational medical conditions. A formal RTW program includes:

- Job/tasks bank of suitable transitional duty assignments that can be assigned to employees returning from injury or other medical conditions.
- Clear policies on eligibility, duration limits, compensation, roles and responsibilities for both the employers and the employees.
- Communication tools to provide detailed information about the program and to gather data on employees' work capacity.
- Program performance measures to systematically track outcomes, such as cost reduction, number of claim incidents and increase in productivity.

Successfully implemented RTW programs by Marsh Risk Consulting have been able to reduce incurred cost by as much as 60 percent and indemnity claims by 19 percent.³⁴

34. Marsh Risk Consulting 2011. Return-to-Work Solutions.

CASE STUDY 5

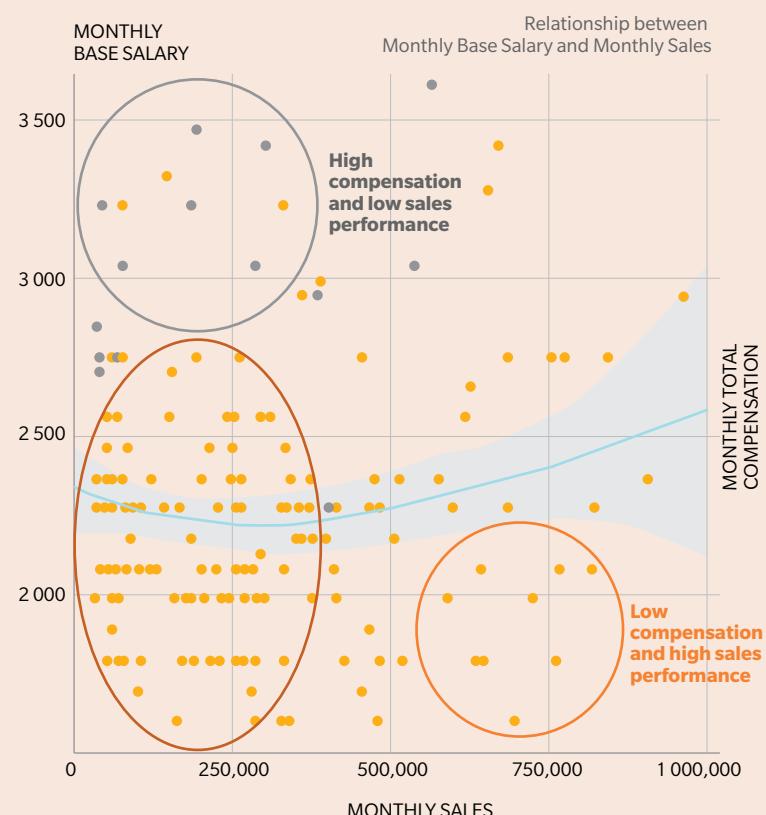
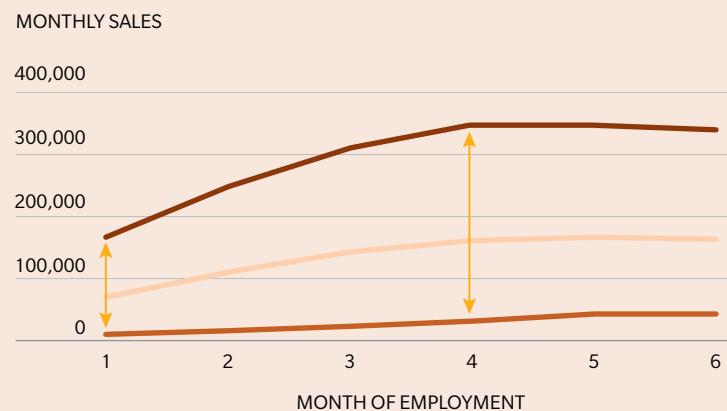
ENHANCING PRODUCTIVITY WITH WORKFORCE ANALYTICS

Mercer's application of workforce analytics on performance data has identified different levels of productivity among employees. The result (Exhibit 17) shows large divergence in performance levels over time – of high, average, and low performers.

Further analysis revealed drivers for the difference in performance. For example, analysis of productivity and compensation revealed conditions influencing employee performance, such as under/over compensation. This enabled development of actionable insights that lead to:

- Increased productivity through identification and proliferation of conditions that supported a shorter time to peak performance for new hires
- Improvement in talent and staffing model by identifying traits and skills of high sales performers
- Optimization of compensation structure to ensure greater alignment with performance and improve talent retention.

Exhibit 17: Identification of productivity drivers through workforce analytics



Source: Adapted from Mercer analyses and Pan and Ray 2016 - Employing Analytics to Enhance Workplace Productivity

1. WORKFORCE ANALYTICS

Analysis of workforce data (for example, medical claims costs, compensation and productivity measures) can help optimize talent management to enhance overall organizational performance by uncovering causes and conditions impacting productivity. It also has the potential to provide tailored solutions for productivity improvement for employees in different departments, career stages, age groups, and health status. Workforce analytics include:

- Identifying organizational causes and conditions that affect productivity
- Determining metrics or indicators that measure productivity
- Ongoing trends contribution to productivity trends

Once these factors are known, strategies can be developed to modify them in a systematic manner to lift productivity. For example, as demonstrated in this publication, analytics can reveal demographic changes in an organization, which can be combined with employee health and performance measures to identify employee archetypes where productivity is likely to be affected.

Exhibit 18: Potential impact of workforce strategies



2. WORKPLACE STRATEGIES

Workplace strategies have shown to be effective in lowering costs, improving productivity, and increasing engagement. These strategies include health programs, redesigning the physical workplace, implementing flexible work arrangements (FWA), and initiating RTW programs (Exhibit 18).

Health and wellness programs are strategies to improve health and reduce incidence of illness that are pertinent in an aging workforce. As discussed in Case Study 1, well-designed health intervention programs have been shown to be effective in improving employees' health, which in turn can reduce overall cost, and enhance employee engagement (see Case Study 3). Similarly, targeted screening programs for high-risk groups (see Case Study 2) enable earlier detection of diseases, which can reduce the need for expensive medical treatment, as well as reduce productivity loss from employee absenteeism due to illness.

Redesigning the physical workplace can reduce the risk of physical-related injury and improve operational efficiency. Improving workplace ergonomics, for example, can significantly reduce the financial costs of musculoskeletal injuries and disorders. Programs such as Marsh Risk Consulting's ergonomic review and resolution system have been able to save organizations \$1-3 million in claims costs.³⁵

Employers can also leverage technology to reduce the physical demands of jobs, particularly those with substantial manual repetitive tasks. This is especially important for older workers or those with chronic diseases, where fatigue is a major issue.³⁶ For example, Lawry's The Prime Rib, a restaurant in Singapore, successfully redesigned its workplace by automating the ordering process, which has significantly reduced the physical strain on workers. The restaurant reported high satisfaction among older employees as well as a 30 percent improvement in workflow efficiency.³⁷ To support such initiatives, the Singapore government offers grants for employers through the WorkPro scheme to redesign their workplace in anticipation of an aging workforce.³⁸

Flexible work arrangements can be a key deciding factor for older employees to stay in the workforce. However, only 35 percent of companies say that FWA is a core part of their policy even as 56 percent of employees want their company to offer more flexible work options.³⁹ The Ministry of Manpower in Singapore found that resignation rates were lower among firms that provide formal FWAs and longer entitlement leave (15 days and above).⁴⁰

Therefore, well-designed and implemented FWAs offer organizations the opportunity to enhance productivity and reduce costs related to lateness, absenteeism and talent attrition. For example, telecommuters are found to be 20 percent more productive on average as they are allowed to work offsite.⁴¹ Telecommuting can be a valuable tool for employees who are recovering from a medical operation. In turn, accommodativeness and perceived discrimination of illness in the workplace has shown to be a significant predictor of an employee's likelihood of returning to work after recovery.⁴²

Return-to-Work programs. As detailed in Case Study 4, RTW programs are part of a business strategy to retain valued employees and to enhance the productivity of the workforce. These programs are designed to return an injured, disabled, or temporarily impaired worker to the workplace as soon as is medically feasible. Well-designed and implemented RTW programs have proven to be an effective way to increase productivity and manage the cost of employees' medical, workers' compensation, or disability claims.

ORGANIZATIONAL EFFECTIVENESS: BRINGING IT TOGETHER

Organizational effectiveness has people management and organization design at its core. This enables organizations to respond to changing market conditions in terms of evolving customer demands, disruptive technology, new competitive threats, and adapting to the evolving workforce's new skill sets.

Good organization design requires more than adjusting reporting structures – a concerted effort across the broader organization system and operating model is needed to bring this together. However, there is no absolute "best design" as this is dependent on the characteristic and capacity of the organization.

Oliver Wyman's Strategic Workforce Planning Framework lays out the key steps, which include defining the organization's vision, designing the future workforce model, determining the human capital strategies and other changes required, followed by an implementation plan (Exhibit 19). This will enhance the foresight and resiliency of organizations amid a rapidly changing business environment, including the challenges presented by an aging workforce. Successful execution of organizational effectiveness has tangible impacts and benefits including increased efficiency and effectiveness, up to 15 percent reduction in operating costs, increase in productivity, and improved management of talent.

35. Marsh Risk Consulting 2012. Ergonomic Call Intake and Resolution Management.

36. Wevers et al. 2011. The Challenge of the Unstainable Employability of Workers with Chronic Illnesses.

37. Singapore National Employers Federation (SNEF) and National Trade Union Congress (NTUC).

38. Ministry of Manpower 2017. WorkPro.

39. The Straits Times 2013. What older staffs want: Flexi hours, being value.

40. Ministry of Manpower 2016. Conditions Of Employment 2016.

41. Ministry of Manpower 2002. Successful Flexible Work Arrangements: An Employer's Guide.

42. Bouknight et al. 2006. Correlates of return to work for breast cancer survivors.

Exhibit 19: Oliver Wyman's workforce strategy framework



CONCLUDING REMARKS

Singapore's population is aging rapidly, translating to a shrinking and aging workforce. Businesses as well as society as a whole are faced with challenges of managing the financial impact of this demographic transformation. As shown in our analyses, an aging workforce, in effect, raises labor costs through an increase in employee medical claims, and reduction in productive time available due to higher sickness absenteeism.

Consequently, as business leaders and governments design productivity-enhancing changes, it is important for them to consider the implications of an aging workforce in the development of such strategies. A holistic approach that aims to improve the overall health of the workforce, while pre-emptively introducing initiatives to enhance productivity of an aging workforce, will enable organizations to capitalize and maximize the productivity of an aging and potentially shrinking workforce.

Data is being generated at an unprecedented rate with over 90 percent of the currently available data created in the last five years. However, despite big data and analytics becoming mainstream, workforce analytics has generally been underutilized by employers. Therefore, as a first step, organizations should utilize advanced analytical tools to interrogate internal and external data (such as medical cost and talent trends) to pinpoint drivers of productivity. This will inform the development of effective strategies to increase performance and productivity.

Organizations should consider workplace strategies including health and wellness intervention programs, as well as workplace redesign initiatives to help accommodate older workers by significantly reducing aspects of work that are physically straining while enhancing productivity. Other schemes such as FWA or RTW programs enable organizations to better align with older employees' needs and can be effective to retain talent and enhance productivity of an aging workforce.

At the same time, the nature of work is changing, with technology enabling alternative employment models such as part-time/freelance work, telecommuting and the gig economy. Changing work arrangements have also enabled older employees to remain in the job market for longer. It may be argued that the resulting decline of full-time employment could help employers avoid

bearing the burden of an aging workforce. However, from a societal perspective, these financial costs are instead transferred from employers to society. For instance, more pressure could fall on the government to provide sufficient healthcare benefits for aging workers in the gig economy, whose pension coverage has been projected to be largely inadequate.⁴³

As with other issues arising from rapid societal aging, meeting the financial and productivity challenge of an aging workforce will require close cooperation between businesses and the government. Governments can complement health programs in companies by putting forward public health initiatives to encourage a healthier lifestyle, and by continuing to improve the efficacy of the health system. In terms of productivity, governments can facilitate and encourage employers to maximize the performance of the aging workforce through retraining schemes and incentives to support businesses' efforts to invest in technologies that accommodate and enable older workers.

43. Tan and Lim 2017. How Will Evolving Employment Models Impact Retirement Savings

APPENDIX A:

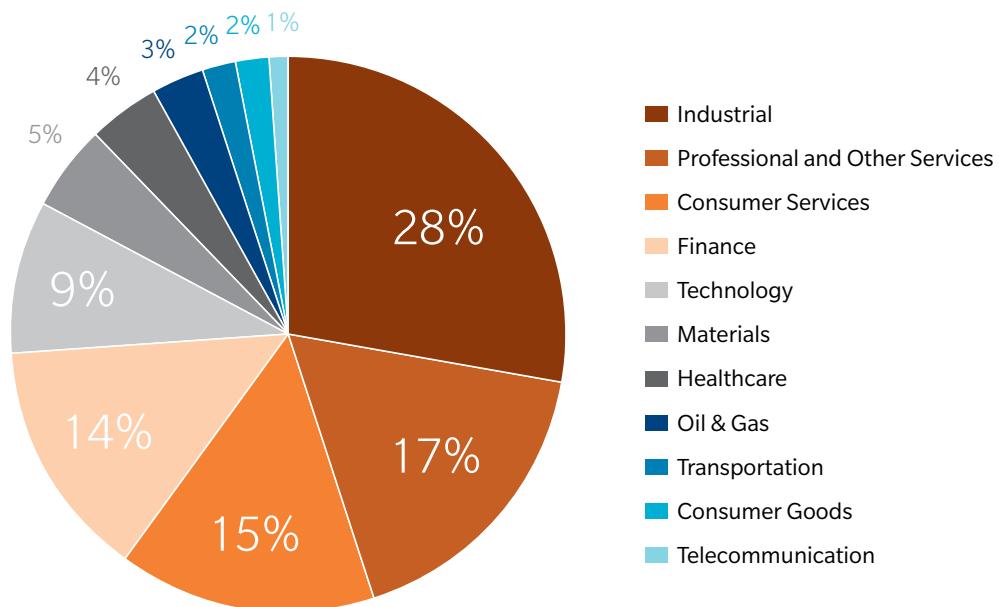
MERCER MEDICAL CLAIMS DATASET

The analyses conducted in this report are based on a sample of the Mercer Claim Database for incurred claim year 2013-2015. The database contains longitudinal claims data of approximately 68,000 insured headcounts. Data are collected from 560 parent companies of a combined total of more than 700 entities.

The Mercer Claim Database comprised claimants whose age ranged from 17-71 years, with a median age of 42 years. The male to female ratio in the sample is 51:49. Professional services, industrial, consumer services, and finance are other major industries from which the Mercer claim data is collected. Exhibit A1 shows a breakdown of company distribution across different industries:

Through an analysis of the sample data, we were able to derive the percentage claimed, the average cost per claimant and average leave days per claimant for GP visits, specialists visits and hospitalizations. These findings form the basis for the estimations in this report.

Exhibit A1: Distribution of parent companies in the Mercer Claim Database across industries



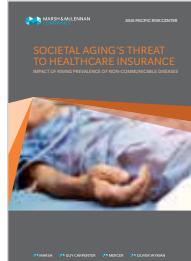
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