

HOW MEDICAL INSURANCE PREMIUMS ARE SPENT AND WHY THEY ARE RISING

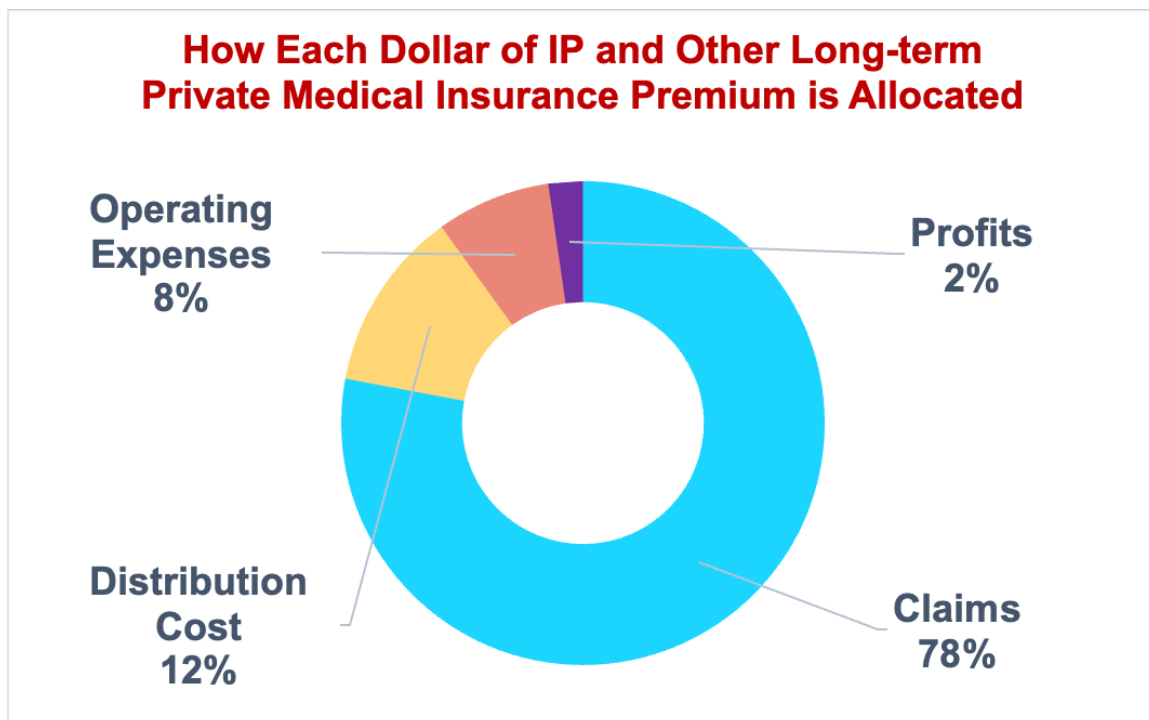
A Discussion Paper



How Medical Insurance Premiums are Spent and Why They are Rising

Feeling anxious about whether you can afford the premiums for your medical insurance, especially your Integrated Shield Plans (“IPs”) and riders? Have you wondered how your premium dollars have been spent? Changes to MediShield Life (“MSHL”) following the MediShield Life 2024 Review will come into force in April 2025¹, with a knock-on impact on IPs and riders. It is an opportune time for a stocktake on how the medical insurance schemes that the population relies upon have fared financially and what we can expect going forward.

According to the statistics published by Ministry of Health (“MOH”), nearly all the premiums collected for MSHL are used to meet current and future claims obligations². As for long-term private medical insurance (of which about 90% relates to IP and riders³), this is how premiums have been spent by IP insurers based on returns filed with Monetary Authority of Singapore (“MAS”)⁴:



Let’s examine each cost component of long-term private medical insurance in turn; which consists principally of IPs that are owned by more than 70% of Singapore’s residents⁵.

Long-term Medical Insurance

Claims – accounting for 78% of premiums collected

What are you paying for?

You are paying for medical care and treatment, medication, implants and other consumables, and use of medical facilities.

What is driving the cost increase?

Effects of Ageing

We all age. As we age, we are more likely to be admitted to hospitals – the cost of which MSHL and IPs aim to cover. From age 40 to age 65, acute hospital admission rate increases by around 4% per year of age⁶. That rate increases to around 6% per year of age after age 65. Complexity involved with each admission is also likely to increase with age as we may be hit with multiple issues at once, requiring longer hospital stay, more medical attention and more medication. Cost of each episode becomes higher. MOH reported that average stay in public hospitals for those aged 65 and above was almost double that for those aged below 65⁷. The impact of ageing should set the tone of medical insurance premium increase that we should expect each year even before medical inflation kicks in.

Staff Cost

Manpower cost accounts for about 60% of healthcare cost⁸. According to data from Ministry of Manpower on gross monthly income from employment⁹, between 2018 and 2023, registered nurse's median income increased by 7% per annum. While this is higher than the national average of 3% per annum, we believe it is justified as nurses were paid below national median income for a long time prior. Median income from employment for general practitioners and specialist physicians have stagnated over the same period¹⁰. Note that income data available do not cover all job roles in healthcare; and for generic roles like human resource and IT, income data for health services are commingled with that for education and social services.

Medical Technology Advancements

Advancements in medical technology can also lead to higher healthcare costs and alter utilization patterns. These include new diagnostic tools and treatment; and can significantly improve patient outcomes at a higher price. Increased use of total knee replacement ("TKR") surgeries in the past 20 years is a prime example¹¹. Previously, when TKR were not widely available, elderly suffering from knee conditions would still have to bear with poorer mobility despite treatment. TKR improved their quality of life but added to the cost of medical services.

Drug prices

Increase in price of medications is another key driver. Pharmaceutical companies do charge different prices in different countries to different purchasers for the same drugs¹². Income level and negotiation power play an important role. Singapore, having a small population and amongst highest GDP per capita, is at a disadvantage. How sensitive consumers are to drug price changes is another key factor; and insurance coverage that pays most of the drug bills lowers that sensitivity and supports higher drug price. Put differently, drug cost inflation is more likely to be linked to how much customers are willing and able to pay either directly and/or indirectly through taxes and insurance. Hence, the introduction of the Cancer Drug List in 2022 to focus on drugs that are clinically proven to be cost-effective is a crucial step to reign in medical insurance premium increase. This is particularly important given the rising cancer incidence rate¹³. Introduction of mandatory co-payment for riders to IPs has a similar effect too in controlling drugs and other cost components which inflation is driven by ability to pay.

Operating Expenses – accounting for 8% of premiums collected

What are you paying for?

You are paying for the costs to run an insurance company. It includes salaries, office rent, utilities, cost of IT infrastructure. Insurers ensure that they can honour their obligations under medical insurance contracts by (i) designing products that meet policyholders needs while having adequate guardrails against fraud, waste and abuse; (ii) set an appropriate premium rate that is both competitive and sustainable; (iii) conduct underwriting and claims assessments to ensure that the guardrails are operating as intended; (iv) perform on-going risk and financial management to ensure that the insurance fund remain solvent and have sufficient buffer to pay claims even when catastrophes or pandemics strike. Some expenses are also spent on general governance and compliance, advertising and marketing.

What is driving the cost increase?

Staff Cost

Manpower cost accounts for over 50% of IP insurers' operating expenses¹⁴. According to data from Ministry of Manpower on gross monthly income from employment¹⁵, between 2018 and 2023, changes in median income varies widely between job roles in the financial services and insurance sector. However, taken in totality, change in median income for the insurance sector appears to be broadly in line with the national trend.

Technology to Improve on Efficiency

Insurers have made significant investments into technologies to improve efficiencies in claims assessments, support quicker claims payout, improve turnaround time for pre-authorisation of medical procedures and issuance of letter of guarantees. Many of these initiatives involves collaborations with the public sector – for example MOH, public hospitals, and Central Provident Fund Board – to ensure smooth information flow between systems to implement changes to MSHL and IPs, and provide better policyholders' experience.

Use of technology appears to be effective in keeping operating expense in check. According to returns filed with MAS, operating expense per long-term medical insurance policy in-force grew at 3.6% per annum for IP insurers over 2019-2023, in line with the growth in Singapore's Consumer Price Index over the same period.

Profits – accounting for 2% of premiums collected

What are you paying for?

Shareholders of insurers contribute capital to the insurance business as a buffer against unforeseen circumstances to ensure your insurers can honour their obligations under medical insurance contracts to you. Just as anyone investing in shares of a company, shareholders of insurers expect a certain return as compensation for the risks that shareholders have taken. This is often described as the “cost of capital”.

What is driving the cost increase?

Insurers in Singapore are subjected to the Risk-based Capital Framework. Under it, the capital that an insurer typically sets aside for long-term medical insurance business is a function of claims cost, operating expense, and an additional margin that provides MAS strong assurance that the insurer can withstand significant financial and non-financial shocks. Based on an observation of the returns submitted by IP insurers to MAS, we estimate that around 20 to 25 cents of capital is typically set aside for every dollar of medical insurance premium collected.

Multiplying the capital set aside with the return on capital expected by shareholders would give the cost of capital. If you expect your investment portfolio to grow at 10% per year and that portfolio includes shareholding in an insurance company that carries out long-term medical insurance business in Singapore, you may expect that insurance company to earn a profit margin of 2-2.5% (= 10% on capital requirement of 20-25%) on that business to compensate you for the risk you take as shareholders.

Distribution Cost – accounting for 12% of premiums collected

What are you paying for?

The relates to “all direct costs such as commissions and bonuses, all indirect costs of benefits and services provided by the insurer in the distribution of its products, agency allowances and profit commissions.”¹⁶ In return, you get help from your financial adviser representative to understand your medical insurance product, provide sound advice to help you choose an appropriate plan based on your circumstances and ability to fund future premiums. You also get support for on-going financial review and assistance in claims filing should you be hospitalised.

What is driving the cost increase?

Distribution cost is typically defined as a percentage of premiums. For premium rates to be sustainable, they in turn are set based on the expected cost of claims, operating expenses and cost of capital discussed above. Distribution cost therefore increases when cost of claims, operating expense and cost of capital increases.

Commission rate also tends to be much higher in the first year of the contract¹⁷. This means that when an IP insurer makes more new medical insurance sales, or have more policyholders switching from another insurer to it, that IP insurer will have to incur higher distribution cost in that particular year. For a policyholder renewing IP plan with the same insurer, distribution cost is about 2-3% of premium. As ownership of IP in Singapore is high and growth in new IP owners are starting to plateau, the share of premium allocated to distribution cost has been

stable in recent years.

MediShield Life

Cost of claims, and therefore the risk carried by the MSHL Fund, are driven up by the same factors that private insurers face. As MSHL is reviewed on a regular basis by the MediShield Life Council, premiums may also increase when claims limits are updated to keep them relevant to latest cost trends and treatment protocols, and with expansion to new benefits.

In contrast with private medical insurance, MSHL does collect more premiums than the cost of claims from younger policyholders. Investing these excess premiums on policyholders' behalf to generate returns can help mitigate the steep increase in premium at older ages via a premium rebate scheme¹⁸. As a result, MSHL premium rate increases at less than 4% per year of age after age 65; slower than the rate of increase in acute hospital admission rate discussed earlier.

MSHL, being a compulsory scheme, does not need to incur distribution cost. MSHL also requires lower allocation to operating expenses for two reasons. First, it has better economies of scale due to the size of the scheme. Next, claims arising from IP holders are handled by IP insurers; with MSHL's share of the bill settled behind the scene between insurers and the MSHL Fund. These allow a much larger proportion of MSHL premiums to be allocated to pay claims.

As MSHL Fund is supposed to be self-sustaining¹⁹, capital buffer in MSHL Fund should increase in tandem with projected obligations to guard against unforeseen circumstances. This is achieved either through investment, or by targeting a reasonable level of surplus that must arise and retained within the fund, or both.

Conclusion

Information provided in this paper aims to help the readers understand what they are paying for when they purchase medical insurance, and why are premiums increasing. Hopefully, this will lead reader to make choices about how they maintain their health, how they consume healthcare, what insurance plans to purchase, and how much monies to set aside and invest to fund future premiums in a way that best fit each reader's own circumstances.

Remember that insurance functions on the concept of risk pooling. The outcome for each policyholder is affected not only by one's own choices, but also the choices that others in the risk pool makes. Everyone can play a part in helping to contain healthcare costs, such as choosing how we consume healthcare service, and ensuring that treatments chosen are necessary and cost-effective. What choices would you make today for the medical insurance that you want in future?

About this Paper

This paper is written by the Singapore Actuarial Society (“SAS”) Health Committee with an aim to improve insured public’s understanding of how their medical insurance premiums are spent, and to promote discourse in Singapore so as to build consensus in the community on what is a fair allocation of medical insurance premiums between stakeholders.

The views expressed in this paper are the SAS Health Committee’s own. These views do not necessarily represent those of either the SAS, its members, officers, employees, agents, or of the employers of SAS Health Committee members.

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Enquiries should be directed to the SAS Secretariat at secretariat@actuaries.org.sg.

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¹ MOH: <https://www.moh.gov.sg/managing-expenses/schemes-and-subsidies/medishield-life/medishield-life-review>

² MOH: <https://www.moh.gov.sg/managing-expenses/schemes-and-subsidies/medishield-life/medishield-life-fund>

³ Life Insurance Association Singapore: https://www.lia.org.sg/media/4142/20240215_lia-4q2023-results_slides.pdf

⁴ Source: MAS, SAS. Covers only IP insurers – AIA, Great Eastern, Income, Prudential, Aviva/Singlife, AXA/HSBC, and Raffles Health – for the years when they are IP insurers between 2014 and 2023. Gross premiums earned from long-term medical insurance is used as the base. Premiums and claims exclude amounts to/ from MediShield Life. Effects of reinsurance is removed.

⁵ Straits Times: <https://www.straitstimes.com/singapore/integrated-shield-plan-lifetime-premiums-vary-widely-across-insurers-moh-comparison-shows>

⁶ MOH: <https://www.moh.gov.sg/others/resources-and-statistics/healthcare-institution-statistics-hospital-admission-rates-by-age-and-sex-hospital-admission-rates-by-age-and-sex-2021>

⁷ MOH: <https://www.moh.gov.sg/news-highlights/details/managing-healthcare-cost-increases>

⁸ MOH: <https://www.moh.gov.sg/news-highlights/details/managing-healthcare-cost-increases>

⁹ MOM: <https://stats.mom.gov.sg/pages/income-summary-table.aspx>

¹⁰ Note that more than 60% of doctors are in public practice, whose main source of income for performing health services is from employment. Doctors in private practice who are owners of their health service business may also derive income from dividend and capital gains.

¹¹ MOH: <https://www.moh.gov.sg/news-highlights/details/managing-healthcare-cost-increases>

¹² CNN: <https://edition.cnn.com/2015/09/28/health/us-pays-more-for-drugs/index.html> ; Mulcahy et. al. “International Prescription Drug Price Comparisons - Current Empirical Estimates and Comparisons with Previous Studies”: https://www.rand.org/pubs/research_reports/RR2956.html

¹³ Singapore Cancer Registry Annual Report 2022.

¹⁴ Source: MAS Form A2.

¹⁵ MOM: <https://stats.mom.gov.sg/pages/income-summary-table.aspx>

¹⁶ MAS Notice 129 "Notice on Insurance Returns (Accounts and Statements)"

¹⁷ SG Budget Babe: <https://sgbudgetbabe.com/how-much-commission-does-your-insurance-agent-earn/>

¹⁸ Medishield Premium rebate: <https://www.moh.gov.sg/managing-expenses/schemes-and-subsidies/medishield-life/premium-rebates>

¹⁹ MOH: <https://www.moh.gov.sg/managing-expenses/schemes-and-subsidies/medishield-life/medishield-life-fund>



Appendix

Table 1a: Combined Profit and Loss and Premium Allocations of 7 Integrated Shield Plan Insurers' Long-term Medical Insurance Business

Year	Gross earned premiums	Gross incurred claims	Management expenses	Distribution costs	Profit (before reinsurance)
2014	\$1,274m	\$792m	\$101m	\$150m	\$231m
2015	\$1,254m	\$985m	\$96m	\$148m	\$25m
2016	\$1,512m	\$1,195m	\$106m	\$183m	\$28m
2017	\$1,707m	\$1,422m	\$125m	\$225m	-\$65m
2018	\$1,752m	\$1,425m	\$140m	\$253m	-\$66m
2019	\$2,030m	\$1,638m	\$166m	\$267m	-\$41m
2020	\$2,182m	\$1,662m	\$170m	\$262m	\$89m
2021	\$2,509m	\$1,881m	\$177m	\$275m	\$176m
2022	\$2,491m	\$1,912m	\$192m	\$271m	\$116m
2023	\$2,662m	\$2,185m	\$209m	\$315m	-\$47m
Allocation (2014-2023)	-	78%	8%	12%	2%
10 yr CAGR (23 vs 14)	8.5%	11.9%	8.4%	8.6%	-
5 yr CAGR (23 vs 19)	3.1%	3.3%	2.6%	1.8%	-

Table 1b: Combined Life Count, Claims Count, and Premium and Claims Per Live of 7 Integrated Shield Plan Insurers' Long-term Medical Insurance Business

Year	Number of Lives	Number of claims	Gross Premium per Live	Gross Claims per Live
2014	3,142k	364k	\$406	\$252
2015	3,213k	505k	\$390	\$307
2016	3,384k	615k	\$447	\$353
2017	3,440k	726k	\$496	\$413
2018	3,538k	791k	\$495	\$403
2019	3,640k	851k	\$558	\$450
2020	3,702k	855k	\$590	\$449
2021	3,755k	996k	\$668	\$501
2022	3,881k	1,025k	\$642	\$493
2023	3,988k	1,129k	\$668	\$548
10 yr CAGR (23 vs 14)	2.7%	13.4%	5.7%	9.0%
5 yr CAGR (23 vs 19)	1.0%	3.2%	2.0%	2.2%

Sources for Table 1a and 1b:

MAS Annual Returns for 7 Integrated Shield Plan Insurers (AIA, Great Eastern Life, HSBC Life/AXA, Income, Prudential, Raffles Health, and Singlife/Aviva)

2019-2023: MAS Annual Returns Form A5 – Long Term Medical Insurance Business only

2014-2018: MAS Annual Returns Form 7 – Long Term Medical Insurance Business only

<https://www.mas.gov.sg/statistics/insurance-statistics/insurance-company-returns>

Note to Tables 1a and 1b:

Premiums and claims exclude amounts to/ from MediShield Life. Effects of reinsurance is removed.

For data in 2014-2018, change in premiums and claims liabilities are net of reinsurance. To estimate the effects of reinsurance on liability movements (and therefore profits before reinsurance), change in net premium liabilities are broken down into change in gross premium liabilities and changes attributable to reinsurers in the same proportion as gross premium received and reinsurance premium paid. Similarly, change in net claims liabilities are broken down into change in gross claims liabilities and changes attributable to reinsurers in the same proportion as gross claims paid and reinsurance recovery received. Only exception is for AIA's premium liabilities where some non-traditional reinsurance arrangements appeared to have been used. Change in gross premium liability is set to 45% of change in gross premium received – implying that loss and expense ratios combine to approximately 90%. The residual change in net premium liability is deemed the change in reinsurance's share of premium liability.



Table 2a: Key Ratios for MediShield/ MediShield Life

Year	Premiums Collected [A]	Change in Required Reserves [B]	Premium Earned [A] – [B]	Claims Paid	Management expenses
2014	\$723m	\$331m	\$392m	\$381m	\$27m
2015	\$1,099m	\$12m	\$1,087m	\$438m	\$11m
2016	\$1,859m	\$1,182m	\$677m	\$745m	\$27m
2017	\$1,882m	\$969m	\$913m	\$836m	\$35m
2018	\$1,914m	\$998m	\$917m	\$922m	\$38m
2019	\$1,923m	\$1,166m	\$758m	\$1,030m	\$34m
2020	\$1,971m	\$974m	\$997m	\$1,046m	\$37m
2021	\$2,343m	\$1,447m	\$895m	\$1,197m	\$49m
2022	\$2,422m	\$892m	\$1,529m	\$1,259m	\$35m
2023	\$2,471m	\$954m	\$1,517m	\$1,384m	\$33m
Allocation (2014-2023)				95%	3%
10 yr CAGR (23 vs 14)			16.2%	15.4%	2.3%
5 yr CAGR (23 vs 19)			8.0%	3.3%	-0.2%

Table 2b: Life Count, Claims Count, Premium and Claims Per Live, and Claims Incidence Rate for MediShield/ MediShield Life

Year	Number of Lives	Number of claims	Gross Premium per Live	Gross Claims per Live	Claims Incidence
2014	3,641k	315k	\$199	\$1,208	8.6%
2015	3,903k	344k	\$282	\$1,272	8.8%
2016	3,934k	507k	\$473	\$1,470	12.9%
2017	3,966k	555k	\$474	\$1,506	14.0%
2018	3,994k	603k	\$479	\$1,529	15.1%
2019	4,026k	684k	\$478	\$1,506	17.0%
2020	4,044k	701k	\$487	\$1,492	17.3%
2021	3,987k	775k	\$588	\$1,544	19.4%
2022	4,073k	784k	\$595	\$1,606	19.2%
2023	4,149k	840k	\$596	\$1,648	20.2%
10 yr CAGR (23 vs 14)	1.5%	11.5%	13.0%	3.5%	9.9%
5 yr CAGR (23 vs 19)	0.3%	2.3%	2.5%	1.0%	2.0%

Source for Table 2a and 2b:

<https://www.cpf.gov.sg/employer/infocenter/reports-and-statistics/annual-reports>

<https://tablebuilder.singstat.gov.sg/table/TS/M810001>

Notes to Table 2a:

Premiums collected under MediShield Life include amounts collected to fund future premium rebates. According to MOH, “To ensure that MediShield Life premiums remain affordable in one’s old age, part of the premiums that policyholders pay when young is set aside, and returned as premium rebates when they are old and likely no longer working.”ⁱ Amounts collected to meet future premium rebate are set aside and forms part of the change in required reserves. To improve comparability to how premium allocation ratios are calculated by private insurers, calculation is made for the “Premium Earned” each year as the premium collected less change in required reserves. This represents a proxy for the part of the premium collected attributable to meet current year claims and expense. Current year claims and expenses are divided by the calculated “Premium Earned” to get the claims and expense ratios. One key assumption in this approach is that nearly all of the change in required reserves relate to future premium rebates. This assumption is deemed reasonable given the expected change in claims liability inferred from trends in claims paid.

Approach taken in Table 2a is different from the concept of “Operating Loss Ratio” presented by MOH where change in required reserves are added to the numerator of the ratio. MOH’s approach is consistent in a sense that both numerator and denominator of ratio calculated for a specific year relate not only to the revenue and cost that year, but all future years for which the current year premium is collected for.

If in any specific year there is a significant change in the split of current year premiums into current claims cost and future rebates, and/or in assumptions about mortality rate and interest rate, it can trigger a step change in the amount of required reserves. Such step change can have distorting effects to ratios calculated both under the approach used by MOH (impacting the numerator) and under Table 2a (impacting the denominator). Calculating allocation ratios over a 10-year period helps to lessen the effects of distortion compared to interpreting the ratios for any specific year. If the assumptions used to determine required reserves and impact from assumption changes are published, results in Table 2a can be further adjusted to better align to practice adopted by private insurers.

Information about number of lives refers to the number of Singapore citizen and permanent residents obtained from the Department of Statistic Singapore as MediShield Life is compulsory.

ⁱ <https://www.moh.gov.sg/managing-expenses/schemes-and-subsidies/medishield-life/medishield-life-fund>



Table 3: Combined Premium Allocation: MediShield/ MediShield Life and Long-term Medical Insurance Business of Integrated Shield Plan Insurers

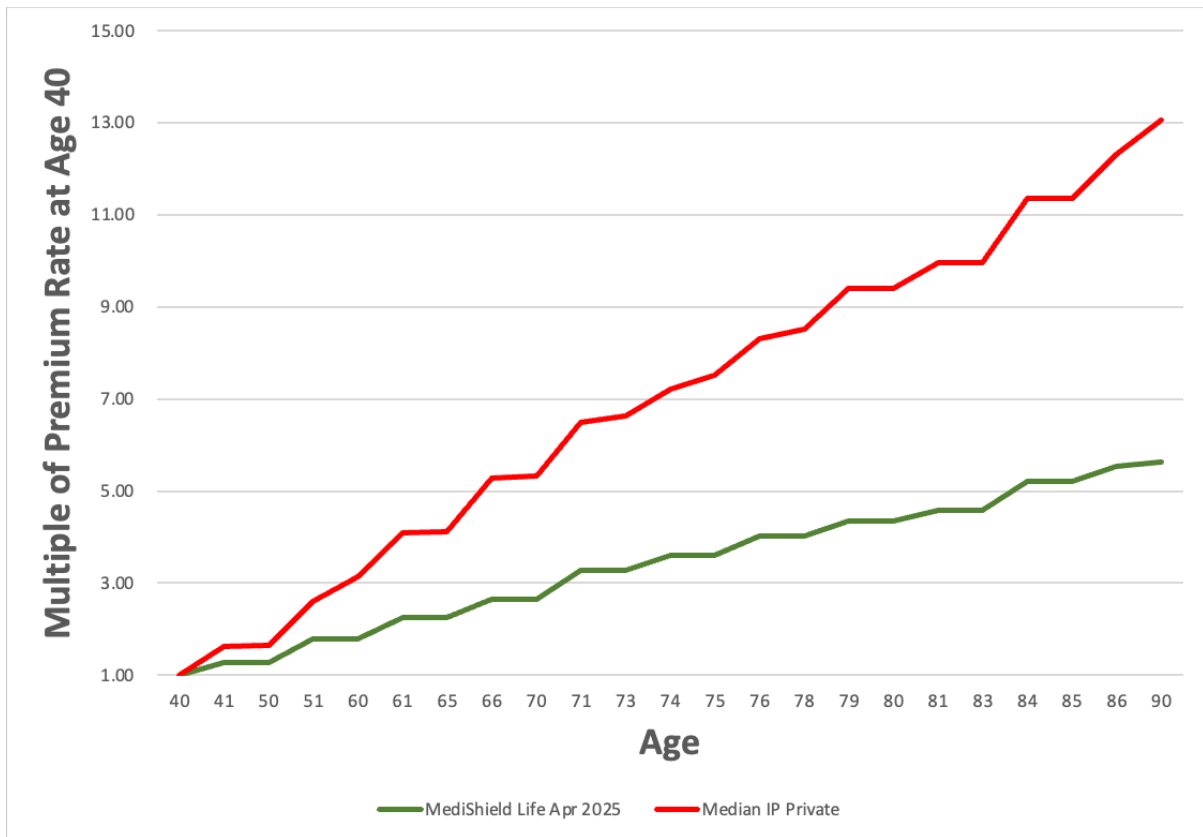
Year	Premiums Earned	Claims Incurred	Management Expenses	Distribution Cost
2014	\$1,666m	\$1,173m	\$128m	\$150m
2015	\$2,340m	\$1,423m	\$107m	\$148m
2016	\$2,189m	\$1,941m	\$133m	\$183m
2017	\$2,620m	\$2,257m	\$160m	\$225m
2018	\$2,669m	\$2,347m	\$178m	\$253m
2019	\$2,787m	\$2,668m	\$200m	\$267m
2020	\$3,179m	\$2,708m	\$206m	\$262m
2021	\$3,404m	\$3,078m	\$226m	\$275m
2022	\$4,020m	\$3,171m	\$227m	\$271m
2023	\$4,179m	\$3,570m	\$242m	\$315m
Allocation (2014-2023)		84%	6%	8%
10 yr CAGR (23 vs 14)	10.8%	13.2%	7.3%	8.6%
5 yr CAGR (23 vs 19)	4.6%	3.3%	2.1%	1.8%

Notes to Table 3:

Table 3 combined the results from Tables 1a and 2a. This represents the combined premium allocations for policyholders of MediShield Life and long-term medical insurance offered by IP insurers.

Chart 1: How Premium Increase from Age 40 Before Considering Effects of Inflation

Premium rate table generally shows medical insurance premium increases with age. Premium tables for nine private IP plans were downloaded from MOH’s websiteⁱⁱ. Also downloaded was the MediShield Life premium table that will come into effect in April 2025ⁱⁱⁱ. Chart 1 below shows how the premium rate for different ages compared to premium rate at age 40. For private IP plans, the median multiples between the nine plans considered is shown.



ⁱⁱ <https://www.moh.gov.sg/managing-expenses/schemes-and-subsidies/integrated-shield-plans/comparison-of-integrated-shield-plans>

ⁱⁱⁱ <https://www.moh.gov.sg/newsroom/government-accepts-medishield-life-council-s-recommendations-to-enhance-medishield-life-scheme---government-support-more-than-offsets-premium-increases>