

**SINGAPORE ACTUARIAL SOCIETY
AFTERNOON FORUM
Thu 7 NOVEMBER 2024**

**OLD AGE MEDICAL EXPENSE INSURANCE
PREMIUM FINANCING**

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INTRODUCTION

- **NOT a ground-breaking paper**
- **Addresses an “elephant in the room”**
- **How can a resident insured under MediShield Life or an Integrated Shield plan prepare for paying the very high premiums at the higher ages?**
- **Paper attempts to raise awareness of the problem and offer some solutions**

INTRODUCTION (2)

- **Call to action to actuaries**
- **In the public interest**
- **May come up with different solutions**

INTRODUCTION (3)

- **CPD Hours – 40 minutes or one hour, depending on whether there will be questions or not**
- **Post your questions in the CHAT box**
- **Please react to the questions you like to hear the answers to with a thumb up**
- **Moderator, Lim Tien Yung, will curate the questions accordingly**

INTRODUCTION (4)

Looking at premiums payable from

- Age 70 (*assumed retirement age – arbitrary*)
- Age 90 (*insured cohorts will be small in size*)
- Age 100 (*yes, people are living past 100*)

INTRODUCTION (5)

Terms Used

- Medical expenses insurance plans (*covers cost of actual medical expenses incurred*)
- MediShield Life Scheme
- Integrated Shield plans
- Central Provident Fund
- Medisave Accounts
- Investment-linked Life Insurance policies

Higher ages = Aged 70 years and above

INTRODUCTION (6)

All views expressed are MY OWN and
NOT of the SAS or the SAS Health Committee

All errors and omissions are MINE and MINE ALONE

But do wish to thank YEE LEE LING for all her help in developing programs to generate the computations used in this paper and checking my paper and slides

FULL PAPER available on request to chichenghock@gmail.com

CHI CHENG HOCK
7 November 2024

AGENDA

Awareness of the Problem

- **Ageing and Inflation**

Pre-funding as a Strategy?

Extreme High Ages (90 Years and Above)

- **High Risk Pool?**

Coverage for the Ultra-Elderly (100 Years and Above)

AWARENESS of the PROBLEM

- **Is there a problem?**
- **Ageing and inflation**
- **But should we anticipate inflation?**
- **But what does this all mean to the insured resident?**

IS THERE a PROBLEM?

Business Times 12 Aug 2024

Genevieve Cua

2% of seniors had given up their Shield Plans, and rely on MediShield Life alone

How can insured residents plan for increasing premiums as they age?

IMPACT of AGEING

- **Medical expense insurance premiums rise with age**
- **Evident from premium tables of MediShield Life and Integrated Shield plans**

IMPACT of AGEING

MEDISHIELD LIFE PREMIUMS 2021 – 2024

Age	Premium \$	Multiple of Age 30 Premium
30	255	1.0
40	397	1.6
50	535	2.1
60	815	3.2
70	1,121	4.4
80	1,620	6.4
90	2,063	8.1
100	2,093	8.2

SHOULD WE ANTICIPATE INFLATION?

Growth in Healthcare Expenditure Per Resident Per Annum %

From	2001	2006	2011	2016	2019	2016
To	2006	2011	2016	2019	2021	2021
Current	3.7%	6.6%	8.9%	2.7%	16.7%	8.1%
Government	7.9%	8.6%	14.3%	5.8%	28.8%	14.5%
Private	1.9%	5.6%	5.1%	-0.2%	2.2%	0.7%
Out-of-pocket	1.1%	2.2%	4.8%	-1.9%	3.8%	0.3%

Current - Excludes capital expenditure

Government - Includes subsidies and MediShield Life

Private - Includes insurance

Source: WHO GHED

SAMPLE MEDICAL EXPENSE INSURANCE PREMIUM GROWTH %PA

MEDISHIELD LIFE	2016 – 2021	2016 – 2024	2021 – 2025
Age 30	5.1	3.2	3.7
Age 70	6.2	3.8	4.3

IP PLAN	A 2006 -09	B1 2015 – 24
Age 30	1.7	2.6
Age 70	5.8	4.0

GST normalised

MEDISHIELD LIFE PREMIUMS 2021 – 2024 and 1 APR 2025

MEDISHIELD LIFE PREMIUMS 2021 – 2024

AGE	2021-2024	1 APR 2025	%PA INCREASE 2021 to 2025
30	255	295	3.7
40	397	503	6.1
50	535	637	4.5
60	815	903	2.6
70	1,121	1,326	4.3
80	1,620	2,187	7.8
90	2,063	2,785	7.8
100	2,093	2,826	7.8

Ministry of Health

Press Release 15 Oct 2024 on MediShield Life Review

Cap the total premium increase at 35%, and phase in the increases evenly over three years, from April 2025 to March 2028. With this, premiums will increase by an average of 22% per policyholder by the end of the third year. **This can be funded through a one-off release of capital from the MediShield Life Fund.** Due to the Monetary Authority of Singapore's adoption of the Risk-Based Capital Framework 2, there is a change in the MediShield Life Fund's risk model which will enable some excess capital to be released, so as to cap the total premium increase at 35% and phase it in evenly. The Fund will remain in a healthy position after this release of capital.

NOTE on MEDISHIELD LIFE PREMIUMS USED in THIS PRESENTATION

- Paper was written before the MOH announcement.
- As such, the **MediShield Life premiums** used in this presentation continue to be those **effective from 2021 to 2024**
- Have not adjusted for the revision in premiums

IMPACT of INFLATION

MediShield Life Premiums (\$)
Inflation Over 40 Years

Age	Inflation Rate	
	0%pa	2%pa
30	255	562
70	1,121	2,474*

****2,474 is 9.7 times 255***

TOTAL COST of PREMIUM AGE 70 – 100 (\$)

Inflation from Age 30 to Age 70	0%pa	2%pa
Total Cost at Age 70 (\$)	55,687*	122,959*
Multiple of Median Wage (2023)	10.7	23.7

Median Wage in 2023 \$5,197 *(Source: Singstat)*

**No inflation after age 70 and no discounting – see later*

PRE-FUNDING as a STRATEGY

Why Pre-fund?

How Much Should an Insured Resident Pre-fund?

How Can an Insured Resident Pre-fund?

Special Purpose Investment-linked Policy

WHY PRE-FUND?

To maintain insurance cover at the level which insured residents wish to enjoy

At lower ages, premiums are almost invisible

- **Withdrawal from Medisave accounts**
- **Withdrawal limits cover even IP premiums**

Loss of earned income at retirement

Even with annuity and passive income, premiums at higher ages can be a drain

HOW MUCH SHOULD AN INSURED RESIDENT PRE-FUND?

Resident Aged 30

Fund to Accumulate to Age 70

Inflation from Age 30 to Age 70	MSHL Premium (\$)	IP Plan B1 Premium (\$)	Difference
0%pa	55,687	118,486	62,799
2%pa	122,959	261,622	138,663

Notes: No inflation from age 70 onwards

Inflation rate of 2%pa is arbitrary

IP Plan B1 premiums are averages of 5 insurers' premiums

No discounting for investment return

HOW MUCH SHOULD AN INSURED RESIDENT PRE-FUND?

Resident Aged 30

Fund to Accumulate to Age 70

Premium from Age 70 to Age 100 Discounted at 3%pa to Age 70

Scenario	MSHL Premium (\$)	IP Plan B1 Premium (\$)	Difference
Inflation from Age 30 to Age 100 at 2%pa	105,004	221,394	116,389
Inflation / Discount Rate from Age 70 to Age 100 at 0%pa	122,959	261,622	138,663

- Note: Discount rate of 3%pa is arbitrary (assumption: resident can earn a real rate of interest on the fund of 1%pa)*

MEDISHIELD LIFE / IP PLAN B1 PREMIUMS 2024

MEDISAVE WITHDRAWAL LIMITS

Age	MSHL Premium (\$)	IP Plan B1 Premium (\$)	Additional Premium (\$)	Medisave Withdrawal Limit	Out-of-pocket
30	255	316	61	300	0
40	397	487	90	300	0
50	535	691	156	600	0
60	815	1,051	236	600	0
70	1,121	1,756	635	600	35
80	1,620	3,153	1,533	900	633
90	2,063	4,305	2,242	900	1,342
100	2,093	5,052	2,958	900	2,058

For simplicity, shall assume that additional premium to be funded in full

INTEGRATED SHIELD PLAN PREMIUMS 2024 EXCESS OVER MEDISAVE WITHDRAWAL LIMITS

Age	Out-of-pocket (\$)		
	Plan B1*	Plan A*	Plan Private*
70	35	450	2,269
80	633	1,550	4,835
90	1,342	2,473	6,956
100	2,059	3,424	8,184
Total Age 70 – 100	35,199	67,074	185,417

Full Additional Premium (B1) 62,799 (at 0% inflation from age 30 to age 100)

****Average of premiums as of 1 Apr 2024 across active insurers with plans***

HOW CAN an INSURED RESIDENT PRE-FUND?

MediShield Life

- **Medisave Account**
 - **Problems?**
 - **Can withdraw for other purposes**
 - **Must monitor balance to ensure adequacy to fund future premiums**

Integrated Shield Plan

- **Options**
 - **Bank**
 - **Investment account**
 - **Investment-linked life policy**

FUNDING for PREMIUMS PAYABLE from AGE 70 to AGE 100

Resident Aged 30

- Inflation Age 30 to Age 100 2%pa
- Discount Rate Age 100 to Age 30 3%pa

	Fund to Accumulate to Age 70 (\$)	Annual Contribution from Age 30 to Age 69 (\$)
MediShield Life	105,004	1,352
IP Plan B1	221,394	2,851
Additional Premium	116,389	1,499

SPECIAL-PURPOSE INVESTMENT-LINKED POLICY

Crystallise thinking of resident

Dedicated investment medium for funding old age premiums

Should be invested in fairly secure and stable interest or dividend bearing instruments

- **Steady accumulation of fund**
- **Reduction in volatility in value of fund**

Is the Supplementary Retirement Scheme (SRS) an option?

SPECIAL-PURPOSE INVESTMENT-LINKED POLICY (2)

Awareness of

- **Adequacy of accumulated fund**
- **Pace of funding**

SPECIAL-PURPOSE INVESTMENT-LINKED POLICY (3)

Insurer can issue annual / semi-annual report

Current value of fund

Target fund

- **Retirement age (e.g. 70)**
- **Premiums payable from retirement age**
 - **May change from time to time**

Annual contribution required to meet target fund

- **Assumptions**
 - **Inflation rate**
 - **Discount rate (investment rate of return on fund)**

SPECIAL-PURPOSE INVESTMENT-LINKED POLICY (4)

Not to prescribe a specific funding strategy

Let the insured resident know whether on track to meet target fund

Insured resident can choose to

- Increase or decrease annual contribution**
- Change to a plan with lower or higher benefits**

SPECIAL-PURPOSE INVESTMENT-LINKED POLICY (5)

Resident Aged 30

MediShield Life Premiums

	Assumptions	Actual Experience (Age 30 to Age 35)
Inflation Rate	2% pa	3% pa
Discount Rate	3% pa	2% pa

- Annual Contribution (\$) 1,352

At Age 35

- Revised Target Fund (\$) 110,254 (*originally 105,004*)
- Accumulated Fund to Date (\$) 7,177
- Revised Annual Contribution (\$) 1,446 (*increase of 94*)

ANNUAL CONTRIBUTIONS REQUIRED at DIFFERENT STARTING AGES

Assumptions

- Inflation Rate 2%pa
- Discount Rate 3%pa

Starting Age	Target Fund At Age 70 (\$)	Annual Contribution \$	% Median Wage
30	105,004	1,352	26
40	86,140	1,758	34
50	70,655	2,553	49
60	57,970	4,909	94

- Median Wage in 2023 \$5,197 (*Source: Singstat*)
- Shorter duration for accumulation overwhelms lower inflation effect

EXTREME HIGH AGES (90 and ABOVE) – HIGH RISK POOL?

- **Are Premiums at Extreme High Ages Reliable?**
- **Risk Pooling – A Solution?**

ARE PREMIUMS at EXTREME HIGH AGES RELIABLE?

Projected Number of Residents Aged 90 and Above

Year	Age 90 and Above	Age 100 and Above	100+ as % of 90+
2030	40,908	2,111	5.2
2040	91,806	4,553	5.0
2050	236,310	11,561	4.9

- $236,310 \times 70\%$ (*assumed insurance penetration*) / 7 (insurers) = 24,000 (approx.)
– **too small a risk pool to price with confidence?**

Source: populationpyramid.net

RISK POOLING – A SOLUTION?

Old-age risk pool

- **Form of reinsurance**
- **Premiums payable into pool**
- **Claims recoverable from pool**
- **Claims assessed by independent panel of adjudicators**
- **Pool managed by specialist insurer (joint venture of all insurers)**
- **Standard plans (Private Hospital / Ward Class A / Ward Class B1)?**

Insurers need not price with excessive margins for volatility of experience

But what about insurance of residents aged 100 and above?

COVERAGE for the ULTRA-ELDERLY (AGED 100 and ABOVE)?

Projected Number of Residents Aged 100 and Above

Year	Age 100 and Above
2030	2,111
2040	4,553
2050	11,561

Technically uninsurable?

COVERAGE for the ULTRA-ELDERLY (AGED 100 and ABOVE)?

One possible solution:

- **Ultra-elderly fund accumulated from levies imposed on all IP policies**
- **Premiums from age 100 held level at premium for age 90 to 99**
- **Claims in excess of premiums covered by the ultra-elderly fund**
- **As number of insured persons age 100+ is relatively small, levies can be absorbed into premiums for all ages easily**
- **Standardised plans may simplify the pooling of risks**

COVERAGE for the ULTRA-ELDERLY (AGED 100 and ABOVE)?

- **Ultra-elderly fund – who to manage and take on the risks?**
- **The devil is in the details**

Thank you

QUESTION TIME

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