



2016 ACTUARIAL REPORT

For the Bermuda Health Council

2016 Actuarial Report for the Bermuda Health Council

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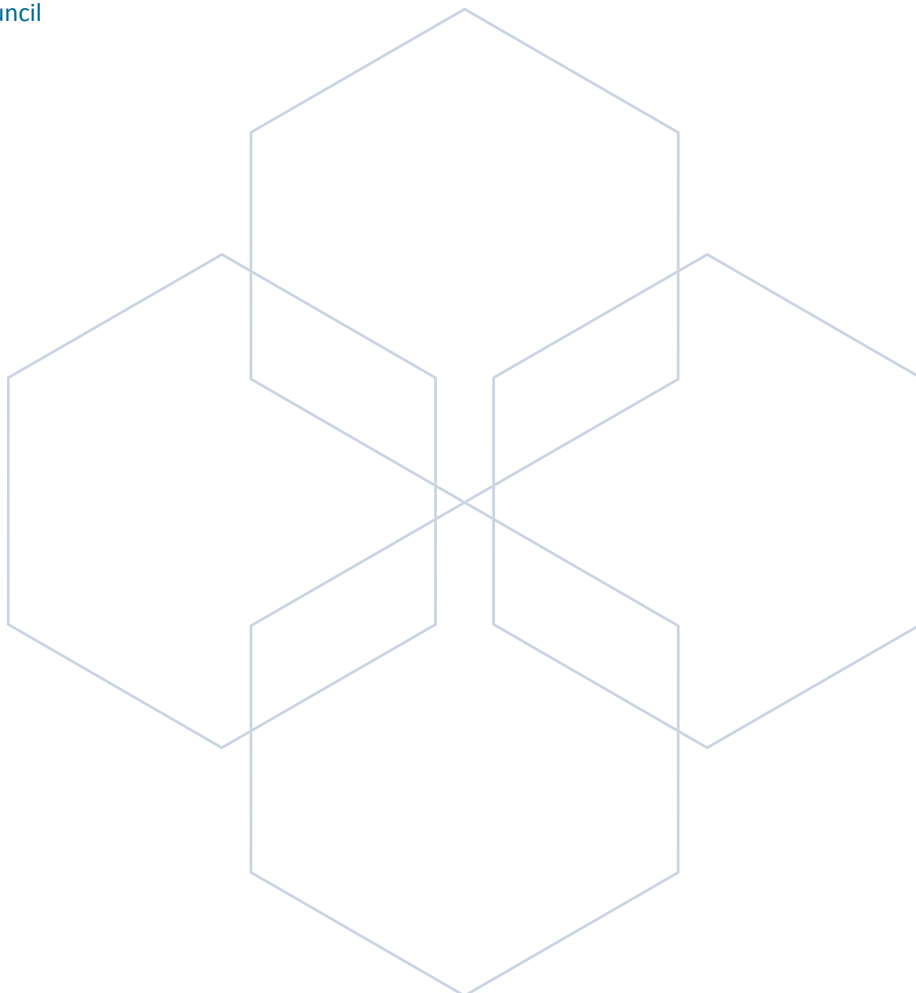
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Abridged Version

2016 Actuarial Report for the Bermuda Health Council

- The Standard Health Benefit (SHB)
- The Mutual Reinsurance Fund (MRF)

March 2017

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Introduction

Morneau Shepell has been engaged by the Bermuda Health Council (Health Council) and we are pleased to present our report on the Fiscal 2016 review (i.e. the period April 1, 2015 to March 31, 2016) of the following programs:

- > the Standard Health Benefit (SHB), and
- > the Mutual Reinsurance Fund (MRF).

The purpose of this report is:

- > to review the statistical and claims information submitted by the insurance companies and approved schemes, as it relates to the SHB
- > to comment on trends over the Fiscal 2015 / Fiscal 2016 period
- > to recommend premium rates that are to take effect in Fiscal 2018¹
- > to analyze any changes in SHB and MRF benefit provisions that are under consideration

In preparing this report we relied on the documentation and information provided to us by the Health Council.

¹ Note that in this report, Fiscal 2018 is referred to as the period June 1, 2017 to May 31, 2018. This is due to changes in the SHB, the MRF and the SPR that will take effect on June 1, 2017.

Section A – Summary & Premium Recommendation

A summary of Fiscal 2016 and Fiscal 2015 insured headcount, claims and costs per-capita is tabled below:

A.1. : Standard Health Benefit Insured Headcount

	Fiscal 2016	Fiscal 2015	% Change
Grand Total	48,669	47,809 ²	1.8%

A.2. : Standard Health Benefit Claims Data

Claim Amounts	Local		
	In-Patient	Out-Patient	Total
Fiscal 2015	\$47,493,000	\$98,530,000	\$146,023,000
Fiscal 2016	\$47,576,000	\$105,676,000	\$153,252,000
Increase	0.2%	7.3%	5.0%

A.3. : Standard Health Benefit Cost per-capita and Loss Ratios

Fiscal 2016		Fiscal 2015 ³		Cost Per-Capita Increase
Local Cost Per-Capita	Loss Ratio	Local Cost Per-Capita	Loss Ratio	
\$262	96%	\$246	90%	6.9%

² This is revised from 47,854 as previously reported.

³ Due to the insurers' overestimation of the outstanding claims for the Fiscal 2015 period, and a revision to the headcount, the cost per-capita and loss ratio is respectively revised to \$246 and 90% compared with \$254 and 93% as previously reported.

A.4. : Standard Premium Recommendation (including the MRF)

	Inc. %	Standard Health Benefit	Mutual Reins. Fund	Total
Fiscal 2017 Premium		\$267.35	\$70.72	\$338.07
1. Increase in BHB Fees	0.0%	\$0.00	\$0.00	\$0.00
2. Local Change in Utilization / Inflation / Services	11.0%	\$29.41	\$0.00	\$29.41
3. Future Changes under the SHB	(20.3%)	(\$54.33)	\$0.00	(\$54.33)
4. Future Changes under the MRF	29.5%	\$0.00	\$20.85	\$20.85
Recommended Fiscal 2018 SPR		\$242.43	\$91.57	\$334.00
% Change in Premium		(9.3%)	29.5%	(1.2%)
\$ Change in Premium		(\$24.92)	\$20.85	(\$4.07)

Please refer to the sections that follow for notes on the above recommendation.

Respectfully submitted,



Howard Cimring, FFA, FCIA

Partner

MORNEAU SHEPELL

March, 2017

Section B – The Standard Health Benefit

B.1. : Introduction

The Standard Health Benefit (SHB), as defined by the Health Insurance (Standard Health Benefit) Regulations 1971, consists of in-patient, out-patient, home medical services and other benefits. The SHB is the minimum package of benefits which must be provided within any health insurance policy sold in Bermuda, including each employer sponsored or health insurance provider's health plan. Further, it is compulsory for each employed (including self-employed) person to have health insurance.

A Standard Premium Rate (SPR) for the SHB is determined annually by the Ministry of Health and Seniors, after taking advice from the Bermuda Health Council which commissions an actuarial review for the SPR. The SPR is the ceiling rate that can be charged to insured persons for the SHB. A health insurance provider cannot charge more than the SPR for the Standard Health Benefits. An employee cannot be required to pay more than half of the SPR for SHB coverage. The SPR allows all insured persons to access the same basic level of SHB health insurance coverage for the same price regardless of their health status.

The SPR is set with reference to the claims experience of all the insured participants. As such, the claims experience (in respect of the SHB component only) across all the health insurance providers is pooled together and a single premium rate reflective of the pooled experience is determined.

B.2. : Fiscal 2016 Claims and Statistical Data

We have analyzed the Fiscal 2016 and Fiscal 2015 insurance company and approved scheme⁴ submissions to the Health Council. A summary of certain data elements and our analysis is tabled below:

Table 1: Headcount

	Average Headcount ⁵				
	F2016	% Total	F2015	% Total	% Change
Private Plans	33,961	69%	33,180	70%	2%
Government Plans	14,708	31%	14,629*	30%	1%
Grand Total	48,669	100%	47,809	100%	1.8%

* revised from that previously reported

In Fiscal 2016, there were five insurers and three approved schemes. In Fiscal 2016, 39% of the insured population was aged 55 and over. This is unchanged from Fiscal 2015 but compares with 38% in Fiscal 2014 and 37% in Fiscal 2013. The estimated average age of the insured population in Fiscal 2016 is 51.3 years old (a 0.3 of a year increase over Fiscal 2015).

The claims are summarized below:

Table 2: Claim Amounts

Claim Amounts	Local		
	In-Patient	Out-Patient	Total
Fiscal 2015	\$47,493,000	\$98,530,000	\$146,023,000
Fiscal 2016	\$47,576,000	\$105,676,000	\$153,252,000
Increase	0.2%	7.3%	5.0%

⁴ An approved scheme is a scheme established by an employer to cover its employees and retirees.

⁵ These figures represent SHB insured persons only (not including the youth that are 100% subsidized by government) and do not represent the total number of lives that are insured.

Effective the beginning of Fiscal 2016 the following changes to the SHB were effected:

- The Bermuda Hospitals Board (BHB) Fee Schedule increased by 1.0%. There was also an increase in the fees related to emergency ambulance services.
- The fees under BHB Schedules 3B and 4B were included in the SHB.
- The lifetime maximum limit in respect of artificial limb coverage increased from \$15,000 to \$30,000.

The cost per-capita and loss ratios for Fiscal 2016 and Fiscal 2015 are tabled below:

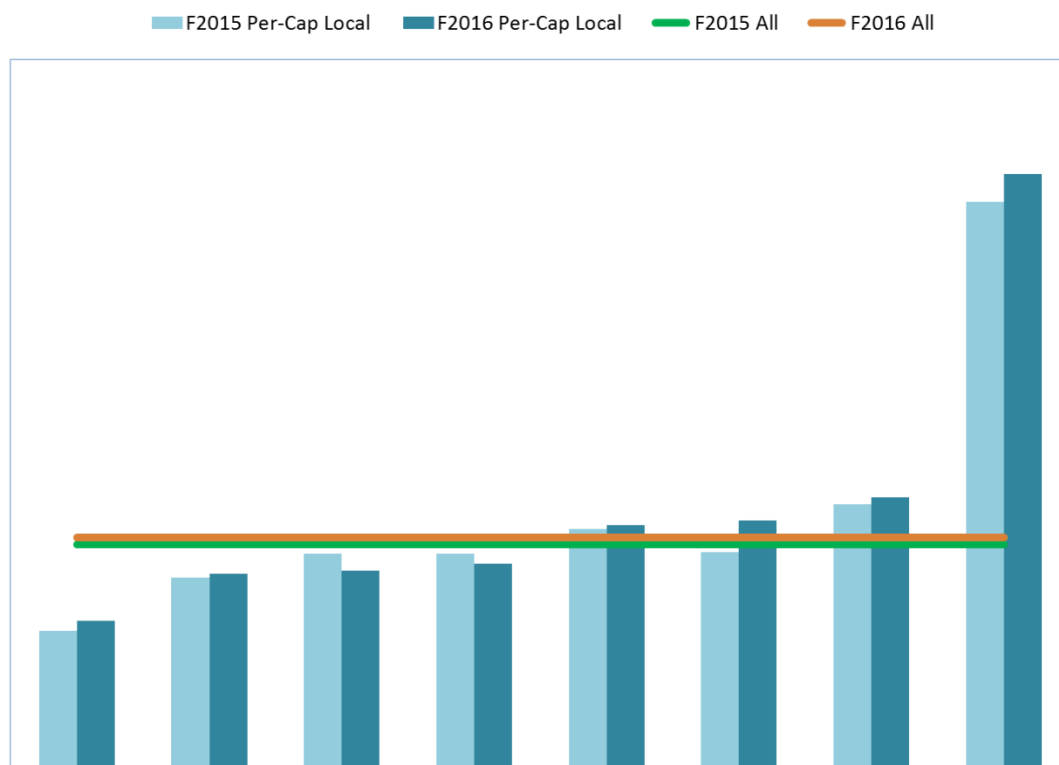
Table 3: Cost Per-Capita and Loss Ratio

	Fiscal 2016		Fiscal 2015		
	Local Cost Per-Capita	Loss Ratio	Local Cost Per-Capita	Loss Ratio	Cost Per-Capita Increase
Private Plans	\$218	79%	\$219	80%	-1%
Government Plans	\$366	133%	\$335	122%	9%
Total	\$262	96%	\$254 ⁶	93% ⁶	3%

The Fiscal 2016 loss ratio is based on a Standard Premium Rate of \$274.33.

The following chart illustrates the variation in the local costs per-capita by insurer / approved scheme, as well as the comparison to the overall cost-per capita. The omission of data points on the chart is deliberate.

⁶ Due to the insurers' overestimation of the outstanding claims for the Fiscal 2015 period, and a revision to the headcount, the cost per-capita and loss ratio is respectively revised to \$246 and 90% compared with \$254 and 93% as previously reported. This gives rise to a 6.9% increase in the cost per-capita over Fiscal 2016.

Chart 1 – Local Costs Per-Capita (by Insurer)

The data supplied by insurers and approved schemes also includes claims data grouped into various age bands. The data has been analyzed and the charts in Appendix 1 present the average per-capita claims by age band. As expected, the charts show an increasing cost per-capita leading up to age 65 (i.e. healthcare costs on average increase with age). At age 65 a decline is expected due to the government subsidy⁷. The increase in the post age 65 Fiscal 2014/15 costs per-capita is due to the revision in the government subsidy.

We have also analyzed In-Patient data supplied by the BHB, the results of which can be found in Appendix 2.

⁷ For those that are age 65 and over, if they satisfy a 10 year residency requirement, the government provides a subsidy for claims under the SHB.

B.3. : The Standard Premium Rate History

The history of the SPR is as follows:

Table 4: SPR and Loss Ratio History

	Standard Premium Rate	% Change	Loss Ratio*
Fiscal 2008	\$152.59	8.3%	100%
Fiscal 2009	\$164.37	7.7%	109%
Fiscal 2010	\$184.01	11.9%	112%
Fiscal 2011	\$209.63	13.9%	108%
Fiscal 2012	\$225.46	7.6%	106%
Fiscal 2013	\$236.73	5.0%	105%
Fiscal 2014	\$282.27	19.2%	94%
Fiscal 2015	\$272.67	(3.4%)	90%
Fiscal 2016	\$274.33	0.6%	96%
Fiscal 2017	\$267.35	(2.5%)	To be determined next year

* based on a comparison of the SPR to the determined claims cost per-capita

B.5. : The Standard Premium Rate Recommendation

The recommendation for the Fiscal 2018 Standard Premium Rate is as follows:

Table 5: Standard Premium Rate Recommendation

	Increase %	
Fiscal 2017 SPR		\$267.35
1. Increase in BHB Fees (adjustment to Fee Schedule)	0.0%	\$0.00
2. Allowance for Change in Local Utilization / Inflation / Services	11.0%	\$29.41
3. Transfer of claims for Dialysis, Transplants & Anti-Rejection Drugs to the MRF	(12.0%)	(\$31.97)
4. Revision to Diagnostic Imaging Fees	(8.6%)	(\$23.03)
5. Changes in Benefit Provisions		
a) Artificial Limbs and Appliances (maximum of \$100,000)	0.3%	\$0.77
b) Palliative Care in a Home Setting and Oral Chemotherapies	Negligible	(\$0.10)
Recommended Fiscal 2018 SPR		\$242.43
% Change in SPR		(9.3%)
\$ Change in SPR		(\$24.92)

Notes

- Other than the changes to the fees mentioned elsewhere in this report, the BHB fees will be maintained at the prior year's rates.
- Over Fiscal 2016, utilization of services increased by approximately 4.0% which compares with the allowance within the SPR which assumed no increase. Further, the SPR anticipated a decline in claims of approximately 2.0% in respect of certain initiatives that did not materialize. In order for SPR to "catch-up" for what actually transpired over Fiscal 2016 and also to make allowance for an estimated 5.0% increase in utilization over Fiscal 2018, the allowance for utilization tabled above has been set at 11.0% (an increase in the SPR of \$29.41). This item will be monitored and if lower utilization were to materialize, the Fiscal 2018 loss ratio will be better than would otherwise have been the case.

3. We understand that with effect from Fiscal 2018, there are a number of changes to the SHB as follows:
 - a) Claims in respect of dialysis, kidney transplants and anti-rejection drugs will be paid by the MRF. This leads to a decline in the SPR of \$31.97 (also see the notes under the MRF premium recommendation).
 - b) Certain diagnostic imaging fees will be revised which will lower the cost of the claims in respect of these services. This leads to a decline in the SPR of \$23.03.
 - c) The artificial limbs and devices benefit is to be expanded to include other non-surgically implanted devices of daily function (e.g. oxygen, ostomy bags) and the lifetime maximum benefit limit is to increase from \$30,000 to \$100,000. The higher lifetime limit increases the SPR by \$0.77.
 - d) Palliative care in the home setting (with government aged subsidy applying) and a defined list of oral chemotherapies will be added to the SHB. These are expected to result in a decline in the SPR by \$0.10.

The total decline in the SPR due to these items is \$54.33.

4. We recommend maintaining the multiplier at 4 times the SPR for those over age 65 and not eligible for the government subsidy (to be eligible for the government subsidy one has to have been resident for a continuous period of not less than 10 years during the period of 20 years immediately preceding the application for payment of the subsidy). The cost (without subsidies) for persons aged 65 and over is estimated to be approximately four times the population as a whole (and the SPR is representative of the cost of the population as a whole). In addition, relevant components of the MRF premium will be subject to a similar multiplier.

Section C – Mutual Reinsurance Fund

C.1. : Introduction

The Mutual Reinsurance Fund (MRF) is funded by a premium which is added onto each health insurance contract. The insurance providers collect a premium from each insured participant and deposit this premium with the MRF. The determination of the premium rate of the MRF rests with the Ministry of Health and Seniors.

The MRF serves the following purposes:

- a) it acts as a catastrophic fund⁸ to cover certain high dollar value claims which are included as benefits under the SHB or allows the introduction and assessment of new and experimental treatments and programs which have no prior established actuarial experience or pricing model,
- b) it transfers funds to the following:
 - the Health Insurance Department of the Ministry of Health and Seniors to sustain HID's role as insurer of last resort⁹ and to support the various healthcare programs (e.g. the Enhanced Care Pilot Program) maintained by HID,
 - the Health Council so that it may continue to fulfill its mandate as it relates to the oversight of insurers, health service providers, the SHB, MRF and other initiatives,
 - to the BHB related to care services, and
 - with effect from Fiscal 2017, to the Consolidated Fund in respect of subsidy payments.

⁸ Since the beginning of Fiscal 2015 it had ceased to function in this capacity however, from Fiscal 2018, it will again function in this capacity.

⁹ HID accepts high-cost participants and has open enrollment policies which impose no terms of underwriting or exclusion of pre-existing conditions.

The history of the MRF Premium is as follows:

Table 6: Premium History

	MRF Premium Rate	% Change
Fiscal 2008	\$21.25	7.5%
Fiscal 2009	\$22.84	7.5%
Fiscal 2010	\$24.43	7.0%
Fiscal 2011	\$26.51	8.5%
Fiscal 2012	\$26.81	1.1%
Fiscal 2013	\$34.88	30.1%
Fiscal 2014	\$43.57	24.9%
Fiscal 2015	\$29.18	(33.0%) ¹⁰
Fiscal 2016	\$63.74	118.4% ¹¹
Fiscal 2017	\$70.72	11.0%

¹⁰ With effect from Fiscal 2015, various claims covered by the MRF were transferred to SHB, becoming payable by the insurers.

¹¹ Various transfers were initiated giving rise to an increase in the MRF premium.

C.3. : The Mutual Reinsurance Fund Premium Recommendation

The recommendation for the Fiscal 2018 MRF Premium is as follows:

Table 7: MRF Premium Recommendation

	Increase %	
Fiscal 2017 MRF Premium		\$70.72
Claims in respect of Dialysis, Transplants & Anti-Rejection Drugs	35.9%	\$25.41
Revision to Transfers		
a) Reduction of the transfer to the BHB	(4.6%)	(\$3.24)
b) Reduction of the transfer to the Pilot Program	(4.0%)	(\$2.82)
c) Reduction of the transfer to HIP	(1.4%)	(\$1.00)
d) Increase in the transfer to FutureCare	3.5%	\$2.50
Recommended Fiscal 2018 MRF Premium		\$91.57
% Change in MRF Premium		29.5%
\$ Change in MRF Premium		\$20.85

Notes

1. Claims in respect of dialysis, kidney transplants and anti-rejection drugs will be paid by the MRF. In addition, dialysis related fees will be revised which will lower the cost of the claims in respect of these services. The changes lead to an increase in the MRF premium of \$25.41.
2. With respect to the transfers:
 - a) The transfer to the BHB is to decline by \$3.24 (from \$16.40 to \$13.16 per month for each insured person).
 - b) The transfer in respect of the Enhanced Care Pilot Program is to decline by \$2.82 (from \$6.19 to \$3.37 per month for each insured person).
 - c) The transfer to HIP and FutureCare will in total increase by \$1.50. In addition, the transfer that was previously directed to the Consolidated Fund (an amount of \$7.53 per month for each insured person) will now be directed to HIP.

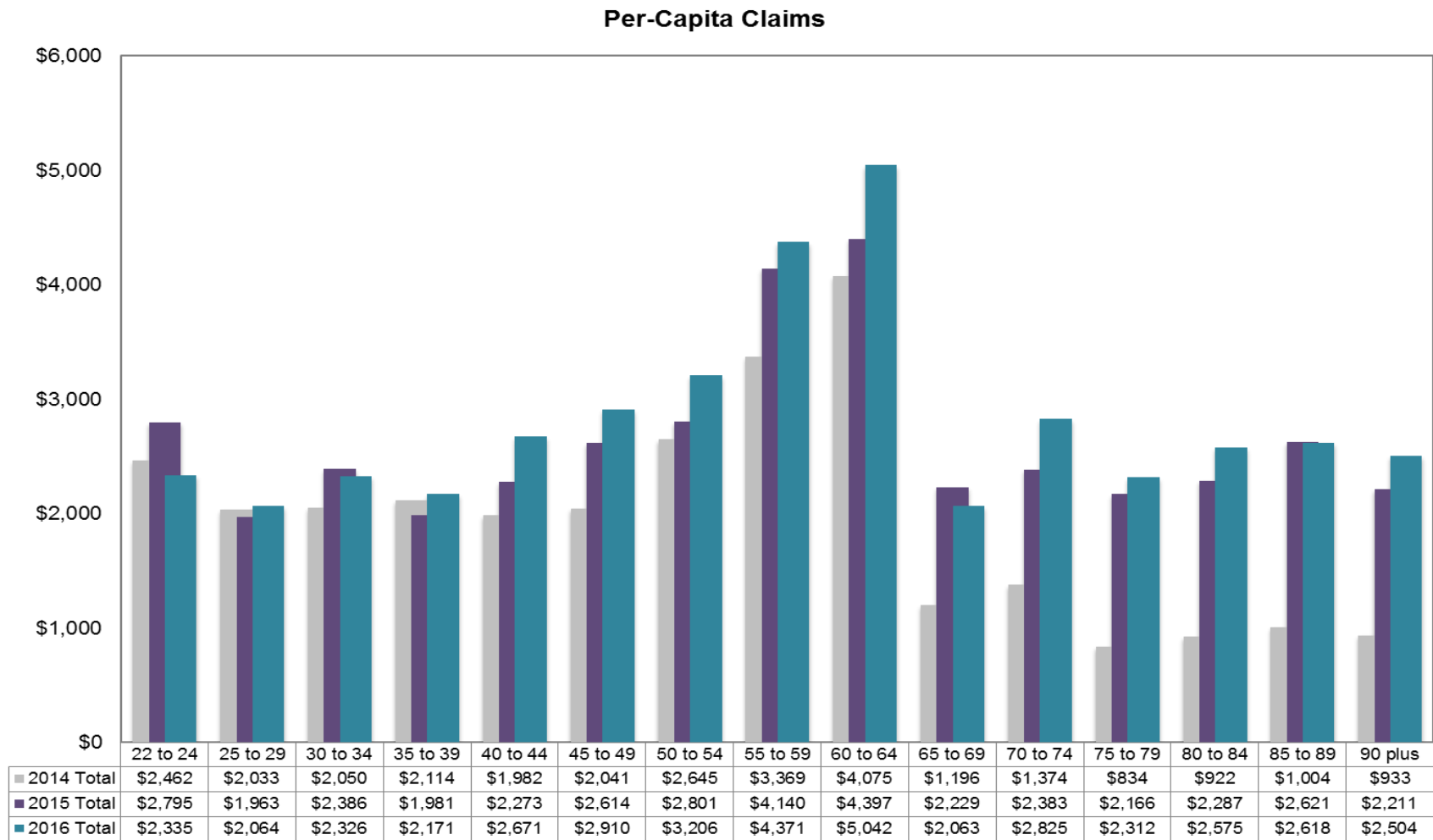
3. The Fiscal 2018 MRF funding allocations are summarized as follows:

Table 8: Fiscal 2018 MRF Funding Allocations

	Funding Rate (per month per member)
FutureCare	\$16.50
Health Insurance Plan	\$31.53
Bermuda Health Council	\$1.09
Enhanced Care Pilot Program	\$3.37
Bermuda Hospitals Board	\$13.16
Dialysis and Transplants*	\$25.41
Operational and Administrative	\$0.51
Total	\$91.57

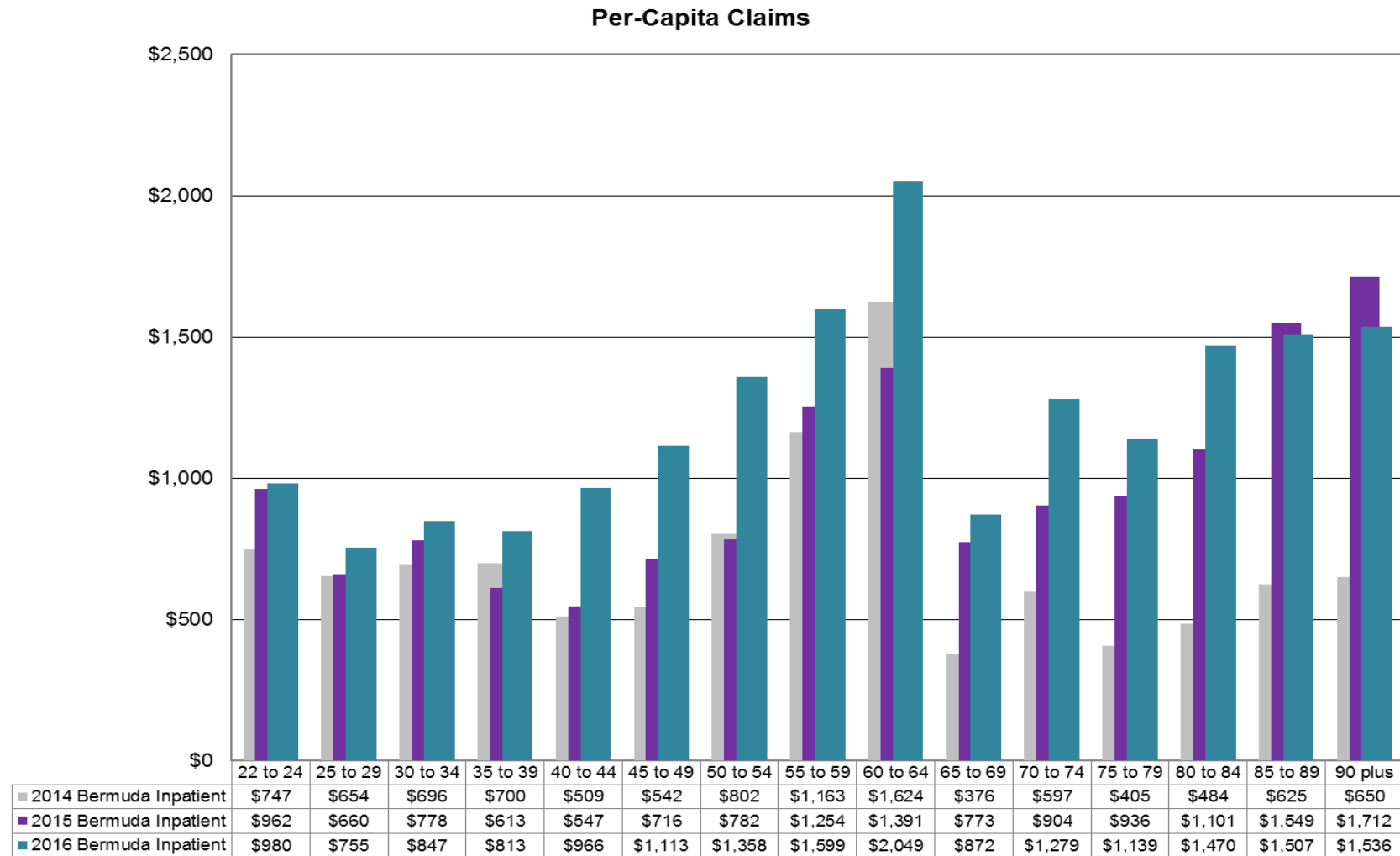
* The multiplier for those over age 65 and not eligible for the government subsidy is 4 times the rate.

Appendix 1 – Standard Health Benefits (Total Annual Per-Capita Claim Costs – Local Claims)

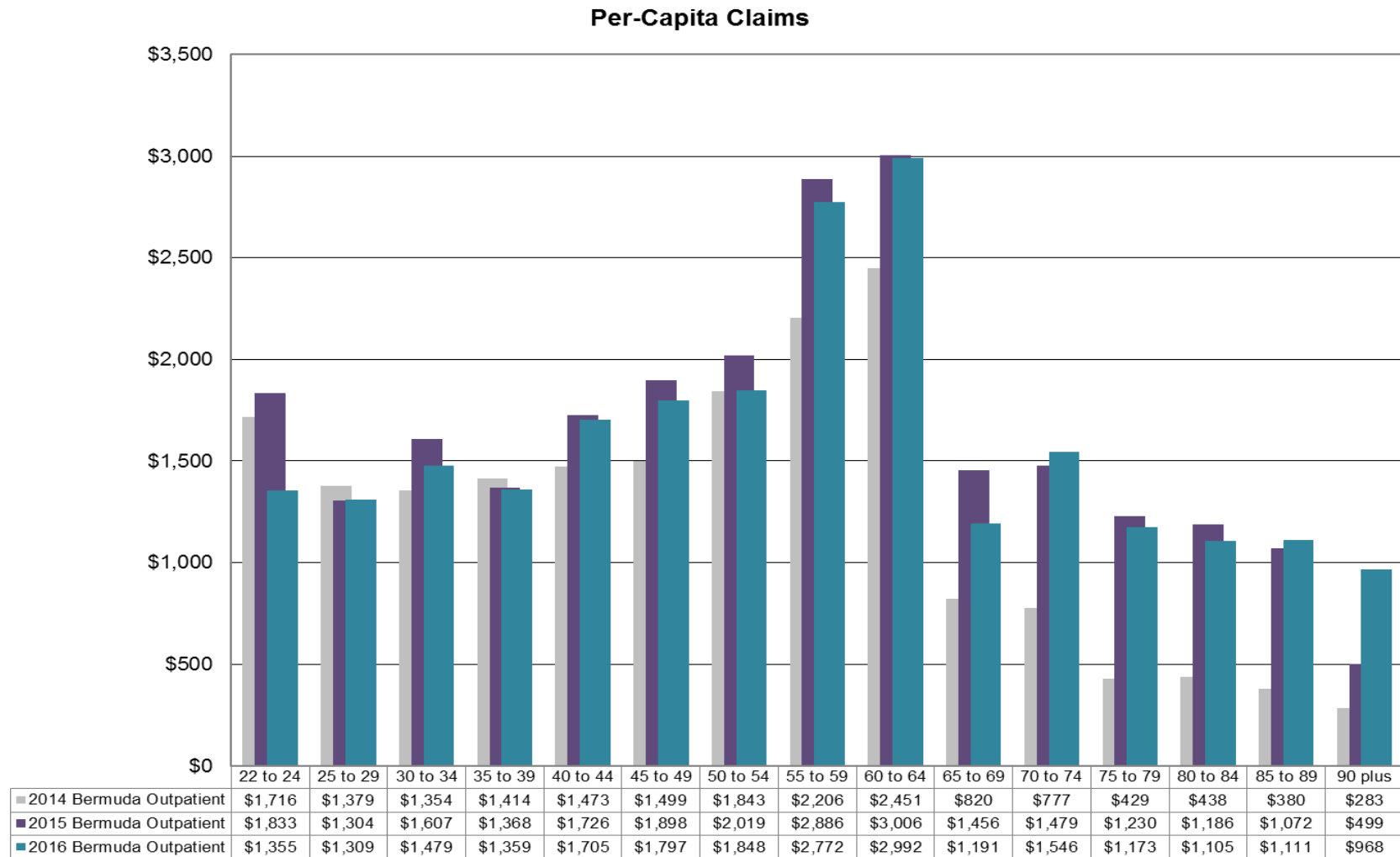


The decline in the cost per-capita at age 65 is due to the government subsidy.

Appendix 1a – Standard Health Benefits (Bermuda In-Patient Annual Per-Capita Claim Costs)



Appendix 1b – Standard Health Benefits (Bermuda Out-Patient Annual Per-Capita Claim Costs)



Appendix 2 – Bermuda Hospitals Board In-Patient Analysis - Admissions by Age

	Fiscal 2016				Fiscal 2015			
Age	Number of Admissions	Total DRG Fee (in '000)	% of Admissions	% of Total Cost	Number of Admissions	Total DRG Fee (in '000)	% of Admissions	% of Total Cost
<5	808	\$4,948	14%	10%	830	\$4,690	15%	10%
5-14	141	\$905	2%	2%	115	\$762	2%	2%
15-24	286	\$2,399	5%	5%	270	\$2,109	5%	4%
25-34	683	\$4,599	12%	9%	645	\$4,711	11%	10%
35-44	597	\$4,736	10%	10%	553	\$4,226	10%	9%
45-54	566	\$5,331	10%	11%	571	\$5,129	10%	11%
55-64	800	\$7,848	14%	16%	710	\$7,061	13%	15%
65-74	760	\$7,577	13%	15%	799	\$7,922	14%	17%
75-84	714	\$7,036	12%	14%	701	\$6,847	12%	14%
85-95	412	\$3,698	7%	7%	400	\$3,592	7%	8%
>95	35	\$290	1%	1%	38	\$407	1%	1%
Total	5,802	\$49,367	100%	100%	5,632	\$47,455	100%	100%

Data Source : BHB

Notes

1. The total fees are the DRG charge only (prior to subsidy) and do not include the per-diem fee or any other fee charged for in-patient services.
2. The number of admissions in Fiscal 2016 has increased by 3.0% (due to increases in the under age 65 admissions).
3. The under 5 age group is mostly comprised of newborns.
4. The percentage of cost related to those aged 65 and over is 38% in Fiscal 2016 (which is a 2% decline over Fiscal 2015).
5. In Fiscal 2016 the increase/decrease in the total cost for admissions for those under age 65/age 65 and over, is 7%/-1% respectively.

Appendix 2a - Admissions by Major Diagnostic Categories (MDC)

	Fiscal 2016				Fiscal 2015		
Major Diagnostic Category (sorted by F2016 Fee)	Number of Admissions	Change in Admissions	Total DRG Fee (in '000)	% of Total Cost	Number of Admissions	Total DRG Fee (in '000)	% of Total Cost
Musculoskeletal System And Connective Tissue	702	4%	\$8,949	18%	674	\$8,234	17%
Digestive System	594	12%	\$5,824	12%	531	\$5,359	11%
Circulatory System	655	4%	\$5,340	11%	627	\$5,217	11%
Respiratory System	525	-6%	\$4,090	8%	556	\$4,498	9%
Newborn And Other Neonates (Perinatal Period)	598	2%	\$3,733	8%	585	\$3,285	7%
Pregnancy, Childbirth And Puerperium	672	1%	\$3,310	7%	663	\$3,374	7%
Nervous System	341	-7%	\$2,741	6%	365	\$2,910	6%
Infectious and Parasitic DDs	209	4%	\$2,415	5%	200	\$2,449	5%
Kidney And Urinary Tract	303	26%	\$2,219	4%	240	\$1,738	4%
Hepatobiliary System And Pancreas	170	-21%	\$1,596	3%	216	\$2,111	4%
Skin, Subcutaneous Tissue And Breast	173	2%	\$1,423	3%	169	\$1,250	3%
Ear, Nose, Mouth And Throat	193	12%	\$1,372	3%	173	\$1,124	2%
Pre-MDC	31	63%	\$1,100	2%	19	\$616	1%
Female Reproductive System	124	17%	\$1,027	2%	106	\$806	2%
Endocrine, Nutritional And Metabolic System	155	18%	\$1,010	2%	131	\$860	2%
Blood / Forming Organs and Immunological Disorders	108	-5%	\$814	2%	114	\$815	2%
All Other	249	-5%	\$2,407	5%	263	\$2,811	6%
Total	5,802	3%	\$49,367	100%	5,632	\$47,455	100%
Change from Prior Fiscal Period	3%		4%		-4%	-3%	

Data Source : BHB

Notes: 1. We have summarized the DRG codes into mutually exclusive diagnosis areas (referred to as Major Diagnostic Categories).
2. In Fiscal 2016, the average DRG charge per admission increased by 1.0%.

Appendix 2b - Fiscal 2016 Admissions, Days in Hospital

Days in Hospital	Number of Admissions	% of Admissions	% of Total Cost	Average days in Hospital	DRG Fees (in '000)
0-4	3,754	65%	55%	2.3	\$26,928
5-9	1,246	21%	24%	6.1	\$11,667
10-14	358	6%	8%	10.1	\$4,101
15-19	164	3%	4%	14.3	\$2,141
20-24	86	1%	2%	19.2	\$1,196
25-29	43	1%	1%	22.7	\$498
30-35	36	1%	2%	30.8	\$747
>35	115	2%	4%	49.5	\$2,089
	5,802	100%	100%	5.7	\$49,367

Data Source : BHB

Notes

1. Eighty-six percent of admissions are under 10 days, which is similar to prior fiscal periods.
2. For Fiscal 2016 admissions, the average days in hospital has declined to 5.7 days. For Fiscal 2015 admissions, it was 5.9 days and for Fiscal 2014 admissions it was 5.7 days.

About Morneau Shepell

Morneau Shepell is Canada's largest human resource consulting and outsourcing firm focused on pensions, healthcare, and workplace health management and productivity solutions.

We offer consulting and administrative services for the full range of retirement, healthcare, and employee benefits programs, as well as absence and disability management, workplace training and education, and employee assistance program. This suite of services allows us to offer solutions that help improve the financial security, health and productivity of organizations and their people around the globe.

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