

John Hancock Life Insurance Company (U.S.A.)
Actuarial Memorandum for Inforce Rate Increase – Custom Care Series
June 25, 2019

<u>Product Name</u>	<u>Form Number</u>	<u>Issue Date Range</u>
Custom Care	LTC-02 MD	May 2002 - Sep 2004
Essential Care	BSC-02 MD	Jul 2002 - Jun 2004

These policy form rates were originally priced with a margin for moderately adverse experience in accordance with the NAIC model rate stability regulations which were being implemented on a State by State basis during the time of our initial rate filing.

1. Scope & Purpose

This memorandum consists of materials which support the development of new premium rates for the above captioned Policy series forms. The purpose of this memorandum is to demonstrate that the requirements of this State in regards to an in force rate increase request have been met. This rate filing is not intended to be used for any other purpose.

2. Benefit Description

A brief policy description for each of the policy forms:

LTC-02 MD

Individually underwritten long-term care policies that provide comprehensive long-term care coverage for care received in a nursing home or assisted care living facility, home health care, hospice care, respite care, or attendance at an Adult Day Care Center providing Adult Day Care.

Provides reimbursement of covered long-term care expenses incurred after an elected elimination period is met, up to the maximum daily/monthly amount. The benefit eligibility is determined based on the insured's cognitive impairment or their requiring physical assistance to perform two out of six activities of daily living (ADLs) of bathing, dressing, eating, toileting, transferring and maintaining continence.

Premiums are waived after the insured has met the elimination period and is receiving benefits and will continue to be waived until the insured stops receiving such benefits.

BSC-02 MD

Individually underwritten long-term care policies that provide comprehensive long-term care coverage for care received in a nursing home or assisted care living facility, home health care, hospice care, respite care, or attendance at an Adult Day Care Center providing Adult Day Care.

Provides reimbursement of covered long-term care expenses incurred after an elected elimination period is met.

For care received in an assisted living facility, benefits are paid up to 80% of the maximum daily/monthly amount. For all other care, benefits are paid up to 100% of the maximum daily/monthly amount. The benefit eligibility is determined based on the insured's cognitive impairment or their requiring physical assistance to perform two out of six activities of daily living (ADLs) of bathing, dressing, eating, toileting, transferring and maintaining continence.

Premiums are waived after the insured has met the elimination period and is receiving Nursing Home or Assisted Living Facility benefits and will continue to be waived until the insured stops receiving such benefits.

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3. Renewability

All policy forms are guaranteed renewable.

4. Applicability

This filing is applicable to in force policies only, as these policy forms are no longer being sold in the market. The premium changes will apply to the base forms as well as all applicable riders.

5. Actuarial Assumptions

[REDACTED]

6. Trend Assumptions

As this is not medical insurance, we have not included any explicit medical cost trends in the projections.

7. Marketing Method

This product was typically marketed through our traditional agency system and brokers involving a personal contact with each applicant.

8. Underwriting

These policy forms were underwritten using a medical and risk questionnaire. We also utilized Attending Physician Statement and personal interviews depending on the age of the applicant and medical conditions.

9. Premium Classes

The base policy premium rates vary by Issue age, Benefit Period and Inflation Option, as in the initial rate filing.

All premium factors related to the insured elected benefit design options, underwriting class or any eligible discount remain unchanged from the initial rate filing.

10. Premium Modalization Rules

Frequency	Multiple of Annual Premium
Semiannual	.52
Quarterly	.27
Monthly	.09

11. Issue Age Range

The issue age range is 18-84 for all policy forms.

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12. Area Factors

Area factors are not applicable to any of the policy forms or riders.

13. Average Annual Premium

The table below summarizes the average annual premium per premium-paying policy before and after the requested increase.

Form	Nationwide	Maryland	
	before the rate increase	before the rate increase	after the rate increase
LTC-02 MD	2,410	2,870	5,136
BSC-02 MD	2,010	2,470	4,420

14. Number of Policyholders

The table below summarizes, as of 12/31/2017, the number of premium-paying policies inforce and their 2017 annualized premium that will be affected by this rate increase in your state.

Form	Number of Policies	2017 Annualized Premium
LTC-02 MD	5,086	14,598,715
BSC-02 MD	133	329,089

15. Reserves

Active Life Reserves have not been used in this rate increase demonstration. Minimum Statutory Claim reserves as of 12/31/2017 have been discounted to the date of incurral of each respective claim and included in the historical incurred claims. Incurred But Not Reported claim reserves as of 12/31/2017 have also been allocated to the calendar year of incurral and included in historic incurred claims.

16. Analysis Performed

Original pricing Assumptions

[REDACTED]

Recent Experience

As part of the inforce management of the business, the Company monitored the performance of the business by completing periodic analysis for morbidity, voluntary lapse rates, and mortality. The findings from these analyses were used in projecting the inforce business to determine the effect of experience on the projected lifetime loss ratio. The most current studies show significant unfavorable trends since the study that prompted our 2013 rate increase filings. In general claims, particularly at higher ages, continue to last longer than expected, lapses are lower than expected, and a higher percentage of claim terminations are due to recoveries (as opposed to death) than expected.

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The following tables show in aggregate how our new assumptions (Expected) compare to actual experience:

Morbidity

Experience period: Inception through 9/30/2014. Duration 10+ are used for incidence, duration 5+ for claim termination, and all durations for utilization. The following charts show key experience compared to revised assumptions.

Incidence	
Duration	A/E
1-3	101%
4-6	101%
7-9	99%
10+	97%
Total	98%

Claim Terminations	
Benefit Period	A/E
<10 years	99%
10+ years	97%
Total	99%

Utilization	
Inflation	A/E
None / GPO	98%
Simple	98%
Compound	98%
Total	98%

Voluntary Lapses

Experience period: 12/31/2009 - 12/31/2014

Duration	Lapse A/E by Amount	
	Without Inflation	With Inflation
1	100%	100%
2	103%	100%
3-5	100%	101%
6-10	99%	100%
11-15	100%	101%
16+	96%	97%
Total per inflation	100%	100%
TOTAL	100%	

Note that the lapse study removed all policies which had undergone prior rate increases except for the 2008 re-rate policies which are now allowed to re-enter the study after their first year since re-rate, provided they have not subsequently received another rate increase.

Mortality

Experience period: 12/31/2009 - 12/31/2014

Duration	A/E by Amount
1-5	96
6-10	96
11+	101
Total	99%

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17. Requested Rate Increase

The Company is requesting a flat rate increase of 78.9%. Rate increases adhere to the following restrictions:

1. We ensured that the resulting overall increase in rates satisfied the rate stability rule ensuring no less than an 85% loss ratio on the rate increase portion, while applying the original loss ratio on the original rate schedule (as the original loss ratio was higher than 58%). This is demonstrated at the bottom of **Exhibit 1** where it can be seen that the sum of past and future projected incurred claims is not less than the sum of the original premium times the original loss ratio and the rate increase premium times the 85% loss ratio requirement.
2. The lifetime loss ratio after the proposed rate increases is greater than or equal to the lifetime loss ratio targeted in or most recent filing for the forms listed in this memo.

Appendix A1 contains the new proposed rate tables for all policy forms included with this filing for those policyholders that *have never* elected an inflation reduction option as part of the 2013 rate increase filings.

Appendix A2 contains the new proposed rate tables for all policy forms included with this filing for those policyholders that *have* elected an inflation reduction option as part of the 2013 rate increase filings.

Please note that the actual rates implemented may vary slightly from those in Appendices A1-A2 due to implementation rounding algorithms.

Exhibit 1 contains nationwide past premium and claims experience as well as future premium and claim projections. It illustrates that the anticipated lifetime loss ratio with the requested rate increase is 90.6%, well in excess of the minimum loss ratio of 60% as well as greater than the original pricing loss ratio of 86.0%. The lifetime loss ratio as of 12/31/2017 is calculated as the sum of accumulated past and discounted future claims divided by the sum of accumulated past and discounted future earned premium where accumulation and discounting occur at the maximum statutory valuation discount rate.

In addition, **Exhibit 1** contains the original expected loss ratio projections, adjusted for the actual mix of business issued, with the lifetime loss ratio also calculated as stated above.

Furthermore, **Exhibit 1** demonstrates that the calculated loss ratio respects the applicable pre or post stability form requirements:

Post-stability form requirements:

The sum of the accumulated value of incurred claims without the inclusion of active life reserves, and the present value of future projected incurred claims, without the inclusion of active life reserves, will not be less than the sum of the following:

1. Accumulated value of the initial earned premium times the original assumed lifetime loss ratio (which was higher than 58%),
2. 85% of the accumulated value of prior premium rate schedule increases,
3. Present value of future projected initial earned premium times the original assumed lifetime loss ratio, and
4. 85% of the present value of future projected premium in excess of the projected initial earned premium.

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Pre-stability form requirements:

The sum of the accumulated value of incurred claims without the inclusion of active life reserves, and the present value of future projected incurred claims, without the inclusion of active life reserves, will not be less than the sum of the following:

1. Accumulated value of the initial earned premium times the original assumed lifetime loss ratio (which was higher than 60%),
2. 80% of the accumulated value of prior premium rate schedule increases,
3. Present value of future projected initial earned premium times the original assumed lifetime loss ratio, and
4. 80% of the present value of future projected premium in excess of the projected initial earned premium.

18. New inflation options that will allow policyholders to offset the rate increase

Although this is a closed block of business, we are filing new future inflation options that will allow policyholders that have Compound and Simple Inflation coverage the option to offset the rate increase.

Under these new options, the policyholders get to keep their current accumulated Daily or Monthly benefit and their current remaining Lifetime Maximum Benefit, but the future indexation rate will be reduced as follows:

Current inflation	Proposed Landing Spot
5.0%	1.0%
4.3%	1.2%

All indexation rates were determined to be actuarially equivalent to the requested rate increases in aggregate and therefore these options are only available if the full rate increase requested is accepted.

The premium rate schedules for these options are included in this filing as **Appendices B1-B2**.

19. New Shared Cost option that will allow the policyholder to offset the rate increase

We are filing a new Shared Cost option that will allow all policyholders the option to offset the rate increase. The Shared Cost option would:

- Reduce the policyholder's current policy benefit amounts by their Shared Cost percentage. The daily/monthly benefit and the policy limit will be reduced by the Shared Cost percentage
- Apply a percentage factor to any future claim payments equal to the Shared Cost percentage. John Hancock will pay our portion (1 minus the Shared Cost percent) of any covered services, up to the new benefit amount and the policyholder will be responsible for the remainder.

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The Shared Cost Percentages are calculated using seriatim, nationwide data for each benefit period, inflation type and issue age combination. For policyholder Shared Cost percentages and for details on premium calculations for policyholders who elected the Shared Cost option, please see **Appendix C**. The Shared Cost percentages in Appendix C will apply to all policyholders who have not bought additional attained age coverage. For those who have, the Shared Cost percentage will be the lesser of those shown in Appendix C and 80% of the policyholder's currently available benefit reduction that would offset their rate increase.

All Shared Cost percentages were determined to be actuarially equivalent to the requested rate increases by combination of issue age, benefit period and inflation type, and therefore these options are only available if the full rate increase requested is accepted.

The premium rate schedules for these options are included in this filing as **Appendices B1-B2**.

20. Additional option for those who stop paying premiums

In addition to the options to offset the rate increase, we will also be offering a Paid-Up Policy option for those who choose to stop paying premiums. This option will be a paid-up policy with a policy limit equal to the lesser of the current policy limit and 150% of premiums paid less any benefits received. The Paid-Up Policy will only be offered if we receive a full approval.

21. History of Previous Rate Revisions

A 15.0% rate increase on these policy forms was accepted by your state on September 13, 2012.

A 15.0% rate increase on these policy forms was accepted by your state on September 11, 2013.

A 15.0% rate increase on these policy forms was accepted by your state on September 29, 2014.

A 15.0% rate increase on these policy forms was accepted by your state on October 23, 2015.

A multi-year staggered rate increase of 15% annually for two years on these policy forms was accepted by your state August 01, 2017.

22. Ensuring No Cross-Subsidization Between States

We have ensured no state's rate increase approvals will subsidize other states' rate increases. Rate increases will vary by state, but only to reflect the timing and amount of prior rate increases approved by that state. This is accomplished by first backing-out all prior approved rate increases from our nationwide premium data. We then re-introduce actual prior rate increases with the amount and timing based on your state's prior approvals (as detailed in Section 21). The current proposed rate increases are then determined based on the amounts needed in order to achieve our target lifetime loss ratios certified to in our prior filing.

Although some states may have capped our previous inforce rate increase filings, in each case this was done with the understanding that the full amount of the proposed rate increases were justified and that John Hancock would be re-filing for the remainder at a later date. In instances where the remainder remains unapproved, it has been included in the current filings.

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23. Past Losses Testing

Preventing companies from recouping past losses was the subject of a discussion by the NAIC in late 2013. The accepted methodology which was incorporated into the 2014 Long Term Care Model Regulation defines past losses as actual past claims less expected past claims when determining loss ratio compliance. Expected past claims are defined as the following:

“Expected claims shall be calculated based on the original filing assumptions assumed until new assumptions are filed as part of a rate increase. New assumptions shall be used for all periods beyond each requested effective date of a rate increase [regardless of whether or not the rate increase is approved]. Expected claims are calculated for each calendar year based on the in-force at the beginning of the calendar year. Expected claims shall include margins for moderately adverse experience; either amounts included in the claims that were used to determine the lifetime loss ratio consistent with the original filing or as modified in any rate increase filing.”

We apply this methodology in **Exhibit 1A**. The ‘Adjusted Expected Incurred Claims’ are initially calculated by applying the original pricing durational loss ratio to the actual earned premium in a given calendar year. Later, in years in which and after which we filed for inforce rate increases, expected incurred claims are based on the new assumptions that were filed.

The accumulated value of the Adjusted Expected Incurred Claims is compared to the accumulated value of Actual Incurred Claims. The lesser of the Adjusted Expected Incurred Claims or Actual Incurred Claims is used for past claims when ensuring that the resulting overall increase in rates satisfies the rate stability rule ensuring no less than an 85% loss ratio on the rate increase portion, while applying the original loss ratio on the original rate schedule (as the original loss ratio was higher than 58%). This is demonstrated at the bottom of **Exhibit 1A**.

24. Proposed Effective Date

New rates will not be effective until after the completion of prior rate increases for all policyholders with product forms listed in this memo. These rates will be effective on the next policy anniversary date after completion, following at least a 90 day policyholder notification period. The assumed effective date used to calculate the rate increase is February 1, 2020.

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25. Actuarial Certification

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries, and I meet the Academy's qualification standards for rendering this opinion and am familiar with the requirements for filing long-term care insurance premiums and filing for increases in long-term care insurance premiums. This memorandum has been prepared in conformity with all applicable Actuarial Standards of Practice, including ASOP No. 8.

The preceding Actuarial Memorandum contains:

- a) the assumptions on which this certification is based;
- b) the adjustments to prior assumptions with an explanation of the reasons previous assumptions were not realized;
- c) a lifetime projection of the prior premium rate schedules and incurred claims plus future expected premiums and claims which demonstrates that the revised premium rate schedule meets the loss ratios standards and necessary details of this state; and
- d) disclosure of the manner, if any, in which reserves have been recognized.

If the requested premium rate schedule increase is implemented and the underlying assumptions are realized, no further premium rate schedule increases are anticipated.

I have reviewed and taken into consideration the policy design and coverage provided, and our current underwriting and claims adjudication processes.

In forming my opinion, I have used actuarial assumptions and actuarial methods and such tests of the actuarial calculations as I considered necessary. Based on these assumptions or statutory requirements where necessary, the premium rate filing is in compliance with the loss ratio standards of this state.

The basis for contract reserves has been previously filed and there is no anticipation of any changes.



Ilya Kagan, FSA, MAAA
Actuary
John Hancock Life Insurance Company

**Exhibit 1: Nationwide Loss Ratio Exhibit
Custom Care (LTC-02) and Essential Care (BSC-02)**

Calendar Year	Original Assumptions			Historical & Projected Experience			With Proposed Rate Increase		
	Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio
1988	-	-	-	-	1,261	0%	-	1,261	0%
1989	-	-	-	-	1,777	0%	-	1,777	0%
1990	-	-	-	-	1,777	0%	-	1,777	0%
1991	-	-	-	-	1,777	0%	-	1,777	0%
1992	-	-	-	-	9,249	0%	-	9,249	0%
1993	-	-	-	-	18,596	0%	-	18,596	0%
1994	-	-	-	-	21,392	0%	-	21,392	0%
1995	-	-	-	-	31,795	0%	-	31,795	0%
1996	-	-	-	-	60,463	0%	-	60,463	0%
1997	-	-	-	-	86,185	0%	-	86,185	0%
1998	-	-	-	-	158,111	0%	-	158,111	0%
1999	-	-	-	-	279,672	0%	-	279,672	0%
2000	-	-	-	-	502,430	0%	-	502,430	0%
2001	-	-	-	-	951,440	0%	-	951,440	0%
2002	530,322	12,698,284	4%	465,042	14,282,829	3%	465,042	14,282,829	3%
2003	5,487,901	132,209,102	4%	3,669,220	132,475,817	3%	3,669,220	132,475,817	3%
2004	12,277,508	234,720,102	5%	12,666,412	236,821,780	5%	12,666,412	236,821,780	5%
2005	20,299,610	230,898,672	9%	15,544,833	239,364,325	6%	15,544,833	239,364,325	6%
Historical Experience 2006	28,140,074	220,845,859	13%	29,208,680	234,944,924	12%	29,208,680	234,944,924	12%
2007	33,039,150	213,029,569	16%	55,301,876	231,037,412	24%	55,301,876	231,037,412	24%
2008	38,955,824	206,503,759	19%	45,375,461	226,869,876	20%	45,375,461	226,869,876	20%
2009	48,970,112	200,673,230	24%	58,667,321	222,376,297	26%	58,667,321	222,376,297	26%
2010	58,262,436	194,904,782	30%	73,424,783	218,274,723	34%	73,424,783	218,274,723	34%
2011	65,013,451	188,814,100	34%	86,681,944	213,418,605	41%	86,681,944	213,418,605	41%
2012	72,397,279	182,414,152	40%	112,601,011	193,311,112	58%	112,601,011	193,311,112	58%
2013	80,014,444	175,720,840	46%	117,394,768	173,562,198	68%	117,394,768	173,562,198	68%
2014	87,500,748	168,806,836	52%	127,373,100	186,762,723	68%	127,373,100	186,762,723	68%
2015	95,657,227	161,789,916	59%	158,324,343	194,050,415	82%	158,324,343	194,050,415	82%
2016	104,540,237	154,735,212	68%	175,366,976	207,915,134	84%	175,366,976	207,915,134	84%
2017	113,954,945	147,665,819	77%	210,148,573	220,414,575	95%	210,148,573	220,414,575	95%
Projected Future Experience 2018	123,948,315	140,599,224	88%	199,123,497	225,718,458	88%	199,123,497	225,718,458	88%
2019	134,309,647	133,546,718	101%	225,136,719	249,048,777	90%	225,136,719	249,048,777	90%
2020	144,975,775	126,515,069	115%	252,954,585	257,838,994	98%	254,664,282	341,743,375	75%
2021	155,907,667	119,513,629	130%	281,691,859	246,132,739	114%	284,855,292	430,979,795	66%
2022	167,789,973	112,559,728	149%	313,368,925	234,121,114	134%	317,098,664	410,084,042	77%
2023	179,649,593	105,668,334	170%	345,061,760	221,912,306	155%	349,191,144	388,699,225	90%
2024	190,480,927	98,857,577	193%	374,448,902	209,561,031	179%	378,637,645	367,064,864	103%
2025	200,692,859	92,144,940	218%	399,945,683	197,073,898	203%	404,002,191	345,192,535	117%
2026	209,843,085	85,547,583	245%	413,886,391	184,484,652	224%	417,885,364	323,141,345	129%
2027	217,968,151	79,099,489	276%	429,085,945	171,773,663	250%	432,900,318	300,876,913	144%
2028	225,223,405	72,837,995	309%	454,562,892	159,047,072	286%	457,855,212	278,585,152	164%
2029	231,402,094	66,795,422	346%	480,211,527	146,372,973	328%	482,860,206	256,385,335	188%
2030	236,317,862	60,994,934	387%	498,589,208	133,883,494	372%	500,647,967	234,508,897	213%
2031	239,043,625	55,452,618	431%	491,201,898	121,670,437	404%	493,142,269	213,116,637	231%
2032	239,951,577	50,195,331	478%	479,525,416	109,750,483	437%	481,365,054	192,237,773	250%
2033	239,412,773	45,251,862	529%	483,229,670	98,273,560	492%	484,536,680	172,134,918	281%
2034	235,727,762	40,644,802	580%	484,736,174	87,420,549	554%	485,445,290	153,124,900	317%
2035	228,945,808	36,382,390	629%	479,412,368	77,298,076	620%	479,585,256	135,394,484	354%
2036	220,732,683	32,455,981	680%	449,091,051	67,943,285	661%	449,217,720	119,008,732	377%
2037	212,730,375	28,862,706	737%	413,227,939	59,324,992	697%	413,398,546	103,913,022	398%
2038	204,915,341	25,605,445	800%	391,612,005	51,453,806	761%	391,493,403	90,125,937	434%
2039	195,506,230	22,683,506	862%	371,102,281	44,326,315	837%	370,656,123	77,641,500	477%
2040	185,228,216	20,084,232	922%	351,519,437	37,943,884	926%	350,736,057	66,462,101	528%
Values as of 12/31/2017 (discounted at maximum statutory valuation rates)									
Past :	1,068,984,886	4,056,073,660	26.4%	1,545,426,629	4,460,227,099	34.6%	1,545,426,629	4,460,227,099	34.6%
Future :	3,476,204,823	1,230,089,717	282.6%	5,993,803,334	2,470,837,440	242.6%	6,022,429,268	3,890,071,986	154.8%
Lifetime :	4,545,189,709	5,286,163,377	86.0%	7,539,229,963	6,931,064,539	108.8%	7,567,855,897	8,350,299,085	90.6%

Total Incurred Claims exceed Total Initial Premiums x max(58%, Original Pricing Loss Ratio) + Increased Premiums x max(85%, Original Pricing Loss Ratio)

Accum. Value of Past Incurred Claims =	1,545,426,629	Accum Value of Past Initial Prm x 86.0% =	3,600,308,128
Present Value of Future Incurred Claims =	6,022,429,268	Present Value of Future Initial Prm x 86.0% =	931,333,695
Total =	7,567,855,897	Accum Value of Prior Increases x 86.0% =	234,718,689
		Present Value of Future Increases x 86.0% =	2,413,457,961
		Total =	7,179,818,474

Total Incurred Claims exceed Total Initial Premiums x max(60%, Original Pricing Loss Ratio) + Increased Premiums x max(80%, Original Pricing Loss Ratio)

Accum. Value of Past Incurred Claims =	1,545,426,629	Accum Value of Past Initial Prm x 86.0% =	3,600,308,128
Present Value of Future Incurred Claims =	6,022,429,268	Present Value of Future Initial Prm x 86.0% =	931,333,695
Total =	7,567,855,897	Accum Value of Prior Increases x 86.0% =	234,718,689
		Present Value of Future Increases x 86.0% =	2,413,457,961
		Total =	7,179,818,474

**Exhibit 1A: Demonstration of not Recouping Past Losses
Custom Care (LTC-02) and Essential Care (BSC-02)**

Calendar Year	Loss Ratios to Apply to Actual Premium			Adjusted Expected Incurred Claims	Historical & Projected Experience Before Proposed Increase			With Proposed Rate Increase			
	Incurred Claims	Earned Premium	Incurred Loss Ratio		Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio	
	1988	0	0		0%	-	0	1,261	0%	0	1,261
1989	0	0	0%	-	0	1,777	0%	0	1,777	0%	
1990	0	0	0%	-	0	1,777	0%	0	1,777	0%	
1991	0	0	0%	-	0	1,777	0%	0	1,777	0%	
1992	0	0	0%	-	0	9,249	0%	0	9,249	0%	
1993	0	0	0%	-	0	18,596	0%	0	18,596	0%	
1994	0	0	0%	-	0	21,392	0%	0	21,392	0%	
1995	0	0	0%	-	0	31,795	0%	0	31,795	0%	
Original Pricing 1996	0	0	0%	-	0	60,463	0%	0	60,463	0%	
1997	0	0	0%	-	0	86,185	0%	0	86,185	0%	
1998	0	0	0%	-	0	158,111	0%	0	158,111	0%	
1999	0	0	0%	-	0	279,672	0%	0	279,672	0%	
2000	0	0	0%	-	0	502,430	0%	0	502,430	0%	
2001	0	0	0%	-	0	951,440	0%	0	951,440	0%	
2002	530,322	12,698,284	4%	596,498	465,042	14,282,829	3%	465,042	14,282,829	3%	
2003	5,487,901	132,209,102	4%	5,498,973	3,669,220	132,475,817	3%	3,669,220	132,475,817	3%	
2004	12,277,508	234,720,102	5%	12,387,440	12,666,412	236,821,780	5%	12,666,412	236,821,780	5%	
2005	20,299,610	230,898,672	9%	21,043,873	15,544,833	239,364,325	6%	15,544,833	239,364,325	6%	
2006	28,140,074	220,845,859	13%	29,936,570	29,208,680	234,944,924	12%	29,208,680	234,944,924	12%	
2007	33,039,150	213,029,569	16%	35,832,020	55,301,876	231,037,412	24%	55,301,876	231,037,412	24%	
2008	38,955,824	206,503,759	19%	42,797,782	45,375,461	226,869,876	20%	45,375,461	226,869,876	20%	
2009	48,970,112	200,673,230	24%	54,266,292	58,667,321	222,376,297	26%	58,667,321	222,376,297	26%	
2010	71,917,370	217,412,357	33%	71,917,370	73,424,783	218,274,723	34%	73,424,783	218,274,723	34%	
2010 RI 2011	82,566,647	363,346,540	23%	82,566,647	86,681,944	213,418,605	41%	86,681,944	213,418,605	41%	
2012	97,223,379	354,812,719	27%	97,223,379	112,601,011	193,311,112	58%	112,601,011	193,311,112	58%	
2013	118,088,459	290,278,988	41%	118,088,459	117,394,768	173,562,198	68%	117,394,768	173,562,198	68%	
2013 RI 2014	134,654,824	290,898,791	46%	134,654,824	127,373,100	186,762,723	68%	127,373,100	186,762,723	68%	
2015	146,621,831	299,548,199	49%	146,621,831	158,324,343	194,050,415	82%	158,324,343	194,050,415	82%	
2016	161,762,526	298,061,479	54%	161,762,526	175,366,976	207,915,134	84%	175,366,976	207,915,134	84%	
2017	182,501,696	287,329,138	64%	182,501,696	210,148,573	220,414,575	95%	210,148,573	220,414,575	95%	
2018					199,123,497	225,718,458	88%	199,123,497	225,718,458	88%	
2019					225,136,719	249,048,777	90%	225,136,719	249,048,777	90%	
2020					252,954,585	257,838,994	98%	254,664,282	341,743,375	75%	
Projected Future Experience 2021					281,691,859	246,132,739	114%	284,855,292	430,979,795	66%	
2022					313,368,925	234,121,114	134%	317,098,664	410,084,042	77%	
2023					345,061,760	221,912,306	155%	349,191,144	388,699,225	90%	
2024					374,448,902	209,561,031	179%	378,637,645	367,064,864	103%	
2025					399,945,683	197,073,898	203%	404,002,191	345,192,535	117%	
2026					413,886,391	184,484,652	224%	417,885,364	323,141,345	129%	
2027					429,085,945	171,773,663	250%	432,900,318	300,876,913	144%	
2028					454,562,892	159,047,072	286%	457,855,212	278,585,152	164%	
2029					480,211,527	146,372,973	328%	482,860,206	256,385,335	188%	
2030					498,589,208	133,883,494	372%	500,647,967	234,508,897	213%	
2031					491,201,898	121,670,437	404%	493,142,269	213,116,637	231%	
2032					479,525,416	109,750,483	437%	481,365,054	192,237,773	250%	
2033					483,229,670	98,273,560	492%	484,536,680	172,134,918	281%	
2034					484,736,174	87,420,549	554%	485,445,290	153,124,900	317%	
2035					479,412,368	77,298,076	620%	479,585,256	135,394,484	354%	
2036					449,091,051	67,943,285	661%	449,217,720	119,008,732	377%	
2037					413,227,939	59,324,992	697%	413,398,546	103,913,022	398%	
2038					391,612,005	51,453,806	761%	391,493,403	90,125,937	434%	
2039					371,102,281	44,326,315	837%	370,656,123	77,641,500	477%	
2040					351,519,437	37,943,884	926%	350,736,057	66,462,101	528%	
Values as of 12/31/2017 (discounted at maximum statutory valuation rates)											
Past				1,446,676,786	1,545,426,629	4,460,227,099	34.6%	1,545,426,629	4,460,227,099	34.6%	
Future					5,993,803,334	2,470,837,440	242.6%	6,022,429,268	3,890,071,986	154.8%	
Lifetime					7,539,229,963	6,931,064,539	108.8%	7,567,855,897	8,350,299,085	90.6%	

Total Incurred Claims exceed Total Initial Premiums x max(58%, Original Pricing Loss Ratio) + Increased Premiums x max(85%, Original Pricing Loss Ratio)

Accum Value of Minimum(Past Incurred Claims,		Accum Value of Past Initial Prm x 86.0% =	3,600,308,128
Adjusted Originally Expected Incurred Claims)	1,446,676,786	Present Value of Future Initial Prm x 86.0% =	931,333,695
Present Value of Future Incurred Claims =	6,022,429,268	Accum Value of Prior Increases x 86.0% =	234,718,689
Total =	7,469,106,054	Present Value of Future Increases x 86.0% =	2,413,457,961
	>=	Total =	7,179,818,474

Total Incurred Claims exceed Total Initial Premiums x max(60%, Original Pricing Loss Ratio) + Increased Premiums x max(80%, Original Pricing Loss Ratio)

Accum Value of Minimum(Past Incurred Claims,		Accum Value of Past Initial Prm x 86.0% =	3,600,308,128
Adjusted Originally Expected Incurred Claims)	1,446,676,786	Present Value of Future Initial Prm x 86.0% =	931,333,695
Present Value of Future Incurred Claims =	6,022,429,268	Accum Value of Prior Increases x 86.0% =	234,718,689
Total =	7,469,106,054	Present Value of Future Increases x 86.0% =	2,413,457,961
	>=	Total =	7,179,818,474

Appendix C
Custom Care (LTC-02) and Essential Care (BSC-02)
Shared Cost Percentages

Note on premium calculation for a policyholder who elects the Shared Cost option:

To calculate the premium after election of the Shared Cost option, the premium rate schedules in Appendix B1 should be used. Since the Shared Cost option reduces the daily benefit, an additional factor is required to calculate the premium appropriately, as shown below:

$$\text{Premium after electing Shared Cost option} = \frac{(\text{Premium Rate Schedule per } \$10 \text{ daily benefit: Appendix B1}) * (\text{New Daily Benefit}/10)}{(1 - \text{Shared Cost Percentage})}$$

A similar formula can be used for GPO policies with multiple layers of coverage:

$$\text{Premium after electing Shared Cost option} = \frac{[(\text{Premium Rate Schedule, Base Issue Age per } \$10 \text{ Daily Benefit: Appendix B1}) * (\text{New Base Daily Benefit}/10) + (\text{Premium Rate Schedule, GPO Layer 1 Issue Age per } \$10 \text{ Daily Benefit: Appendix B1}) * (\text{New Layer 1 Daily Benefit}/10)]}{(1 - \text{Shared Cost Percentage})}$$