

**MEDAMERICA INSURANCE COMPANY**  
**Address:** 165 Court Street, Rochester, New York 14647

**Series 11 and Prior Actuarial Memorandum**

**April 28, 2020**

<u>Product</u>	<u>Number</u>
Prior to Series 11	
Comprehensive Form	LTC-CD8-MD
Comprehensive Form	LTC-CD9-MA-MD
Series 11 Individual	
Facility Only Form	NTQ11-337-MA-MD-601
Comprehensive Form	LTQ11-336-MA-MD-601
Comprehensive Form	LTQ11-336-MA-MD-1100
Home Health Only Form	HTQ11-338-MA-MD-601

MedAmerica Insurance Company (MedAmerica) is requesting a rate increase on the above-listed long-term care policy form(s). The company issued this policy form(s) in Maryland from October 1996 through September 2005 and is no longer marketing it in any jurisdiction.

Nationwide, MedAmerica and its affinity partners are requesting a premium rate increase that varies by benefit period, except where limited by regulatory restrictions or the limited amount of in-force business. This actuarial memorandum captures the pooled nationwide experience of the above-listed policy form(s) as well as similar individual and group policy forms of the same product series issued nationwide by MedAmerica and its affinity partners.

As indicated in the enclosed cover letter, the company is requesting a phased-in increase in Maryland such that no policyholder will receive a rate increase of more than 15% in a single calendar year in order to comply with COMAR 31.14.01.04.A(5). The phased-in rate increase was determined to be actuarially equivalent to the nationwide request as described below in Section 2. This actuarial memorandum reflects the nationwide requested increase, except the Maryland-specific increase is reflected in Section 19 and the supplement to the actuarial memorandum.

**1. Purpose of Filing**

This actuarial memorandum has been prepared for the purpose of demonstrating that the requested rate increase discussed in Section 2 meets the minimum requirements of the applicable sections of the 2014 National Association of Insurance Commissioners (NAIC) Long-Term Care Insurance Model Regulation (Model Regulation). The enclosed supplement to the actuarial memorandum demonstrates compliance with the applicable regulatory requirements of this jurisdiction, to the extent they differ from the Model Regulation, and includes other commonly requested information of this jurisdiction. It may not be suitable for other purposes.

**2. Requested Rate Increase**

The company is requesting a rate increase that varies by benefit period. The rate increase levels were determined to vary by benefit period to better align the rate increase with the adverse experience. Appendix A to this memorandum provides a description of the development of and justification for the assumptions used in this filing, which were used to analyze the adverse experience.

This rate increase request is a follow-up to two prior nationwide requests. In jurisdictions that did not allow full implementation of the prior requested increases, the company is requesting a follow-up increase to achieve an actuarially equivalent lifetime loss ratio to the prior requests. Appendix B to this memorandum provides additional details on the development of and justification for the requested rate increase, including a detailed description of how actuarial equivalence was determined and a demonstration that the requested rate increase does not recoup past losses.

The table below provides the average prior, requested, and cumulative increases by policy form cohort and benefit period based on the nationwide distribution business. The enclosed cover letter provides similar information based on the jurisdiction-specific distribution and discloses the requested rate increase in this jurisdiction.

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**Nationwide Average<sup>[1]</sup> Rate Increase Request**

<b>Policy Form Cohort</b>	<b>Benefit Period</b>	<b>Prior Increase</b>	<b>Requested Increase</b>	<b>Cumulative Increase</b>
Prior to Series 11	Non-Lifetime	79.4%	48.0%	166%
	Lifetime	97.0	153.2	399
Series 11 Individual	Non-Lifetime	68.4	57.7	166
	Lifetime	108.2	139.5	399
Series 11 Group	Non-Lifetime	82.0	45.9	166
	Lifetime	91.4	160.6	399
Average		82.0	76.0	220

*[1] As of December 31, 2018 and excludes policies assumed to be paid up prior to implementation of the requested rate increase.*

While emerging experience supports a larger rate increase, the company is limiting the increase to be an actuarially equivalent follow-up to the prior requests in order to improve equity across jurisdictions. The company plans to continue to monitor experience and request additional rate increases in the future, to the extent justified. However, if it is the Department's position to only allow future rate increases if experience deteriorates from the current most-likely projections used in this filing, the company respectfully requests that the Department notify them and allow the company to revise the current rate increase request.

Upon reaching an agreement with the Department on the increase, the company will provide the proposed rate tables.

As the company is not currently marketing new business, the required statement that the renewal premium rate schedules are not greater than the new business premium rate schedules is not applicable.

**3. Description of Benefits**

These products provide long-term care coverage. The Series 11 products are tax-qualified, and were issued on an individual or group basis. The Prior to Series 11 product includes tax-qualified and non-tax qualified policy forms, and was issued on an individual basis. Each product has benefit eligibility requirements that involve activities of daily living (ADL) deficiencies or cognitive impairment. Waiver of premium is provided when certain benefits are being paid. A daily benefit, benefit period, and elimination period were selected at issue.

At issue, the insured may have had the option to choose one of the following inflation options, the availability of which varied by policy form: simple inflation for life, simple inflation for 20 years, or compound inflation. The two simple inflation options provide for benefit levels that increase on each anniversary date by 5% of the daily benefit amount chosen at issue for either the life of the insured or 20 years depending on the option chosen. The compound inflation option provides for benefit levels that increase on each anniversary date by 5% compounded annually for the life of the insured. These automatic increasing benefits apply even when the insured is in claim status. For Series 11 Group forms, the insured may have also had the option of a guaranteed purchase option. Under this option, the insured can purchase additional coverage amounts of 5% per year without additional underwriting.

The available choices for benefit period, elimination period, and inflation option are shown in Section 21.

At issue the insured may have had the option of selecting riders that provide the following types of coverage: nonforfeiture, restoration of benefits, return of premium, shortened benefit period, spousal benefit transfer, survivorship benefit, or monthly home health care benefit. The insured may have had the option to select a lifetime, ten-year, or twenty-year premium payment option.

A contingent benefit upon lapse (CBUL) will be available to all insureds at the time of the rate increase.

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**4. Renewability**

These policies are guaranteed renewable for life.

**5. Applicability**

This rate increase applies to all policies issued on the above-listed form(s) in this jurisdiction. The rate changes will apply to the premium of the base form and all applicable options and riders associated with the base form.

**6. Actuarial Assumptions**

The following assumptions are used to project the experience shown in this filing.

- a. Morbidity reflects claim costs developed using the 2014 Milliman *Long-Term Care Guidelines (Guidelines)* with adjustments for underwriting selection, an all-lives exposure basis, and four years of retrospective improvement to bring the *Guidelines* forward to 2018. The claim costs were further adjusted based on historical claim experience by policy form cohort, attained age, duration, individual vs. group, payment type, and coverage type, to the extent credible. These adjustment factors can be found in Exhibit A-5a of Appendix A to this memorandum.
- b. Mortality Rates reflect the 2012 Individual Annuitant Mortality (IAM) Basic table. The mortality rates were adjusted based on historical mortality experience by gender, marital status, attained age, and duration. The adjusted 2012IAM table was then brought forward to 2018 using the 2012IAM attained age mortality improvement scale (i.e., G2 projection scale). These adjustment factors can be found in Exhibit A-1a and A-1c of Appendix A to this memorandum.
- c. Voluntary Lapse Rates vary by policy duration (ultimate for 10+), attained age (ultimate for 65+), benefit period (lifetime or non-lifetime), inflation protection (auto inflation or none), marital status, policy form cohort, and premium payment option. The table below summarizes the ultimate lapse rates by key characteristics for lifetime-pay policies.

**Ultimate Lapse Rates  
Lifetime-Pay Policies**

Policy Form Cohort	Married				Single			
	Lifetime Benefit Period		Non-Lifetime Benefit Period		Lifetime Benefit Period		Non-Lifetime Benefit Period	
	Auto Inflation	No Inflation	Auto Inflation	No Inflation	Auto Inflation	No Inflation	Auto Inflation	No Inflation
Prior to Series 11	0.4%	0.5%	0.5%	0.7%	0.5%	0.6%	0.6%	0.9%
Series 11 Individual	0.3	0.4	0.4	0.5	0.4	0.5	0.5	0.7
Series 11 Group	0.6	0.7	0.7	1.0	0.8	0.9	0.9	1.2

The durational voluntary lapse rates were adjusted based on the following criteria for the limited-pay options:

- For the ten-pay option, a reduction of 65% of the durational lapse rates is assumed for durations one through four, a reduction of 70% of the durational lapse rates is assumed for durations five through eight, and 0% lapse thereafter.
- For the twenty-pay option, a reduction of 50% of the durational lapse rates is assumed for durations one through eight, a reduction of 75% of the durational lapse rates is assumed for durations nine through fifteen, and 0% lapse thereafter.

- d. Benefit Expiry Rates reflect assumed policy termination due to exhaustion of benefits on limited benefit period policies. The rates are based on the 2017 *Guidelines* with adjustments for historical benefit expiry experience and vary by gender, benefit period, and attained age as shown in the following table.

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Gender	Benefit Period in Years	Attained Age <sup>[1]</sup>										
		<65	65	70	75	80	85	90	95	100	105	110+
Female	1	0.0%	0.1%	0.2%	0.3%	0.8%	2.3%	5.4%	9.7%	11.3%	19.3%	20.7%
	2	0.0	0.0	0.1	0.2	0.5	1.6	4.4	8.2	10.7	19.0	20.7
	3	0.0	0.0	0.1	0.2	0.5	1.3	3.4	6.7	9.3	19.0	20.7
	4	0.0	0.0	0.1	0.1	0.3	0.9	2.5	4.8	7.1	17.0	20.7
	5	0.0	0.0	0.0	0.1	0.2	0.6	1.8	3.7	6.3	14.4	20.7
	Lifetime	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Male	1	0.0	0.1	0.1	0.2	0.5	1.6	4.0	6.9	7.8	11.3	20.7
	2	0.0	0.0	0.1	0.2	0.4	1.1	2.8	5.1	6.0	10.2	20.7
	3	0.0	0.0	0.1	0.1	0.3	0.8	1.9	3.8	4.8	9.1	20.7
	4	0.0	0.0	0.0	0.1	0.2	0.4	1.3	2.4	3.4	7.9	20.7
	5	0.0	0.0	0.0	0.1	0.1	0.3	0.8	2.1	2.9	6.8	20.7
	Lifetime	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

[1] The assumption varies by attained age, but is shown every five years for display purposes.

- e. Policyholder Behavior Due to the Rate Increase. At the time of a rate increase, insureds have the option to elect a CBUL or reduced benefit options (RBO). An increase in morbidity for adverse selection due to the rate increase is assumed based on the percentage of policies that elect CBUL and RBO.

Insureds who elect a CBUL are modeled as a lapse (i.e., the CBUL benefit is not modeled), which results in a slightly lower lifetime loss ratio than if the CBUL benefit had been modeled. The following table provides the CBUL and RBO election rates, reduction to premiums and benefits due to the impact of RBO elections, and increase in morbidity by requested rate increase levels for lifetime-pay policies. Limited-pay policies are assumed to not elect CBUL or RBO.

**Policyholder Behavior Assumptions**

Requested Increase	CBUL Election Rate	RBO Election Rate	Approximate Reduction for RBO <sup>[1]</sup>	Morbidity Increase for Adverse Selection
0.1 – 9.9%	1%	1%	0.0%	0.4%
10.0 – 19.9	3	2	0.3	1.0
20.0 – 39.9	6	5	1.2	2.2
40.0 – 74.9	8	10	4.0	3.4
75.0 – 99.9	10	15	7.8	4.6
100.0 – 149.9	11	20	12.5	5.5
150.0 – 299.9	12	25	19.7	6.5

[1] For display purposes, the approximate reduction for RBO values reflect the midpoint of the requested increase within each range. A detailed description of the calculation can be found in Appendix A. For example, the 20.0% – 39.9% range was calculated using the formula in Appendix A and a rate increase of 30%.

- f. Interest Rate consistent with the maximum valuation interest rate applicable to the year of issue (ranges from 3.5% to 5.5% and averages 4.5%) is used to demonstrate compliance with the minimum loss ratio requirements.
- g. Annual Improvement in the mortality and morbidity assumptions is assumed for 10 years starting in 2019. Annual mortality improvement factors vary by attained age and gender based on the G2 improvement scale from the 2012IAM table. Annual morbidity improvement is assumed to be 1.0%.

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- h. Expenses have not been explicitly projected for the purpose of demonstrating compliance with minimum loss ratio requirements. Originally filed expense assumptions are assumed to remain appropriate, except that reductions are made to the renewal commission rates so that the total commissions paid before and after any increase in premium are similar (i.e., commissions are not paid on the increased premium).

The above assumptions are based on the experience of the above-listed policy form(s) and similar forms issued by MedAmerica and its affinity partners, other similar business issued by MedAmerica (including its affinity partners and acquired blocks of business), industry experience, and actuarial judgment. The above assumptions are deemed reasonable for the particular policy form(s) in this filing and are considered "most likely" (without explicit margin).

In establishing the assumptions described in this section, the policy design, underwriting, and claims adjudication practices for the above-referenced product(s) were taken into consideration. Appendix A to this memorandum provides a description of the development of and justification for the assumptions used in this filing.

The company is not currently marketing long-term care products. As a result, the requirement to reflect on any assumptions that deviate from those used for pricing other forms currently available for sale is not applicable.

**7. Marketing Method**

Agents and brokers of the company marketed these products.

**8. Underwriting Description**

Policies on the individual forms were fully underwritten.

On the group forms, actively at work employees were subject to short form underwriting. All others were subject to full underwriting.

Groups of at least 500 employees were eligible to elect modified guaranteed issue underwriting for those actively at work. If the employer agreed to contribute 100% of premium for a base plan for a minimum of three years, no underwriting was required for those actively at work.

For both individual and group business, the company used various underwriting tools in addition to the application, which may have included medical records, an attending physician's statement, telephone interview, and/or face-to-face assessment.

**9. Premiums**

Premiums are unisex and payable for life unless the insured selected a ten-year or twenty-year premium payment option. The premiums may vary by policy form, issue age, elimination period, benefit period, initial daily benefit, inflation option, premium payment option, underwriting class, joint/group discounts, home care percentage, copayment option, marital status at issue, and the selection of any riders.

**10. Issue Age Range**

Issue ages are from 18 to 85.

**11. Area Factors**

Area factors are not used for these products.

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**12. Premium Modalization Rules**

The following modal factors and percent distributions (based on the nationwide in-force count as of December 31, 2018) are applied to the annual premium (AP):

<b>Premium Mode</b>	<b>Modal Factors</b>	<b>Percent Distribution</b>
Annual	1.00*AP	47%
Semi-Annual	0.52*AP	4
Quarterly	0.26*AP	25
Monthly	0.09*AP	24

**13. Reserves**

Active life reserves and reserves for the election of a CBUL have not been used in the experience exhibits for this rate increase analysis for the purpose of demonstrating compliance with minimum loss ratio requirements. Claim reserves as of December 31, 2018 have been discounted to the incurral date of each respective claim and included in historical incurred claims. An incurred but not reported (IBNR) reserve balance as of December 31, 2018 has been allocated to the 2018 calendar year and included in historical incurred claims.

**14. Trend Assumptions**

As this is not medical insurance, an explicit medical cost trend is not included in the projections.

**15. Demonstration of Satisfaction of Loss Ratio Requirements**

This filing uses pooled nationwide experience of the above-listed product(s) and similar individual and group products issued nationwide by MedAmerica and its affinity partners. The pooled experience is appropriate to increase credibility and allow for a uniform rate increase request across similar business. Applying a uniform rate increase to the pool of forms maintains the original pricing relationships of the product design and differences between individual and group business.

Further, pooling experience is appropriate because the products issued are identical, the marketing and distribution employed is similar, and the same company (MedAmerica) administers and manages the entire block (including underwriting and claims handling). MedAmerica has 50% to 100% of the risk of the affinity partner forms via reinsurance arrangements with each affinity partner.

Exhibit I provides actual and projected experience using current assumptions. Actual experience is provided from inception through 2018 and then projected on a seriatim basis for 60 years using the current assumptions described above in Section 6. The actual and projected experience is based on nationwide premiums that reflect prior rate increases filed for use between January 2010 and April 2019, which average 82% across all jurisdictions. The after increase projected experience reflects the additional increase needed to achieve the cumulative increases shown in Section 2 on a seriatim basis.

Values in Exhibit I are shown (a) before and (b) after the nationwide requested rate increase. Included are calendar year earned premiums, incurred claims, end of year lives, and annual loss ratios. As shown in Exhibit I-b, the anticipated lifetime loss ratio with the nationwide requested rate increase exceeds the minimum loss ratio required by pre-rate stability regulation.

The following table demonstrates that the lifetime loss ratios by policy form cohort and benefit period also exceed the minimum loss ratio required by pre-rate stability regulation. The final row corresponds to that shown in Exhibit I.

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**Nationwide Lifetime Loss Ratios at the Maximum Valuation Interest Rate  
by Policy Form Cohort and Benefit Period**

Policy Form Cohort	Benefit Period	Before Increase	After Increase
Prior to Series 11	All	103%	98%
Series 11 Individual	All	121	104
Series 11 Group	All	107	92
All	Non-Lifetime	97	88
All	Lifetime	159	130
All	All	113	100

The majority of policies subject to this rate increase are eligible for a CBUL, so an alternative version of the 58%/85% test, which uses the greater of 58% and the original anticipated lifetime loss ratio, is provided per post-rate stability regulation. The expected loss ratio using original pricing assumptions and actual policies sold (63%) is used as a substitute for the original pricing loss ratio that was determined at pricing based on an assumed mix of business sold.

Exhibit II provides a demonstration that the nationwide requested rate increase meets the alternative 58%/85% test required by post-rate stability regulation. This exhibit shows that the sum of the accumulated value of incurred claims without the inclusion of active life reserves, and the present value of 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 63%,
2. 85% of the accumulated value of prior premium rate schedule increases,
3. Present value of projected initial earned premium times 63%, and
4. 85% of the present value of projected premium in excess of the projected initial earned premium.

The projected incurred claims in Exhibit II were increased by 15% from the current assumptions described in Section 6 to reflect assumptions that include moderately adverse conditions.

The following table demonstrates that the alternative 58%/85% test is passed by policy form cohort and benefit period. The 'All' row corresponds to that shown in Exhibit II. Values in the table are shown in millions of dollars. The 'Alternative 58% Loss Ratio' represents the greater of 58% and the expected lifetime loss ratio.

**Alternative 58%/85% Test by Policy Form Cohort and Benefit Period**

Policy Form Cohort	Benefit Period	Alternative 58% Loss Ratio	Item 5 <sup>[1]</sup>	Item 7 <sup>[2]</sup>	Result <sup>[3]</sup>
Prior to Series 11	All	66%	\$166.3	\$257.2	Pass
Series 11 Individual	All	58	339.8	602.1	Pass
Series 11 Group	All	70	163.1	226.7	Pass
All	Non-Lifetime	64	483.8	684.2	Pass
All	Lifetime	60	185.6	401.8	Pass
All	All	63	669.5	1,086.0	Pass

[1] Item 5 is the Lifetime Earned Premium Times Prescribed Factor.

[2] Item 7 is Lifetime Incurred Claims with Rate Increase.

[3] Test of whether Item 7 is not less than Item 5.

**16. Actual-to-Expected Experience**

The following table provides a comparison of actual and projected experience using current assumptions to that expected using original pricing assumptions. Values in the following table are shown (a) before and (b) after the nationwide requested rate increase.

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**Nationwide Actual and Expected Loss Ratios by Policy Form Cohort and Benefit Period**

Policy Form Cohort	Benefit Period	Lifetime Loss Ratio			Actual-to-Expected	
		Before Increase	After Increase	Expected	Before Increase	After Increase
Prior to Series 11	All	96%	91%	66%	1.46	1.39
Series 11 Individual	All	114	99	58	1.97	1.70
Series 11 Group	All	99	85	70	1.41	1.22
All	Non-Lifetime	90	82	64	1.42	1.29
All	Lifetime	149	124	60	2.50	2.08
All	All	106	94	63	1.69	1.50

Actual and projected experience in the above table is identical to that described in Exhibit I, except historical experience is accumulated at MedAmerica's actual historical earned interest rates, which average 5.4% for this block, and projected experience is discounted at MedAmerica's current most-likely interest rate assumption of 4.75%. This 4.75% rate represents MedAmerica's expectation of its long-term investment earnings rate based on the average net investment earnings rate projected for MedAmerica's 2018 cash flow testing.

Expected experience uses the actual policies sold and projects from issue on a seriatim basis using the original pricing assumptions.

Exhibit III provides a comparison of the current and original pricing assumptions that underlie the actual and expected experience described above.

**17. History of Previous Rate Revisions**

Please see the enclosed cover letter, which provides the jurisdiction-specific average prior rate increase and rate history for the above-listed form(s). Section 2 above describes the nationwide average prior rate increase across the pooled experience.

**18. Analysis Performed to Consider a Rate Increase**

The experience table in Section 16 above demonstrates that experience has been more adverse from that expected using original pricing assumptions as the A:E loss ratios exceeds 1.0. The adverse experience is due to a combination of higher persistency and lower interest.

The following table provides a comparison of actual and projected nationwide experience to that expected in pricing with respect to morbidity, mortality, lapse (combination of voluntary lapse and benefit expiry), interest, and improvement. The current and original pricing assumptions are provided in Exhibit III.



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**Impact of Changing from Pricing to Current Assumptions**

<b>Scenario</b>	<b>Lifetime Loss Ratio (LLR)</b>	<b>Incremental Impact on the LLR<sup>[1]</sup></b>	<b>Increase Needed<sup>[2]</sup></b>
Original pricing assumptions	63%	N/A	N/A
Historical experience through 2018 & projections with pricing assumptions <sup>[3]</sup>	73	16%	145%
Historical experience through 2018 & projections with pricing assumptions except for current:			
Interest	81	12	89
Interest, lapse	85	5	34
Interest, lapse, mortality	108	27	155
Interest, lapse, mortality, morbidity	109	1	3
Interest, lapse, mortality, morbidity, improvement	106	-3	-14
Historical experience through 2018 & projections with all current most-likely assumptions <sup>[4]</sup>	106	69	395

[1] Calculated as the ratio of the lifetime loss ratio in a given row to that in the row immediately above it less one.

[2] Shows the rate increase needed to reproduce the lifetime loss ratio in the row immediately above it. Calculated without regard to CBUL, RBO, adverse selection, and higher waiver claims due to the needed rate increase.

[3] This row reflects actual historical experience and pricing assumptions projected from the valuation date, reflecting prior rate increases approved through April 12, 2019.

[4] This row is calculated in regards to the pricing lifetime loss ratio of 63%.

For the business subject to rate stability regulation, an analysis of the projected loss ratio compared to that assumed at the time of original pricing revealed that experience has unfolded more than moderately adverse and crossed the original pricing threshold for which the company could consider a rate increase. At the time the product was priced, MedAmerica management determined the threshold for future increases would be defined as experience exhibiting deterioration of more than 10% of premium compared to that assumed in pricing. Section 16 demonstrates that the 'All' lifetime loss ratio before the requested rate increase using current assumptions is over 100% and well in excess of this original pricing threshold.

**19. Average Annual Premium in Maryland (Based on December 31, 2018 In-Force)**

The number of insureds and the corresponding average annual premium that will be affected by this filing are shown in the table(s) below. The values provided in the table(s) below exclude policies assumed to be paid up prior to implementation of the requested rate increase.

**Maryland – MedAmerica**

<b>Policy Form Cohort</b>	<b>Benefit Period</b>	<b>Number of Insureds</b>	<b>Before Increase Premium</b>	<b>After Requested Increase Premium<sup>[1]</sup></b>
Prior to Series 11	Non-Lifetime	30	\$2,359	\$3,514
	Lifetime	9	3,264	11,441
	Total	39	2,568	5,344
Series 11 Individual	Non-Lifetime	36	2,765	4,119
	Lifetime	11	3,480	12,200
	Total	47	2,932	6,011
Total	Non-Lifetime	66	2,580	3,844
	Lifetime	20	3,383	11,859
	Total	86	2,767	5,708

[1] Reflects the total composite phase-in request. The increase request is phased-in over three to nine years to ensure no policyholder receives an increase greater than 15% in a 12-month period.

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**20. Proposed Effective Date**

This rate increase will apply to policies on their next premium payment date following at least a 60-day policyholder notification period following being filed for use by the department of insurance, but no sooner than 12 months after the prior rate increase was effective. The company will notify policyholders of the approved cumulative rate increase level at the time of implementation of the first year's rate increase. No policyholder will receive more than one increase during a 12-month period.

**21. Distribution of Business as of December 31, 2018 (Based on Nationwide In-Force Insured Count)**

Issue Ages	Percent Distribution
<40	8%
40-44	7
45-49	11
50-54	17
55-59	21
60-64	19
65-69	11
70-74	5
75+	1

Elimination Period	Percent Distribution
0-Day	4%
20-Day	21
30-Day	<1
60-Day	6
90-Day	53
100-Day	5
180-Day	11
365-Day	<1

Benefit Period	Percent Distribution
1-Year	<1%
2-Year	18
3-Year	37
4-Year	8
5-Year	18
Lifetime	19

Inflation Option	Percent Distribution
None	39%
Simple for Life	3
Compound for Life	38
Simple for 20 Years	20
GPO	<1

Premium Payment Option	Percent Distribution
Ten-Pay	15%
Twenty-Pay	11
Lifetime-Pay	74

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<b>Coverage Type</b>	<b>Percent Distribution</b>
Facility Only	11%
Comprehensive	88
Home Health Only	1

**22. Number of Insureds and Annualized Premium (Based on December 31, 2018 In-Force)**

The number of insureds and annualized premium that will be affected by this filing are shown in the tables below. The values provided in the tables below exclude policies assumed to be paid up prior to implementation of the requested rate increase.

**Maryland – MedAmerica**

<b>Policy Form Cohort</b>	<b>Benefit Period</b>	<b>Number of Insureds</b>	<b>Annualized Premium</b>
Prior to Series 11	Non-Lifetime	30	\$70,767
	Lifetime	9	29,372
	Total	39	100,140
Series 11 Individual	Non-Lifetime	36	99,542
	Lifetime	11	38,280
	Total	47	137,822
Total	Non-Lifetime	66	170,310
	Lifetime	20	67,652
	Total	86	237,961

**Nationwide**

<b>Policy Form Cohort</b>	<b>Benefit Period</b>	<b>Number of Insureds</b>	<b>Annualized Premium</b>
Prior to Series 11	Non-Lifetime	719	\$1,768,076
	Lifetime	332	1,015,415
	Total	1,051	2,783,491
Series 11 Individual	Non-Lifetime	4,807	9,020,569
	Lifetime	1,553	5,273,045
	Total	6,360	14,293,614
Series 11 Group	Non-Lifetime	4,457	7,048,528
	Lifetime	60	162,672
	Total	4,517	7,211,200
Total	Non-Lifetime	9,983	17,837,173
	Lifetime	1,945	6,451,132
	Total	11,928	24,288,305

**MEDAMERICA INSURANCE COMPANY**  
**Address:** 165 Court Street, Rochester, New York 14647

**Series 11 and Prior Actuarial Memorandum**

**April 28, 2020**

**23. Actuarial Certification**

I am a Principal and Consulting Actuary for Milliman, Inc. and retained by MedAmerica to render an opinion with regard to long-term care insurance rates. I am a member of the American Academy of Actuaries. I meet the Academy's qualification standards to render this actuarial opinion and am familiar with the requirements for filing long-term care insurance premiums and rate increases.

This memorandum has been prepared in conformity with all applicable Actuarial Standards of Practice, including Actuarial Standards of Practice No. 8, "Regulatory Filings for Health Benefits, Accident and Health Insurance, and Entities Providing Health Benefits" and 18, "Long-Term Care Insurance".

I hereby certify that, to the best of my knowledge and judgment, this rate submission is in compliance with the applicable laws and regulations of this jurisdiction and the rules of this department of insurance.

In my opinion, the rates are not excessive or unfairly discriminatory, and bear reasonable relationship to the benefits based on the loss ratio standards of this jurisdiction.

If an average one-time premium rate schedule increase of 160% is implemented in Maryland and the underlying assumptions, with moderately adverse conditions reflected, are realized, no further premium rate schedule increases are anticipated.

In forming my opinion, I have used actuarial assumptions and actuarial methods (which gave consideration to policy design, underwriting, and claim adjudication) and such tests of the actuarial calculations as I considered necessary. Based on these assumptions, or statutory requirements where necessary, this premium rate filing is in compliance with the loss ratio standards of this jurisdiction.

I have relied on data and information provided by MedAmerica to develop this memorandum, including but not limited to management's view of when a rate change may be considered, policy design, underwriting and claim adjudication process, seriatim in-force data, claim data, and the company's long-term earnings rate. I have not audited or independently verified the data and information provided, but have reviewed it for reasonableness.

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



Missy Gordon, FSA, MAAA  
Principal and Consulting Actuary

Date: April 28, 2020

**Exhibit I-a**  
**MedAmerica and Affinity Partners**  
**Actual and Projected Experience using Current Assumptions by Calendar Year**  
**Nationwide Experience Before Requested Rate Increase**  
**Series 11 and Prior Policy Forms**

		Loss Ratio Demonstration						
		Without Interest			D End of Year Lives	With Max. Val. Interest		
	Calendar Year	A Earned Premium	B Incurred Claims	C = B / A Incurred Loss Ratio		E Earned Premium	F Incurred Claims	G = F / E Incurred Loss Ratio
Historical Experience	1992	17,324	0	0%	111	71,586	0	0%
	1993	557,528	112,031	20%	634	2,000,739	390,130	19%
	1994	1,500,482	28,415	2%	1,376	5,000,457	93,904	2%
	1995	2,485,029	109,652	4%	1,943	7,615,872	328,779	4%
	1996	3,452,114	134,262	4%	2,631	9,767,306	363,261	4%
	1997	4,257,921	258,439	6%	2,884	11,351,783	722,059	6%
	1998	5,071,109	631,867	12%	3,447	12,825,438	1,628,343	13%
	1999	6,457,482	1,469,714	23%	4,511	15,508,468	3,549,679	23%
	2000	8,508,577	1,172,992	14%	5,902	19,440,203	2,747,609	14%
	2001	11,453,720	2,031,477	18%	8,144	24,936,673	4,502,841	18%
	2002	15,617,243	4,129,889	26%	11,144	32,444,884	8,685,044	27%
	2003	20,978,007	3,320,983	16%	17,381	41,633,941	6,624,075	16%
	2004	26,599,004	6,241,153	23%	18,793	50,454,166	11,880,541	24%
	2005	28,082,605	6,804,563	24%	19,928	50,952,747	12,396,414	24%
	2006	28,353,106	7,236,076	26%	19,787	49,161,822	12,600,226	26%
	2007	27,938,251	10,582,193	38%	19,852	46,299,524	17,627,243	38%
	2008	27,419,750	8,154,815	30%	19,654	43,441,448	12,987,481	30%
	2009	26,498,424	11,148,740	42%	19,200	40,159,832	16,973,198	42%
2010	25,187,102	15,825,758	63%	18,231	36,523,397	23,059,195	63%	
2011	24,281,006	13,405,255	55%	17,415	33,692,333	18,672,749	55%	
2012	24,895,541	15,249,799	61%	17,350	33,048,891	20,307,361	61%	
2013	24,058,770	14,358,025	60%	17,027	30,558,715	18,310,572	60%	
2014	22,186,152	22,522,172	102%	16,579	26,966,223	27,465,201	102%	
2015	21,244,350	23,851,868	112%	15,985	24,717,000	27,822,720	113%	
2016	20,937,096	21,675,244	104%	15,787	23,318,481	24,194,874	104%	
2017	20,041,062	26,052,673	130%	14,983	21,376,772	27,828,292	130%	
2018	19,402,841	22,741,293	117%	14,061	19,825,357	23,246,594	117%	
Projected Future Experience (60 Years)	2019	19,461,729	23,166,382	119%	13,223	19,046,859	22,663,374	119%
	2020	20,023,354	24,310,398	121%	12,791	18,772,373	22,761,834	121%
	2021	19,960,826	25,929,465	130%	12,374	17,926,967	23,237,065	130%
	2022	19,244,457	27,606,346	143%	11,953	16,557,537	23,680,567	143%
	2023	18,022,232	29,248,218	162%	11,530	14,857,331	24,016,145	162%
	2024	16,784,794	30,964,045	184%	11,105	13,260,358	24,339,070	184%
	2025	15,749,200	32,634,889	207%	10,677	11,924,406	24,557,985	206%
	2026	14,797,267	34,335,105	232%	10,249	10,738,339	24,735,968	230%
	2027	13,893,623	36,063,890	260%	9,820	9,664,199	24,874,838	257%
	2028	12,948,753	37,794,640	292%	9,321	8,632,804	24,959,438	289%
	2029	12,101,915	39,720,881	328%	8,961	7,735,368	25,116,917	325%
	2030	11,279,556	41,803,055	371%	8,529	6,913,386	25,312,175	366%
	2031	10,478,341	43,781,499	418%	8,098	6,159,321	25,388,448	412%
	2032	9,698,877	45,604,621	470%	7,668	5,468,594	25,329,694	463%
	2033	8,944,821	47,259,042	528%	7,240	4,838,617	25,144,496	520%
	2034	8,217,305	48,728,464	593%	6,816	4,265,396	24,838,873	582%
	2035	7,518,460	50,019,525	665%	6,397	3,745,671	24,430,408	652%
	2036	6,849,695	50,963,449	744%	5,984	3,275,962	23,853,424	728%
	2037	6,212,521	51,631,979	831%	5,580	2,853,014	23,162,115	812%
	2038	5,608,663	51,918,869	926%	5,186	2,473,833	22,326,970	903%
	2039	5,039,480	51,851,015	1,029%	4,803	2,135,418	21,378,486	1,001%
	2040	4,505,718	51,385,071	1,140%	4,433	1,834,689	20,316,530	1,107%
	2041	4,008,043	50,533,445	1,261%	4,078	1,568,740	19,162,537	1,222%
	2042	3,547,029	49,280,312	1,389%	3,739	1,334,824	17,926,898	1,343%
	2043	3,122,927	47,722,022	1,528%	3,417	1,130,272	16,655,051	1,474%
	2044	2,735,381	45,977,314	1,681%	3,113	952,403	15,395,863	1,617%
	2045	2,383,539	44,019,092	1,847%	2,827	798,594	14,144,510	1,771%
	2046	2,066,383	41,893,055	2,027%	2,560	666,394	12,918,808	1,939%
	2047	1,782,510	39,549,395	2,219%	2,313	553,452	11,706,409	2,115%
	2048	1,530,278	37,106,161	2,425%	2,084	457,561	10,542,401	2,304%
2049-2053	4,828,594	147,543,946	3,056%	7,616	1,308,835	37,397,043	2,857%	
2054-2058	2,009,833	89,396,634	4,448%	4,321	454,138	18,567,312	4,088%	
2059-2063	771,465	48,141,856	6,240%	2,358	146,078	8,255,114	5,651%	
2064-2068	273,986	23,286,328	8,499%	1,183	43,909	3,339,224	7,605%	
2069-2073	90,253	9,915,979	10,987%	504	12,401	1,208,539	9,746%	
2074-2078	28,115	3,765,851	13,394%	165	3,346	402,512	12,029%	
History		447,481,595	239,249,349	53%	324,740	713,094,057	325,008,384	46%
Future		296,519,925	1,554,852,239	524%	233,084	202,511,389	714,047,042	353%
Lifetime		744,001,520	1,794,101,587	241%	557,824	915,605,446	1,039,055,426	113%

**Exhibit I-b**  
**MedAmerica and Affinity Partners**  
**Actual and Projected Experience using Current Assumptions by Calendar Year**  
**Nationwide Experience After Requested Rate Increase**  
**Series 11 and Prior Policy Forms**

		Loss Ratio Demonstration						
		Without Interest			D End of Year Lives	With Max. Val. Interest		
	Calendar Year	A Earned Premium	B Incurred Claims	C = B / A Incurred Loss Ratio		E Earned Premium	F Incurred Claims	G = F / E Incurred Loss Ratio
Historical Experience	1992	17,324	0	0%	111	71,586	0	0%
	1993	557,528	112,031	20%	634	2,000,739	390,130	19%
	1994	1,500,482	28,415	2%	1,376	5,000,457	93,904	2%
	1995	2,485,029	109,652	4%	1,943	7,615,872	328,779	4%
	1996	3,452,114	134,262	4%	2,631	9,767,306	363,261	4%
	1997	4,257,921	258,439	6%	2,884	11,351,783	722,059	6%
	1998	5,071,109	631,867	12%	3,447	12,825,438	1,628,343	13%
	1999	6,457,482	1,469,714	23%	4,511	15,508,468	3,549,679	23%
	2000	8,508,577	1,172,992	14%	5,902	19,440,203	2,747,609	14%
	2001	11,453,720	2,031,477	18%	8,144	24,936,673	4,502,841	18%
	2002	15,617,243	4,129,889	26%	11,144	32,444,884	8,685,044	27%
	2003	20,978,007	3,320,983	16%	17,381	41,633,941	6,624,075	16%
	2004	26,599,004	6,241,153	23%	18,793	50,454,166	11,880,541	24%
	2005	28,082,605	6,804,563	24%	19,928	50,952,747	12,396,414	24%
	2006	28,353,106	7,236,076	26%	19,787	49,161,822	12,600,226	26%
	2007	27,938,251	10,582,193	38%	19,852	46,299,524	17,627,243	38%
	2008	27,419,750	8,154,815	30%	19,654	43,441,448	12,987,481	30%
	2009	26,498,424	11,148,740	42%	19,200	40,159,832	16,973,198	42%
	2010	25,187,102	15,825,758	63%	18,231	36,523,397	23,059,195	63%
2011	24,281,006	13,405,255	55%	17,415	33,692,333	18,672,749	55%	
2012	24,895,541	15,249,799	61%	17,350	33,048,891	20,307,361	61%	
2013	24,058,770	14,358,025	60%	17,027	30,558,715	18,310,572	60%	
2014	22,186,152	22,522,172	102%	16,579	26,966,223	27,465,201	102%	
2015	21,244,350	23,851,868	112%	15,985	24,717,000	27,822,720	113%	
2016	20,937,096	21,675,244	104%	15,787	23,318,481	24,194,874	104%	
2017	20,041,062	26,052,673	130%	14,983	21,376,772	27,828,292	130%	
2018	19,402,841	22,741,293	117%	14,061	19,825,357	23,246,594	117%	
Projected Future Experience (60 Years)	2019	19,461,729	23,166,382	119%	13,223	19,046,859	22,663,374	119%
	2020	21,028,877	24,115,818	115%	12,481	19,714,196	22,579,673	115%
	2021	26,718,828	24,489,540	92%	11,712	23,993,621	21,946,524	91%
	2022	27,808,039	25,587,353	92%	11,247	23,920,585	21,948,323	92%
	2023	26,614,312	26,970,078	101%	10,850	21,932,348	22,145,141	101%
	2024	24,752,840	28,506,186	115%	10,456	19,545,989	22,406,633	115%
	2025	23,209,713	30,009,496	129%	10,059	17,562,797	22,581,834	129%
	2026	21,781,664	31,545,294	145%	9,662	15,795,851	22,725,505	144%
	2027	20,424,550	33,109,254	162%	9,263	14,195,376	22,836,172	161%
	2028	19,000,953	34,682,673	183%	8,864	12,655,542	22,903,437	181%
	2029	17,730,458	36,442,568	206%	8,464	11,320,614	23,042,884	204%
	2030	16,498,332	38,353,413	232%	8,062	10,099,544	23,222,162	230%
	2031	15,299,698	40,177,019	263%	7,660	8,980,972	23,296,831	259%
	2032	14,135,706	41,861,724	296%	7,259	7,958,039	23,249,205	292%
	2033	13,012,186	43,398,250	334%	6,859	7,026,931	23,088,465	329%
	2034	11,930,887	44,769,339	375%	6,462	6,181,540	22,818,574	369%
	2035	10,895,062	45,980,932	422%	6,070	5,416,880	22,455,353	415%
	2036	9,906,729	46,879,281	473%	5,683	4,727,570	21,938,904	464%
	2037	8,967,801	47,525,286	530%	5,304	4,108,466	21,316,513	519%
	2038	8,080,529	47,822,070	592%	4,933	3,554,862	20,561,393	578%
	2039	7,246,672	47,791,286	659%	4,573	3,062,092	19,700,255	643%
	2040	6,466,917	47,391,002	733%	4,225	2,625,339	18,732,331	714%
	2041	5,741,892	46,634,496	812%	3,890	2,240,098	17,678,321	789%
	2042	5,072,058	45,503,796	897%	3,570	1,902,118	16,546,675	870%
	2043	4,457,419	44,094,637	989%	3,265	1,607,296	15,382,042	957%
	2044	3,897,157	42,511,563	1,091%	2,977	1,351,566	14,227,755	1,053%
	2045	3,389,733	40,726,538	1,201%	2,707	1,130,962	13,078,586	1,156%
	2046	2,933,440	38,778,559	1,322%	2,454	941,813	11,950,229	1,269%
	2047	2,525,951	36,617,776	1,450%	2,219	780,594	10,830,552	1,387%
	2048	2,164,677	34,361,464	1,587%	2,002	644,027	9,754,653	1,515%
2049-2053	6,797,971	136,732,902	2,011%	7,336	1,832,230	34,623,260	1,890%	
2054-2058	2,801,171	82,944,154	2,961%	4,186	628,240	17,212,037	2,740%	
2059-2063	1,059,333	44,783,676	4,228%	2,296	198,772	7,673,173	3,860%	
2064-2068	368,675	21,783,421	5,909%	1,156	58,532	3,119,817	5,330%	
2069-2073	119,182	9,321,449	7,821%	493	16,244	1,133,348	6,977%	
2074-2078	36,840	3,529,658	9,581%	161	4,355	376,018	8,634%	
History		447,481,595	239,249,349	53%	324,740	713,094,057	325,008,384	46%
Future		412,337,977	1,438,898,333	349%	222,083	276,762,859	661,745,953	239%
Lifetime		859,819,573	1,678,147,682	195%	546,823	989,856,916	986,754,337	100%

**Exhibit II**  
**Demonstration that the Requested Cumulative Rate Increase Passes the 63%/85% Loss Ratio Minimum**  
**MedAmerica and Affinity Partners' Nationwide Experience with Prior Approved Increases**  
**Series 11 and Prior Policy Forms**

1	Accumulated value of initial earned premium	676,779,261	x	63%	=	423,787,712
2a	Accumulated value of earned premium	713,094,057				
2b	Accumulated value of prior premium rate schedule increases (2a - 1)	36,314,795	x	85%	=	30,867,576
3	Present value of future projected initial earned premium	91,246,289	x	63%	=	57,136,881
4a	Present value of future projected premium	276,762,859				
4b	Present value of future projected premium in excess of the projected initial earned premiums (4a - 3)	185,516,570	x	85%	=	157,689,084
<b>5</b>	<b>Lifetime Earned Premium Times Prescribed Factor: Sum of 1, 2b, 3, and 4b</b>					<b>669,481,253</b>
6a	Accumulated value of incurred claims without the inclusion of active life reserves					325,008,384
6b	Present value of future projected incurred claims without the inclusion of active life reserves					761,007,847
<b>7</b>	<b>Lifetime Incurred Claims with Rate Increase: Sum 6a and 6b</b>					<b>1,086,016,230</b>
8	Test: 7 is not less than 5					Pass

*All values are accumulated or discounted at the maximum valuation interest rate for contract reserves applicable for the year of issue, which ranges from 3.5% to 5.5%.  
Future projected initial earned premium schedule (i.e., without the requested rate increase) reflects the assumed impact of CBUL and RBO.  
The future projected incurred claims (item 6b) were increased by 15% to reflect assumptions with moderately adverse experience.*

**Exhibit III  
MedAmerica and Affinity Partners  
Comparison of Current and Original Pricing Assumptions**

		<b>Morbidity</b>
<b>Current Assumptions</b>	<b>Series 11 and Prior</b>	Expected claim costs are developed using the 2014 Milliman <i>Long-Term Care Guidelines (Guidelines)</i> with adjustments for underwriting selection, all-lives exposure basis, and four years of retrospective improvement to bring the <i>Guidelines</i> forward to 2018. The claim costs were further adjusted based on historical claim experience by policy form cohort, attained age, duration, individual vs. group, payment type, and coverage type, to the extent credible. These adjustment factors can be found in Exhibit A-5a of Appendix A of the actuarial memorandum.
<b>Original Assumptions</b>	<b>Prior to Series 11</b>	For Series 5, the original pricing expected nursing home incidence rates and continuance tables were developed from a number of sources, but primarily using data published by the Connecticut Department of Health Services. The 1985 National Nursing Home Survey was also used. Selected frequencies were adjusted up for up to the first 12 years following issue to reflect the favorable morbidity expected as a result of the underwriting process. Frequency and length of treatment of the home care and adult day care benefit were based on the 1982 National Long-Term Care Survey. They are adjusted to reflect the effects of elimination periods, policy maximums, and eligibility standards.  For Series 8 and 9, the Institutional Benefit rates were developed using source data from the 1977 and 1985 National Nursing Home Surveys. The Home and Community Benefits were developed using source data from the 1989 National Long-Term Care Survey. Adjustments were made to the source data to reflect the selection effect of underwriting and the non-duplication of benefits with other payment sources.
	<b>Series 11</b>	The original pricing expected nursing home and home care incidence rates and continuance tables were taken from the 1997 <i>Guidelines</i> and adjusted for MedAmerica's experience available at the time this rate schedule was developed relative to the <i>Guidelines</i> . All values were adjusted to reflect the effects of product types, elimination periods, policy maximums, and the eligibility standards.
		<b>Mortality</b>
<b>Current Assumptions</b>	<b>Series 11 and Prior</b>	Mortality rates reflect the 2012 Individual Annuitant Mortality (IAM) Basic table. The mortality rates were adjusted based on historical mortality experience by gender, marital status, attained age, and duration. The adjusted 2012IAM table was then brought forward to 2018 using the 2012IAM attained age mortality improvement scale (i.e., G2 projection scale). These adjustment factors can be found in Exhibit A-1a and A-1c of Appendix A of the actuarial memorandum.
<b>Original Assumptions</b>	<b>Prior to Series 11</b>	Series 5 policy forms used the 1965-70 US Society of Actuaries Basic Mortality Table without selection.  Series 8 and Series 9 policy forms used the 1980 Commissioners Standard Ordinary Basic Mortality Tables assuming a gender mix of 60% female and 40% male and without selection.
	<b>Series 11 Individual</b>	1980 Commissioners Standard Ordinary Basic Mortality Table.
	<b>Series 11 Group</b>	Premier Group policy forms use the 1980 Commissioners Standard Ordinary Basic Mortality Table. TNSE policy forms use the 1983 GAM Static table.
		<b>Lapse Rates</b>
<b>Current Assumptions</b>	<b>Series 11 and Prior</b>	Voluntary lapse rates (excludes benefit expiry) vary by policy duration (ultimate for 10+), attained age (ultimate for 65+), benefit period (lifetime or non-lifetime), inflation protection (auto inflation or none), marital status, policy form cohort, and premium payment option. A summary of the ultimate lapse rates by key characteristics for lifetime-pay policies can be found in Section 6 of the actuarial memorandum.  For the ten-pay option, a reduction of 65% of the durational lapse rates is assumed for durations one through four, a reduction of 70% of the durational lapse rates is assumed for durations five through eight, and 0% lapse thereafter. For the twenty-pay option, a reduction of 50% of the durational lapse rates is assumed for durations one through eight, a reduction of 75% of the durational lapse rates is assumed for durations nine through fifteen, and 0% lapse thereafter.



**Exhibit III  
MedAmerica and Affinity Partners  
Comparison of Current and Original Pricing Assumptions**

**Original Assumptions**

**Prior to Series 11**

**Lapse Rates**

Lapse rates vary by policy form series, duration, premium payment option, and issue age.

Series 5 Lapse Rates											
Duration	Issue Age										
	<61	61	62	63	64	65	66	67	68	69	70+
1	20.00%	19.00%	18.00%	17.00%	16.00%	15.00%	14.00%	13.00%	12.00%	11.00%	10.00%
2	15.00%	14.00%	13.00%	12.00%	11.00%	10.00%	9.00%	8.00%	7.00%	6.00%	5.00%
3	10.00%	9.40%	8.80%	8.20%	7.60%	7.00%	6.40%	5.80%	5.20%	4.60%	4.00%
4	8.00%	7.60%	7.20%	6.80%	6.40%	6.00%	5.60%	5.20%	4.80%	4.40%	4.00%
5	6.00%	5.70%	5.40%	5.10%	4.80%	4.50%	4.20%	3.90%	3.60%	3.30%	3.00%
6	5.00%	4.80%	4.60%	4.40%	4.20%	4.00%	3.80%	3.60%	3.40%	3.20%	3.00%
7	5.00%	4.80%	4.60%	4.40%	4.20%	4.00%	3.80%	3.60%	3.40%	3.20%	3.00%
8	5.00%	4.80%	4.60%	4.40%	4.20%	4.00%	3.80%	3.60%	3.40%	3.20%	3.00%
9+	5.00%	4.70%	4.40%	4.10%	3.80%	3.50%	3.20%	2.90%	2.60%	2.30%	2.00%

Series 8 Lapse Rates		
Duration	Issue Age	
	<85	85+
1	15.00%	12.00%
2	10.00%	8.00%
3	8.00%	6.40%
4	6.00%	4.80%
5+	5.00%	4.00%

Series 9 Lapse Rates											
Duration	Issue Age										
	<76	76	77	78	79	80	81	82	83	84	85+
1	15.00%	14.70%	14.40%	14.10%	13.80%	13.50%	13.20%	12.90%	12.60%	12.30%	12.00%
2	10.00%	9.80%	9.60%	9.40%	9.20%	9.00%	8.80%	8.60%	8.40%	8.20%	8.00%
3	8.00%	7.84%	7.68%	7.52%	7.36%	7.20%	7.04%	6.88%	6.72%	6.56%	6.40%
4	6.00%	5.88%	5.76%	5.64%	5.52%	5.40%	5.28%	5.16%	5.04%	4.92%	4.80%
5+	5.00%	4.90%	4.80%	4.70%	4.60%	4.50%	4.40%	4.30%	4.20%	4.10%	4.00%

Policy Form Series 8 and 9 issued business under a group trust in a small number of jurisdictions. The original pricing assumptions for claim costs, mortality, and interest did not vary between individual and group trust business but the original pricing voluntary termination rates did. The Series 8 and 9 group trust original pricing voluntary termination rates are shown in the following table:

Series 8 and 9 Group Trust										
Duration	Issue Age									
	<25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
1	16.00%	15.00%	13.50%	12.00%	11.00%	10.00%	8.00%	6.00%	4.00%	3.00%
2	11.00%	10.00%	8.50%	7.00%	7.00%	7.00%	5.50%	4.50%	3.50%	3.00%
3	7.00%	6.00%	6.00%	6.00%	6.00%	6.00%	5.00%	4.50%	3.00%	2.00%
4	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	4.50%	3.00%	2.00%
5	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	4.50%	3.00%	2.00%
6	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	4.50%	3.00%	2.00%
7+	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

The original pricing voluntary lapse rates were expected to be 0.0% for durations 10 and later for policyholders who selected the 10-pay option.

**Exhibit III  
MedAmerica and Affinity Partners  
Comparison of Current and Original Pricing Assumptions**

<b>Original Assumptions</b>	<b>Series 11</b>
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<b>Lapse Rates</b>						
Lapse rates vary by duration, premium payment option, and issue age. Lapse rates for the lifetime payment option are provided in the tables below for Series 11 Individual, Premier Group, and TNSE policy forms.						
<b>Series 11 Individual</b>						
<b>Lapse Rates by Issue Age</b>						
Duration	<60	60-64	65-69	70-74	75-79	80+
<b>1</b>	10.00%	11.00%	12.00%	12.00%	12.00%	12.00%
<b>2</b>	7.00%	7.00%	7.00%	6.00%	4.00%	2.00%
<b>3</b>	5.00%	4.00%	3.00%	3.00%	3.00%	2.00%
<b>4</b>	3.00%	3.00%	2.00%	2.00%	2.00%	2.00%
<b>5</b>	3.00%	2.00%	2.00%	2.00%	2.00%	2.00%
<b>6+</b>	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
<b>Premier Group</b>						
<b>Lapse Rates by Issue Age</b>						
Duration	<60	60-64	65-69	70-74	75-79	80+
<b>1</b>	10.00%	11.00%	12.00%	12.00%	12.00%	12.00%
<b>2</b>	7.00%	7.00%	7.00%	6.00%	4.00%	2.00%
<b>3</b>	5.00%	4.00%	3.00%	3.00%	3.00%	2.00%
<b>4</b>	3.00%	3.00%	2.00%	2.00%	2.00%	2.00%
<b>5</b>	3.00%	2.00%	2.00%	2.00%	2.00%	2.00%
<b>6+</b>	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
<b>TNSE</b>						
<b>Lapse Rates by Issue Age</b>						
Duration	<60	60-64	65-69	70-79	80+	
<b>1</b>	5.00%	5.00%	5.00%	4.00%	3.00%	
<b>2</b>	5.00%	5.00%	5.00%	4.00%	3.00%	
<b>3</b>	5.00%	4.00%	3.00%	3.00%	3.00%	
<b>4</b>	4.00%	4.00%	3.00%	3.00%	3.00%	
<b>5</b>	4.00%	3.00%	3.00%	3.00%	3.00%	
<b>6+</b>	3.00%	3.00%	3.00%	3.00%	3.00%	
For the 10-pay option, a reduction of 50% of these lapse rates is assumed for durations 1 to 6, and 0% lapse thereafter. For the 20-pay option, a reduction of 50% of these lapse rates is assumed for durations 1 to 13, and 0% lapse thereafter.						

**Exhibit III  
MedAmerica and Affinity Partners  
Comparison of Current and Original Pricing Assumptions**

		<b>Benefit Expiry Rates</b>
<b>Current Assumptions</b>	<b>Series 11 and Prior</b>	Benefit expiry rates reflect assumed policy termination due to exhaustion of benefits on limited benefit period policies. The rates are based on the 2017 <i>Guidelines</i> with adjustments for historical benefit expiry experience and vary by gender, benefit period, and attained age. A table containing the benefit expiry rates is provided in Section 6 of the actuarial memorandum.
<b>Original Assumptions</b>	<b>Series 11 and Prior</b>	Benefit expiry was not separated from the lapse assumption.
		<b>Interest Rate</b>
<b>Current Assumptions</b>	<b>Series 11 and Prior</b>	The current most-likely earnings rate assumption is 4.75%. This rate represents MedAmerica's expectation of its long-term investment earnings rate based on the average net investment earnings rate projected for MedAmerica's 2018 cash flow testing.  The maximum valuation interest rate applicable to the year of issue ranges from 3.5% to 5.5% and averages 4.5%.
<b>Original Assumptions</b>	<b>Prior to Series 11</b>	Series 5 policy forms used an original pricing earnings rate assumption of 7.10% and Series 8 and 9 policy forms used an original pricing earnings rate assumption of 7.50%.
	<b>Series 11 Individual</b>	An original pricing earnings rate assumption of 7.50% was assumed.
	<b>Series 11 Group</b>	Premier Group policy forms used an original pricing earnings rate assumption of 7.50% and TNSE policy forms used an original pricing earnings rate assumption of 6.00%.
		<b>Improvement</b>
<b>Current Assumptions</b>	<b>Series 11 and Prior</b>	Annual improvement in the mortality and morbidity assumptions is assumed for 10 years starting in 2019. Annual mortality improvement factors vary by attained age and gender based on the G2 improvement scale from the 2012IAM table. Annual morbidity improvement is assumed to be 1.0%.
<b>Original Assumptions</b>	<b>Series 11 and Prior</b>	No mortality or morbidity improvement was assumed.

## **Appendix A**

### **Development of and Justification for Current Assumptions**

This appendix describes the development of and justification for the current actuarial assumptions used in this filing.

The persistency and morbidity assumptions were developed using historical experience and predictive analytics. Where actual experience was limited or did not exist, industry experience and actuarial judgment was also used. The experience used to develop these assumptions includes historical experience of MedAmerica Insurance Company (MAPA); MAPA's two sister companies, MedAmerica Insurance Company of Florida (MAFL) and MedAmerica Insurance Company of New York (MANY) (MAPA, MAFL, and MANY collectively referred to as MedAmerica); and MedAmerica's affinity partners that issued the same products. Additionally, experience on other blocks of business originally issued by MedAmerica and its affinity partners, and MedAmerica's other acquired blocks of business is also used. For persistency, policy termination experience from January 2008 through December 2017, with runout through March 2018, was used. For morbidity, claim experience from January 2004 through June 2016 was used with six months of runout.

Improvement assumptions for mortality and morbidity were developed based on individual annuitant or industry experience, along with actuarial judgment. The rate increase dependent assumptions were developed using historical experience, and actuarial judgment where experience was limited or did not exist.

The sections that follow provide more detail on the development of and justification for the current assumptions that are material to the projections in this filing.

#### ***Persistency***

The policy persistency assumptions were developed based on detailed historical experience from January 2008 through December 2017, with runout through March 2018, for MedAmerica's organic (including affinity partners) and acquired business. Experience adjustment factors were developed using predictive analytics as described in the Predictive Analytics section below.

#### ***Mortality***

The mortality assumption utilizes the 2012 Individual Annuitant Mortality (IAM) Basic table with experience adjustments.

Exhibit A-1 supports the mortality assumption and provides the following information by marital status, gender, issue era (old versus new), policy duration, and attained age. Policies issued prior to January 1, 1998 are treated as "old" and policies issued on or after January 1, 1998 are treated as "new". Prior to Series 11 policies are considered part of the "old" era bucket as the majority of policies were issued prior to January 1, 1998. Series 11 Individual and Group policies are considered part of the "new" era bucket as the majority of policies were issued on or after January 1, 1998.

- Exhibit A-1a – Provides the adjustment factors that are to be applied to the 2012IAM hazard rates; the adjusted hazard rates are converted back into mortality probabilities to create the mortality assumption produced by the predictive model. Attained age adjustment factors are applicable to only policy durations 7 and later.
- Exhibit A-1b – Provides a summary of actual-to-modeled (A:M) mortality experience for all products of MedAmerica and its affinity partners, and MedAmerica's other acquired blocks of business.
  - Policy year exposure [A] reflects the length of time a covered life is exposed to the risk of death (i.e., exact exposure basis).
  - Actual deaths [B]
  - Mortality probabilities underlying actual experience [C], 2012IAM [D], and the modeled assumption [E]. The modeled mortality probabilities capture the adjustment factors from Exhibit A-1a that were produced by the predictive model. Mortality probabilities were calculated by first calculating the hazard rate of mortality, then transforming into a probability. For example, the actual mortality probability  $[C] = 1 - \text{EXP}(-[B] / [A])$ .
  - A:M ratios are calculated as actual mortality probabilities to the 2012IAM mortality probabilities [F] and to the modeled assumption [G]. The modeled A:M [G] provides an indication of fit. This fit will not be perfect (i.e., ratios deviate from 1.0) because the main goal is to develop an assumption that generalizes well to new data by balancing assumption complexity and fit on the historical experience.

## Appendix A Development of and Justification for Current Assumptions

- Exhibit A-1c – Provides an additional attained age adjustment that was developed to better align the composite termination (i.e., mortality and voluntary lapse combined) assumption with actual experience. Similar to the attained age adjustment factors in Exhibit A-1a, the additional adjustments are applicable to only policy durations 7 and later. The adjustment from Exhibit A-1c is excluded from Exhibit A-1b, but it is included with the composite termination assumptions in Exhibit A-3 described below.

For projection purposes, the adjusted 2012IAM table is brought forward to 2018 using the G2 improvement scale.

### *Lifetime-Pay Voluntary Lapse Assumption*

The voluntary lapse assumption reflects the 2017 cash flow testing voluntary lapse assumption with experience adjustments for attained age, benefit period (lifetime or non-lifetime), inflation protection option (auto inflation or none), marital status, and product cohort.

The attained age adjustment factors developed from the predictive model produced a U-shaped pattern (i.e., decreased and then increased) by attained age. However, the attained age adjustment factors are held constant for ages 65 and older to produce an ultimate voluntary lapse assumption that is constant rather than increasing by attained age. The adjustments are held constant after this point because an increasing attained age lapse trend is not widely used in the industry, and this increasing lapse trend may be due to miscoding a death or underreporting of deaths in the Social Security Death Master File. An additional attained age adjustment to mortality was developed (Exhibit A-1c) in order to capture these terminations (i.e., higher lapses at older attained ages) such that the combined mortality and voluntary lapse assumption better aligns with actual experience as described in Exhibit A-3 below.

The ultimate voluntary lapse probabilities are shown in Section 6 of the actuarial memorandum. These ultimate voluntary lapse probabilities are applicable for attained ages 65 and older at policy durations 10 and later. Only these ultimate voluntary lapse probabilities are material to the projections given the age of this cohort.

Exhibit A-2 supports the voluntary lapse assumption. It provides a comparison of A:M voluntary lapse experience for all products of MedAmerica and its affinity partners, and MedAmerica's other acquired blocks of business, and includes the following:

- Policy year exposure [A] reflects the length of time a covered life is exposed to the risk of lapse (i.e., exact exposure basis).
- Actual lapses [B]
- Lapse probabilities underlying actual experience [C], unadjusted [D], and the modeled assumption [E]. The modeled voluntary lapse probabilities capture the assumptions produced by the predictive model (i.e., include the U-shaped attained age adjustments) to demonstrate the fit of the predictive model. The attained-age cap is captured with the composite termination assumptions in Exhibit A-3 as described below. Lapse probabilities were calculated by first calculating the hazard rate of lapse, then transforming into a probability. For example, the actual lapse probability  $[C] = 1 - \text{EXP}(-[B] / [A])$ .
- A:M ratios are calculated as actual lapse probabilities to the unadjusted lapse probabilities [F] and the modeled assumption [G]. The modeled A:M [G] provides an indication of fit. This fit will not be perfect (i.e., ratios deviate from 1.0) because the main goal is to develop an assumption that generalizes well to new data by balancing assumption complexity and fit on the historical experience.

The experience underlying Exhibit A-2 reflects lifetime-pay policies for policy durations 10 and later to focus on the fit of the ultimate voluntary lapse assumption and excludes "shock" lapses. For certain policies there have been prior rate increases and thus the option to lapse with a contingent benefit (i.e., shock lapse). Additionally, some policy forms offered an optional shortened non-forfeiture benefit. Policies that elected one of these options were not counted as a voluntary lapse; however, their annual policy exposure was valued up to the date of election.

### *Limited-Pay Voluntary Lapse Assumption*

For the limited-pay options, the voluntary lapse assumption is a function of the lifetime-pay voluntary lapse assumption and is similar to that used in original pricing. The smoothed lapse rates are a scalar of the lifetime-pay lapse rates. Approximately 4% of the in-force policies have a limited-pay option that will be subject to the voluntary lapse assumption after the first five years of the projection because they will not yet be paid-up due to the length of

## Appendix A Development of and Justification for Current Assumptions

the payment option for these policies. As a result, the impact of the limited-pay voluntary lapse assumptions on the projections is assumed to be immaterial.

For the ten-pay and twenty-pay options, the scalars were developed from a comparison of the lifetime-pay derived lapse rates to the limited-pay option's derived lapse rates based on MedAmerica and its affinity partners' experience on all products combined. The relationships derived from this analysis were used to develop the smoothed lapse assumptions as shown in Section 6 of the actuarial memorandum.

### *Composite Termination*

Exhibit A-3 supports the composite termination (i.e., mortality and voluntary lapse combined) assumption. It provides a comparison of actual-to-expected (A:E) composite termination experience for all products of MedAmerica and its affinity partners, and MedAmerica's other acquired blocks of business, and includes the following:

- Policy year exposure [A] reflects the length of time a covered life is exposed to the risk of termination (i.e., exact exposure basis).
- Actual composite terminations [B]
- Composite termination probabilities underlying actual experience [C] and the expected assumption [D]. The expected composite termination probabilities capture all of the experience adjustments for mortality (i.e., Exhibits A-1a and A-1c) and voluntary lapse (i.e., attained age cap). Termination probabilities were calculated by first calculating the hazard rate of termination, then transforming into a probability. For example, the actual termination probability  $[C] = 1 - \text{EXP}(-[B] / [A])$ .
- A:E ratios are calculated as actual termination probabilities to the expected composite termination probabilities [E]. The A:E [E] provides an indication of fit. This fit will not be perfect (i.e., ratios deviate from 1.0) because the main goal is to develop an assumption that generalizes well to new data by balancing assumption complexity and fit on the historical experience.

The experience underlying Exhibit A-3 reflects lifetime-pay policies for policy durations 10 and later to focus on the fit of the ultimate composite termination assumption. It also excludes "shock" lapses as described above for Exhibit A-2.

### *Benefit Expiry*

Benefit expiry probabilities reflect assumed policy lapses due to exhaustion of benefits based on the 2017 Milliman *Long-Term Care Guidelines (Guidelines)* with experience adjustments and vary by attained age, gender, and benefit period. Insureds with lifetime benefits do not have an expiry assumption (i.e., probability of 0%). The final benefit expiry assumptions are provided in Section 6 of the actuarial memorandum.

Exhibit A-4 supports the benefit expiry assumption. It provides a comparison of A:E benefit expiry experience for all products of MedAmerica and its affinity partners, and MedAmerica's other acquired blocks of business, and includes the following:

- Policy year exposure [A] reflects the length of time a covered life is exposed to the risk of benefit expiry (i.e., exact exposure basis).
- Actual benefit expiries [B]
- Benefit expiry probabilities underlying actual experience [C], 2017 *Guidelines* [D], and the expected assumption [E]. The expected benefit expiry probabilities capture the assumptions from Section 6 of the actuarial memorandum. Benefit expiry probabilities were calculated by first calculating the hazard rate of benefit expiry, then transforming into a probability. For example, the actual benefit expiry probability  $[C] = 1 - \text{EXP}(-[B] / [A])$ .
- A:E ratios are calculated as actual benefit expiry probabilities to the 2017 *Guidelines* probabilities [F] and the expected assumption [G]. The expected A:E [G] provides an indication of fit. This fit will not be perfect (i.e., ratios deviate from 1.0) because the main goal is to develop an assumption that generalizes well to new data by balancing assumption complexity and fit on the historical experience.

## Appendix A Development of and Justification for Current Assumptions

The experience underlying Exhibit A-4 excludes lifetime benefit periods because benefit expiry is not applicable. It also excludes ages less than 65 because the assumed benefit expiry assumption is 0% and actual experience reflects less than 2% of actual expiries. The experience underlying Exhibit A-4 reflects policy durations 7 and later.

### ***Morbidity***

The claim costs were developed using the 2014 *Guidelines* with experience adjustment factors based on all products of MedAmerica, its affinity partners, and any acquired business from January 2004 through June 2016, with runout through December 2016. The experience adjustment factors were developed using predictive analytics as described in the Predictive Analytics section below.

- Exhibit A-5a – provides the adjustment factors that are to be applied to the 2014 *Guidelines* claim costs for the Series 11 and Prior policy forms.
- Exhibit A-5b – provides a summary of A:E experience for the Series 11 and Prior policy forms.
  - Exposure [A] reflects the length of time a covered life is in force (i.e., an exact exposure basis).
  - Actual incurred claim counts [B] and dollars [C] are based on historical claim experience from inception through June 2016, with runout through December 2016. Actual incurred claim dollars were valued as paid claims plus claim reserves. Paid claims and claim reserves were discounted to the year of incurral.
  - 2014 *Guidelines* incurred claims [D] are valued as the 2014 *Guidelines* claim costs multiplied by actual all-lives exposure. The claim costs vary by gender, attained age, policy duration, benefit period, elimination period, payment type, level of home care coverage, inflation type, and coverage type (comprehensive/facility only/home health care only). Policy design, claims adjudication, and degree of underwriting were considered in developing the claim costs.
  - Expected incurred claims [E] are calculated by applying each applicable adjustment from Exhibit A-5a to the 2014 *Guidelines* incurred claims [D].
  - A:E ratios are calculated as actual incurred claims to the 2014 *Guidelines* incurred claims [F] and expected incurred claims [G]. The expected A:E [G] provides an indication of fit. This fit will not be perfect (i.e., ratios deviate from 1.0) because the main goal is to develop an assumption that generalizes well to new data by balancing assumption complexity and fit on the historical experience.
- Exhibit A-5c – provides information similar to Exhibit A-5b, except provides the experience for all products of MedAmerica and its affinity partners, and MedAmerica's other acquired blocks of business.

Prior to developing the experience adjustment factors, the 2014 *Guidelines* were adjusted for an assumed level of morbidity improvement. The 2014 *Guidelines* claim costs reflect morbidity improvement such that they are as of calendar year 2014. We assume this improvement has also occurred in the actual historical experience. Therefore, a backward or forward projection of morbidity improvement was applied to the expected claim costs on a seriatim basis based on the calendar year in which a given policy's duration fell. An annual improvement level of 1.0% was used in the backward or forward projections.

For projection purposes, the 2014 *Guidelines* are brought forward to 2018 using 1% improvement.

### ***Prospective Improvement***

For projected mortality improvement, the G2 improvement scale from the 2012IAM mortality table was used. The G2 improvement scale varies by attained age and gender. It is applied beginning in the first projection year and continues for 10 projection years.

For projected morbidity improvement, a level of 1.0% is assumed for 10 years beginning January 1, 2019. This assumption is set based on the underlying morbidity improvement from the 2014 *Guidelines*. This level is also reasonable based on the Society of Actuaries (SOA) July 2016 study, *Long Term Care Morbidity Improvement Study: Estimates for the Non-Insured U.S. Elderly Population Based on the National Long Term Care Survey 1984-2004*. This study reported population annual morbidity improvement of 2.3% for unisex, 2.5% for males, and 2.1% for females. The SOA July 2016 study uses population data, so it is uncertain how well these findings will translate to an insured population. The SOA June 2011 study, *Global Mortality Improvement Experience and Projection Techniques*, suggests that an annuitant cohort has more mortality improvement over the general population, so it is

**Appendix A**  
**Development of and Justification for Current Assumptions**

possible that this could be true for morbidity as well. Based on these studies, a reasonable range for morbidity improvement is between 0.0% to 2.5% for males and 0.0% to 2.1% for females for 10 to 20 years.

**Rate Increase Dependent Assumptions**

At the time of a rate increase, insureds have options to elect a contingent benefit upon lapse (CBUL) or reduced benefit options (RBO). Adverse selection is assumed relative to CBUL and RBO elections. These insured behavior assumptions are provided in Section 6 of the actuarial memorandum. These assumptions are based on MedAmerica and its affinity partners, and MedAmerica’s acquired business’s combined actual CBUL and RBO election rate experience and actuarial judgment—particularly at the higher rate increase magnitudes where limited experience exists.

*Contingent Benefit Upon Lapse Election*

The assumed CBUL election rate is based on the requested rate increase and is applied on a seriatim basis. No CBUL elections are assumed for limited-pay policies.

*Reduced Benefit Options*

We assume that those electing RBO will reduce their benefits so that premiums after the increase are closer to those before the increase. We assume that the percent reduction in premium corresponds to an equivalent percent reduction in claims. We assume an RBO election rate based on the requested rate increase and it is applied on a seriatim basis. No RBO elections are assumed for limited-pay policies.

The reduction to premium and claims then varies based on the level of the rate increase and can then be determined as follows:

$$\begin{aligned} &\text{Reduction to premium and claims due to the election of RBO} \\ &= 1 - (\text{Average premium level after the rate increase with RBO election} / \text{Premium level after the full rate} \\ &\quad \text{increase without any RBO election}), \text{ where} \end{aligned}$$

$$\begin{aligned} &\text{Average premium level after the rate increase with RBO election} \\ &= \text{weighted average premium level of those assumed to elect RBO with those assumed to accept the full} \\ &\quad \text{rate increase} \end{aligned}$$

*Adverse Selection*

The adverse selection assumption is a function of the CBUL and RBO election rates, such that the relative increase to morbidity due to adverse selection varies by the rate increase’s magnitude. The increase to morbidity due to adverse selection was developed from the following formula and actuarial judgment. We assume that at the time of the rate increase, insureds that elect a CBUL will be selective in that their relative morbidity is 25% lower than that of the remaining pool. Similarly, we assume that at the time of the rate increase, insureds that elect an RBO will be selective in that their relative morbidity is 12.5% lower than that of the remaining pool.

$$\text{PoolMorb} = \text{AdvSelMorb} \times (1 - \text{CBUL} - \text{RBO}) + [(1 - 25\%) \times \text{AdvSelMorb}] \times \text{CBUL} + [(1 - 12.5\%) \times \text{AdvSelMorb}] \times \text{RBO}, \text{ where}$$

- PoolMorb = morbidity of the pool before the rate increase = 1.0
- AdvSelMorb = adverse morbidity of the remaining pool after the rate increase due to selective lapses
- CBUL = percentage of insureds that elect CBUL
- RBO = percentage of insureds that elect RBO

Solving the above for the adverse selection component results in the following formula:

$$\text{Adverse Selection} = 1 / (1 - 25\% \times \text{CBUL} - 12.5\% \times \text{RBO})$$

**Predictive Analytics**

In developing the persistency and morbidity experience adjustment factors, predictive analytics was employed in the form of a penalized generalized linear model (GLM).



## **Appendix A**

### **Development of and Justification for Current Assumptions**

A penalized GLM is similar to a traditional GLM. The only difference is that it adds an additional constraint that penalizes the size of the model's coefficients in order to control overfitting the model to the historical data. This penalty placed on the coefficients can be seen as a credibility lever, which controls how much weight is given to the company's actual experience. A high penalty would give no weight to the data, leaving the benchmark assumption (i.e., the 2014 *Guidelines* for morbidity) unadjusted. No penalty would give full weight to the company's actual data potentially making large adjustments to the benchmark, which could be overfitting the actual experience. When using a penalized GLM, it is important to choose a penalty that gives the right amount of weight to the actual data to avoid underfitting or overfitting the experience.

A standard approach for choosing such a penalty is to use a  $k$ -fold cross-validation to test a series of penalty values. A  $k$ -fold cross-validation splits the data into  $k$  subsets and iteratively trains and tests the model independently on each subset of the data. This process gives an estimation of how well a model will generalize to new data that was not used to develop the assumption. Through the  $k$ -fold cross-validation we evaluated the impact the penalty had on the model's generalizability by testing a range of 100 penalties. We selected a penalty to balance minimizing the  $k$ -fold cross-validation prediction error with the generalizability of the model. This allows for a statistically robust and automated process to determine the amount of weight to give actual experience versus the benchmark assumption.

**Exhibit A-1a  
Mortality Hazard Rate Adjustment Factors  
All Products**

Attained Age	Gender		Marital Status		Duration	Era Bucket	
	Male	Female	Married	Single		Old	New
<55	0.99	1.00	0.99	1.01	1	0.99	0.81
55	0.97	0.99	0.97	1.01	2	0.99	0.70
56	0.97	0.98	0.95	1.01	3	0.99	0.63
57	0.95	0.97	0.93	1.02	4	0.99	0.59
58	0.93	0.96	0.91	1.02	5	0.99	0.56
59	0.91	0.93	0.89	1.02	6	0.99	0.66
60	0.89	0.89	0.88	1.01	7	0.99	0.75
61	0.85	0.86	0.85	1.00	8	0.99	0.81
62	0.85	0.86	0.84	1.00	9	0.99	0.84
63	0.84	0.85	0.82	1.00	10	0.99	0.86
64	0.84	0.84	0.81	1.01	11	0.99	0.90
65	0.87	0.84	0.81	1.01	12	0.99	0.92
66	0.88	0.85	0.81	1.01	13	0.99	0.93
67	0.87	0.82	0.81	1.00	14	0.99	0.96
68	0.91	0.82	0.82	1.01	15	1.01	0.98
69	0.95	0.85	0.84	1.02	16	1.01	0.98
70	0.97	0.85	0.85	1.02	17	1.04	0.98
71	0.99	0.84	0.86	1.03	18	1.04	0.98
72	1.02	0.85	0.87	1.04	19	1.04	0.98
73	1.03	0.85	0.89	1.03	20+	1.04	0.98
74	1.04	0.85	0.90	1.04		1.03	0.98
75	1.05	0.86	0.91	1.04			
76	1.08	0.87	0.92	1.04			
77	1.11	0.92	0.94	1.07			
78	1.09	0.94	0.95	1.05			
79	1.08	0.94	0.95	1.02			
80	1.09	0.93	0.96	1.04			
81	1.10	0.95	0.97	1.04			
82	1.08	0.93	0.96	1.04			
83	1.08	0.91	0.95	1.04			
84	1.03	0.89	0.96	1.02			
85	1.06	0.92	0.99	1.02			
86	1.04	0.93	0.99	1.01			
87	1.04	0.90	1.00	0.99			
88	1.07	0.90	1.00	0.99			
89	1.13	0.94	0.99	1.01			
90	1.09	0.95	0.99	1.02			
91	1.07	0.96	1.00	1.02			
92	1.09	1.00	1.01	1.03			
93	1.06	1.01	1.02	1.03			
94	1.03	1.00	1.01	1.03			
95	1.01	1.00	0.99	1.04			
96	1.01	1.01	0.99	1.05			
97	1.00	1.02	0.99	1.05			
98	1.00	1.04	0.99	1.05			
99	0.99	1.04	1.00	1.04			
100	0.99	1.03	1.00	1.03			
101	0.99	1.02	1.00	1.02			
102	0.98	1.01	0.99	1.01			
103	0.99	1.01	0.99	1.00			
104+	0.99	1.00	1.00	1.01			

**Exhibit A-1b**  
**Actual-to-Modeled Mortality Experience 2008-2017**  
**Policy Durations 7+**  
**All Products**

Policy or Policyholder Characteristic	Policy Year Exposure [A]	Actual		Mortality Probability		Actual-to-Modeled Mortality Probability	
		Deaths [B]	Probability [C]	2012IAM [D]	Modeled [E]	2012IAM [F] = [C] / [D]	Modeled [G] = [C] / [E]
<b>Marital Status</b>							
Married	386,931	5,992	1.5%	1.8%	1.6%	0.86	0.99
Single	392,172	9,243	2.3%	2.4%	2.3%	0.97	1.00
<b>Gender</b>							
Female	452,361	7,931	1.7%	2.0%	1.7%	0.88	0.99
Male	326,742	7,304	2.2%	2.3%	2.2%	0.98	1.00
<b>Era</b>							
New	569,023	7,175	1.3%	1.5%	1.3%	0.84	0.99
Old	210,080	8,060	3.8%	3.7%	3.8%	1.02	1.00
<b>Policy Duration</b>							
7-9	204,938	1,429	0.7%	1.0%	0.7%	0.70	0.97
10-14	315,361	4,614	1.5%	1.7%	1.5%	0.87	0.99
15-19	172,971	5,090	2.9%	2.9%	2.9%	1.00	1.01
20-24	69,899	3,138	4.4%	4.3%	4.4%	1.03	1.00
25+	15,933	964	5.9%	5.7%	5.9%	1.03	0.99
<b>Attained Age</b>							
<65	278,751	776	0.3%	0.4%	0.3%	0.71	0.95
65-69	121,892	789	0.6%	0.9%	0.7%	0.70	0.98
70-74	121,461	1,396	1.1%	1.4%	1.2%	0.80	0.99
75-79	111,354	2,505	2.2%	2.4%	2.2%	0.93	1.00
80-84	84,877	3,624	4.2%	4.3%	4.2%	0.97	1.00
85+	60,768	6,145	9.6%	9.5%	9.6%	1.01	1.00
<b>Total</b>	<b>779,103</b>	<b>15,235</b>	<b>1.9%</b>	<b>2.1%</b>	<b>1.9%</b>	<b>0.93</b>	<b>1.00</b>

**Exhibit A-1c**  
**Composite Termination Attained Age Mortality Adjustment**  
**For Policy Durations 7+**  
**All Products**

<b>Attained Age</b>	<b>Adjustment</b>	<b>Attained Age</b>	<b>Adjustment</b>
<55	1.00	75	1.02
55	1.00	76	1.02
56	1.00	77	1.03
57	1.00	78	1.03
58	1.00	79	1.03
59	1.00	80	1.03
60	1.00	81	1.04
61	1.00	82	1.04
62	1.00	83	1.04
63	1.00	84	1.04
64	1.00	85	1.05
65	1.00	86	1.05
66	1.00	87	1.06
67	1.00	88	1.06
68	1.00	89	1.06
69	1.00	90	1.06
70	1.00	91	1.07
71	1.01	92	1.07
72	1.01	93	1.07
73	1.01	94	1.07
74	1.01	95+	1.07

**Exhibit A-2**  
**Actual-to-Modeled Voluntary Lapse Experience 2008-2017**  
**Lifetime-Pay for Policy Durations 10+**  
**All Products**

Policy or Policyholder Characteristic	Policy Year Exposure [A]	Actual		Lapse Probability		Actual-to-Modeled Lapse Probability	
		Lapses [B]	Probability [C]	Unadjusted [D]	Modeled [E]	Unadjusted [F] = [C] / [D]	Modeled [G] = [C] / [E]
<b>Marital Status</b>							
Married	226,840	1,757	0.8%	1.0%	0.8%	0.76	0.98
Single	252,968	2,338	0.9%	0.9%	0.9%	1.02	1.01
<b>Benefit Period</b>							
Non-Lifetime	343,952	3,341	1.0%	1.0%	1.0%	0.95	1.01
Lifetime	135,856	754	0.6%	0.8%	0.6%	0.68	0.95
<b>Inflation</b>							
None	177,263	2,052	1.2%	1.0%	1.1%	1.13	1.01
Auto	302,544	2,043	0.7%	0.9%	0.7%	0.73	0.98
<b>Cohort<sup>[1]</sup></b>							
Prior to Series 11	19,434	146	0.7%	1.0%	0.8%	0.75	0.90
Series 11 Individual	54,987	326	0.6%	0.6%	0.6%	0.99	1.00
Series 11 Group	19,641	216	1.1%	1.3%	1.1%	0.84	0.98
<b>Attained Age</b>							
<65	113,757	1,078	0.9%	0.9%	0.8%	1.01	1.14
65-69	67,892	376	0.6%	0.9%	0.6%	0.59	0.91
70-74	79,255	523	0.7%	1.0%	0.7%	0.68	0.92
75-79	88,328	649	0.7%	1.0%	0.8%	0.74	0.93
80-84	74,228	677	0.9%	1.0%	0.9%	0.94	0.96
85+	56,348	792	1.4%	1.0%	1.4%	1.45	1.01
<b>Total</b>	<b>479,808</b>	<b>4,095</b>	<b>0.8%</b>	<b>1.0%</b>	<b>0.9%</b>	<b>0.89</b>	<b>1.00</b>

[1] Series characteristic captures the experience of Prior to Series 11, Series 11 Individual, and Series 11 Group policies only, while other characteristics capture the pooled experience of products of MedAmerica, its affinity partners, and MedAmerica's acquired blocks of business.

**Exhibit A-3**  
**Actual-to-Expected Composite<sup>[1]</sup> Termination Experience 2008-2017**  
**Lifetime-Pay for Policy Durations 10+**  
**All Products**

Policy or Policyholder Characteristic	Policy Year Exposure [A]	Actual		Expected Termination Probability <sup>[1]</sup> [D]	Actual-to-Expected Termination Probability <sup>[1]</sup> [E] = [C] / [D]
		Terminations [B]	Probability [C]		
<b>Marital Status</b>					
Married	226,840	6,737	2.9%	2.9%	1.00
Single	252,968	10,430	4.0%	3.9%	1.03
<b>Gender</b>					
Female	291,631	9,451	3.2%	3.2%	1.01
Male	188,176	7,716	4.0%	3.9%	1.03
<b>Era</b>					
New	291,819	7,978	2.7%	2.6%	1.04
Old	187,989	9,189	4.8%	4.8%	1.00
<b>Benefit Period</b>					
Non-Lifetime	343,952	13,461	3.8%	3.8%	1.02
Lifetime	135,856	3,706	2.7%	2.6%	1.03
<b>Inflation</b>					
None	177,263	9,333	5.1%	4.9%	1.05
Auto	302,544	7,834	2.6%	2.6%	0.99
<b>Cohort<sup>[2]</sup></b>					
Prior to Series 11	19,434	1,066	5.3%	5.1%	1.04
Series 11 Individual	54,987	1,715	3.1%	3.0%	1.03
Series 11 Group	19,641	392	2.0%	1.8%	1.09
<b>Policy Duration</b>					
10-14	256,833	6,828	2.6%	2.5%	1.07
15-19	145,062	5,757	3.9%	3.9%	0.99
20-24	62,763	3,496	5.4%	5.4%	1.00
25+	15,150	1,086	6.9%	7.1%	0.98
<b>Attained Age</b>					
<65	113,757	1,466	1.3%	1.2%	1.11
65-69	67,892	883	1.3%	1.3%	0.99
70-74	79,255	1,488	1.9%	1.9%	1.00
75-79	88,328	2,733	3.0%	3.0%	1.01
80-84	74,228	3,966	5.2%	5.1%	1.02
85+	56,348	6,631	11.1%	10.9%	1.01
<b>Total</b>	<b>479,808</b>	<b>17,167</b>	<b>3.5%</b>	<b>3.4%</b>	<b>1.02</b>

[1] Combination of mortality and voluntary lapse

[2] Series characteristic captures the experience of Prior to Series 11, Series 11 Individual, and Series 11 Group policies only, while other characteristics capture the pooled experience of products of MedAmerica, its affinity partners, and MedAmerica's acquired blocks of business.

**Exhibit A-4**  
**Actual-to-Expected Benefit Expiry Experience 2008-2017**  
**Policy Durations 7+**  
**All Products**

Policy or Policyholder Characteristic	Policy Year Exposure <sup>[1]</sup> [A]	Actual		Benefit Expiry Probability		Actual-to-Expected Benefit Expiry	
		Benefit Expiry [B]	Probability [C]	2017 Guidelines [D]	Expected <sup>[2]</sup> [E]	2017 Guidelines [F] = [C] / [D]	Expected <sup>[2]</sup> [G] = [C] / [E]
<b>Gender</b>							
Female	226,513	1,317	0.6%	0.5%	0.6%	1.07	1.02
Male	162,541	445	0.3%	0.3%	0.3%	0.99	0.97
<b>Benefit Period</b>							
1 Year	21,879	139	0.6%	0.7%	0.7%	0.91	0.88
2 Year	59,932	533	0.9%	0.7%	0.8%	1.20	1.13
3 Year	181,848	722	0.4%	0.4%	0.4%	0.96	0.93
4 Year	52,938	188	0.4%	0.3%	0.4%	1.05	0.99
5 Year	66,951	175	0.3%	0.2%	0.2%	1.19	1.12
6 Year	4,677	5	0.1%	0.0%	0.0%	2.92	2.80
10 Year	830	0	0.0%	0.0%	0.0%	0.00	0.00
<b>Attained Age</b>							
<75	186,976	86	0.0%	0.1%	0.1%	0.64	0.83
75-79	85,088	145	0.2%	0.2%	0.2%	0.73	0.90
80-84	66,442	376	0.6%	0.6%	0.6%	1.01	1.01
85-89	36,785	544	1.5%	1.3%	1.5%	1.10	0.99
90-94	11,698	466	3.9%	3.0%	3.7%	1.30	1.06
95+	2,066	145	6.8%	5.6%	6.3%	1.22	1.07
<b>Total</b>	<b>389,054</b>	<b>1,762</b>	<b>0.5%</b>	<b>0.4%</b>	<b>0.5%</b>	<b>1.05</b>	<b>1.00</b>

[1] Experience excludes lifetime benefit periods and ages less than 65

[2] Expected = Rates in Section 6 of the actuarial memorandum

**Exhibit A-5a**  
**MedAmerica and Affinity Partners**  
**Morbidity Adjustment Factors**  
**Series 11 and Prior Policy Forms**

Duration	Product-Specific Adjustment Factors		
	Prior to Series 11	Series 11 Individual	Series 11 Group
1	1.01	1.00	0.89
2	1.03	0.98	0.83
3	1.04	0.96	0.78
4	1.09	0.99	0.74
5	1.17	0.97	0.71
6	1.19	0.97	0.76
7	1.18	1.00	0.82
8	1.16	1.02	0.91
9	1.09	0.97	1.01
10	1.01	0.98	1.13
11	0.96	1.01	1.23
12	0.97	1.04	1.24
13	1.00	1.06	1.17
14	1.05	1.09	1.09
15	1.11	1.14	1.00
16	1.12	1.11	0.96
17	1.11	1.07	0.95
18	1.08	1.05	0.96
19	1.04	1.03	0.98
20+	1.02	1.02	0.99

Attained Age	Product-Specific Adjustment Factors		
	Prior to Series 11	Series 11 Individual	Series 11 Group
<55	1.05	1.00	1.02
55	1.05	1.00	1.02
56	1.05	1.00	1.02
57	1.04	1.00	1.01
58	1.02	0.97	0.99
59	1.09	0.94	0.99
60	1.09	0.93	0.97
61	1.15	0.93	0.98
62	1.23	0.89	0.99
63	1.36	0.86	1.00
64	1.28	0.87	0.99
65	1.23	0.90	0.97
66	1.20	0.90	0.95
67	1.18	0.95	0.93
68	1.08	1.07	0.95
69	1.08	1.11	0.93
70	1.06	1.09	0.93
71	1.00	1.10	0.94
72	0.94	1.13	0.95
73	0.94	1.09	0.95
74	0.94	1.10	0.98
75	0.91	1.13	0.99
76	0.90	1.13	1.00
77	0.92	1.05	0.99
78	0.90	1.05	0.98
79	0.89	1.04	0.98
80	0.93	1.03	1.00
81	0.98	1.03	1.01
82	0.96	1.09	1.04
83	0.99	1.10	1.06
84	0.99	1.09	1.06
85	0.99	1.09	1.04
86	0.96	1.09	1.03
87	0.98	1.06	1.01
88	0.97	1.05	1.00
89	0.98	1.07	0.99
90	0.98	1.06	0.99
91	0.99	1.06	0.99
92	1.00	1.05	0.99
93	1.01	1.02	0.99
94	1.01	0.99	0.99
95	1.02	0.98	1.00
96	1.01	0.97	1.00
97	1.00	0.97	1.00
98	1.00	0.98	1.00
99	1.00	0.99	1.00
100	1.00	0.99	1.00
101+	1.00	1.00	1.00

Attained Age	Payment Type Adjustment Factors		
	Series 11 and Prior Individual		Series 11 Group
	Non-Tax-Qualified (NTQ)	Tax-Qualified (TQ)	
<55	0.99	0.94	1.07
55	0.99	0.94	1.07
56	0.99	0.94	1.07
57	0.94	0.92	1.12
58	0.88	0.92	1.11
59	0.90	0.88	1.11
60	0.91	0.91	1.04
61	0.91	0.90	1.02
62	0.96	0.87	0.92
63	1.05	0.81	0.90
64	0.96	0.81	0.90
65	0.89	0.85	0.91
66	0.89	0.82	0.93
67	0.90	0.87	1.01
68	0.83	0.95	1.07
69	0.88	1.01	1.04
70	0.94	0.99	1.01
71	0.98	1.03	0.99
72	1.00	1.05	0.96
73	1.06	1.05	0.96
74	1.11	1.04	0.97
75	1.14	1.04	0.93
76	1.10	1.08	0.93
77	1.08	1.07	0.88
78	1.07	1.09	0.82
79	1.06	1.12	0.77
80	1.03	1.19	0.79
81	1.06	1.15	0.78
82	1.08	1.14	0.82
83	1.14	1.14	0.87
84	1.08	1.10	0.94
85	1.10	1.07	0.95
86	1.09	1.09	0.98
87	1.10	1.17	0.98
88	1.06	1.18	0.97
89	1.09	1.22	0.97
90	1.06	1.24	0.96
91	1.04	1.24	0.97
92	1.02	1.15	0.98
93	1.02	1.11	0.99
94	1.01	1.06	0.99
95	1.03	1.04	0.99
96	1.02	1.01	0.98
97	1.03	1.01	0.98
98	1.00	1.01	0.97
99	1.00	1.01	0.97
100	1.00	1.02	0.98
101+	1.00	1.02	0.98

Attained Age	Non-MANY Adjustment Factor	
	Series 11 and Prior Individual	Series 11 Group
<55	1.07	1.01
55	1.07	1.01
56	1.07	1.01
57	1.06	1.00
58	0.99	0.98
59	0.95	0.99
60	0.89	0.99
61	0.89	1.01
62	0.88	1.03
63	0.94	1.03
64	1.00	1.01
65	1.00	1.00
66	1.09	0.98
67	1.17	0.97
68	1.25	1.00
69	1.26	1.00
70	1.28	1.00
71	1.13	1.01
72	1.09	1.02
73	1.03	1.01
74	1.03	1.02
75	0.99	1.03
76	1.00	1.03
77	0.97	1.02
78	0.97	1.00
79	0.97	1.00
80	1.02	1.01
81	1.08	1.01
82	1.12	1.03
83	1.13	1.05
84	1.11	1.04
85	1.08	1.03
86	1.05	1.02
87	1.03	1.01
88	1.02	1.00
89	1.05	0.99
90	1.05	0.99
91	1.05	0.99
92	1.05	0.99
93	1.04	0.99
94	1.00	0.99
95	1.00	1.00
96	0.98	1.00
97	0.97	1.00
98	0.98	1.00
99	0.99	1.00
100	0.99	1.00
101+	1.00	1.00

Coverage Type	Adjustment Factor
Comprehensive	0.90
Nursing Home Only	1.03
Home Care Only	1.10



**Exhibit A-5b**  
**MedAmerica and Affinity Partners**  
**Actual-to-Expected Morbidity Experience through June 30, 2016 with Claim Runout**  
**Series 11 and Prior Policy Forms**

Policy or Policyholder Characteristic	Exposure [A]	Actual Incurred Claims		Incurred Claims		Actual-to-Expected Incurred Claims	
		Count [B]	Dollars [C]	2014 Guidelines [D]	Expected [E]	2014 Guidelines [F] = [C] / [D]	Expected [G] = [C] / [E]
<b>Group / Individual</b>							
Individual	193,242	2,249	178,975,634	156,954,375	176,559,724	1.14	1.01
Group	70,814	144	12,926,716	15,433,614	12,861,010	0.84	1.01
<b>Payment-Type / Tax Status (TQ = Tax-Qualified, NTQ = Non-Tax-Qualified)</b>							
Cash / TQ	-	-	-	-	-	-	-
Reimbursement / NTQ	39,927	917	65,409,856	59,812,646	63,796,383	1.09	1.03
Reimbursement / TQ	224,130	1,476	126,492,493	112,575,343	125,624,350	1.12	1.01
<b>Coverage Type</b>							
Comprehensive	227,746	1,884	150,906,765	139,676,235	147,922,870	1.08	1.02
Nursing Home Only	32,685	460	38,605,492	30,464,462	38,400,192	1.27	1.01
Home Care Only	3,625	49	2,390,092	2,247,291	3,097,671	1.06	0.77
<b>Attained Age</b>							
< 60	83,038	42	4,870,844	5,365,561	4,676,717	0.91	1.04
60 - 69	79,848	159	19,010,143	18,287,944	16,392,665	1.04	1.16
70 - 79	70,206	692	61,059,411	58,372,138	61,346,118	1.05	1.00
80 - 89	28,701	1,254	93,780,632	78,168,887	93,335,869	1.20	1.00
90 +	2,264	246	13,181,321	12,193,459	13,669,365	1.08	0.96
<b>Policy Duration</b>							
< 7	100,261	233	18,673,085	21,414,416	20,738,173	0.87	0.90
7 - 10	81,762	596	50,705,841	45,309,295	48,390,377	1.12	1.05
11 - 15	68,137	1,050	84,288,017	73,690,605	83,520,887	1.14	1.01
16 - 20	13,264	475	36,640,193	30,113,053	34,827,994	1.22	1.05
21 +	632	39	1,595,214	1,860,621	1,943,302	0.86	0.82
<b>Product</b>							
Series 11 Group	70,814	144	12,926,716	15,433,614	12,861,010	0.84	1.01
Series 11 Individual	153,316	1,332	113,565,777	97,141,729	112,763,341	1.17	1.01
Prior to Series 11	39,927	917	65,409,856	59,812,646	63,796,383	1.09	1.03
<b>Total</b>	<b>264,057</b>	<b>2,393</b>	<b>191,902,350</b>	<b>172,387,989</b>	<b>189,420,734</b>	<b>1.11</b>	<b>1.01</b>

**Exhibit A-5c**  
**MedAmerica, Affinity Partners, and Acquired Business**  
**Actual-to-Expected Morbidity Experience through June 30, 2016 with Claim Runout**  
**All Products**

Policy or Policyholder Characteristic	Exposure [A]	Actual Incurred Claims		Incurred Claims		Actual-to-Expected Incurred Claims	
		Count [B]	Dollars [C]	2014 Guidelines [D]	Expected [E]	2014 Guidelines [F] = [C] / [D]	Expected [G] = [C] / [E]
<b>Group / Individual</b>							
Individual	912,916	9,926	800,367,697	733,049,215	794,361,129	1.09	1.01
Group	346,699	1,374	130,339,904	156,675,596	133,888,114	0.83	0.97
<b>Payment-Type / Tax Status (TQ = Tax-Qualified, NTQ = Non-Tax-Qualified)</b>							
Cash / TQ	343,731	558	62,039,510	57,638,053	59,620,193	1.08	1.04
Reimbursement / NTQ	300,053	6,653	510,365,552	479,343,318	507,745,230	1.06	1.01
Reimbursement / TQ	615,831	4,089	358,302,538	352,743,439	360,883,820	1.02	0.99
<b>Coverage Type</b>							
Comprehensive	1,136,716	8,789	756,597,258	749,849,298	758,592,612	1.01	1.00
Nursing Home Only	106,185	2,145	154,205,174	127,829,789	153,061,713	1.21	1.01
Home Care Only	16,715	366	19,905,169	12,045,724	16,594,918	1.65	1.20
<b>Attained Age</b>							
< 60	453,624	244	33,805,437	30,149,268	30,328,735	1.12	1.11
60 - 69	360,462	666	78,589,161	88,054,403	75,788,341	0.89	1.04
70 - 79	291,092	2,748	262,147,876	268,144,812	267,494,038	0.98	0.98
80 - 89	138,826	5,979	465,876,836	417,634,186	464,847,833	1.12	1.00
90 +	15,611	1,663	90,288,290	85,742,142	89,790,297	1.05	1.01
<b>Policy Duration</b>							
< 7	497,039	823	75,787,355	82,648,988	79,201,077	0.92	0.96
7 - 10	307,411	1,867	174,015,180	164,578,241	170,058,801	1.06	1.02
11 - 15	278,526	3,765	317,411,016	297,015,693	316,181,994	1.07	1.00
16 - 20	129,643	3,188	245,115,546	230,142,856	242,291,028	1.07	1.01
21 +	46,996	1,657	118,378,503	115,339,033	120,516,343	1.03	0.98
<b>Total</b>	<b>1,259,615</b>	<b>11,300</b>	<b>930,707,601</b>	<b>889,724,811</b>	<b>928,249,243</b>	<b>1.05</b>	<b>1.00</b>

**Appendix B**  
**Justification for and Development of the Requested Rate Increase**

This appendix provides details on the development of the current rate increase requests as well as demonstrations of how the requested rate increases are not recouping past losses.

**Actuarial Equivalent Rate Increase Development**

This rate increase request is a follow-up to two prior nationwide requests for the Prior to Series 11, Series 11 Individual, and Series 11 Group policy forms. Table B-1 provides the originally requested rate increases by benefit period. In jurisdictions that did not allow full implementation of the prior requested increases, the company is requesting a follow-up increase to achieve an actuarially equivalent lifetime loss ratio to the prior requests.

**Table B-1**  
**Originally Requested Nationwide Rate Increases**  
**Series 11 and Prior Policy Forms**

<b>Benefit Period</b>	<b>2009 Request</b>	<b>2017 Request</b>	<b>Cumulative Request</b>
Non-Lifetime	39.0%	69.1%	135%
Lifetime	39.0	187.1	299
All <sup>[1]</sup>	39.0	96.8	174

*[1] Average as of December 31, 2018 and excludes policies assumed to be paid up prior to implementation of the requested rate increase.*

Exhibit B-1 provides the lifetime loss ratio that would have been achieved if all jurisdictions had implemented the originally requested rate increases. This exhibit is similar to Exhibit I-b except that it reflects premiums that have been restated to assume implementation of the originally requested rate increases shown in Table B-1 and is split by benefit period. Table B-2 summarizes the lifetime loss ratios from Exhibit B-1, which are the targets for determining actuarial equivalence.

**Table B-2**  
**Target Lifetime Loss Ratio for Actuarial Equivalence**  
**Series 11 and Prior Policy Forms**

<b>Benefit Period</b>	<b>Lifetime Loss Ratio</b>
Non-Lifetime	88%
Lifetime	130

The average nationwide requested rate increases shown in Section 2 were developed to produce a lifetime loss ratio that is equivalent to that in Table B-2. This equivalence is demonstrated by comparing the after increase lifetime loss ratios from Section 15 to those in Table B-2.

The requested rate increases in this jurisdiction, shown in the enclosed cover letter, were developed to produce lifetime loss ratios that are equivalent to those in Table B-2. This equivalence is demonstrated by comparing the lifetime loss ratios from Exhibit B-2 to those in Table B-2. Exhibit B-2 provides similar information as Exhibit B-1 except that premiums have been restated to reflect the actual rate increases implemented in this jurisdiction and the requested rate increase shown in the cover letter.

While emerging experience supports a larger rate increase, the company is limiting the increase to be an actuarially equivalent follow-up to the prior requests in order to improve equity across jurisdictions. The company plans to continue to monitor experience and request additional rate increases in the future, to the extent justified. However, if it is the Department's position to only allow future rate increases if experience deteriorates from the current most-likely projections used in this filing, the company respectfully requests that the Department notify them and allow the company to revise the current rate increase request.

**Demonstrations the Requested Increase does not Recoup Past Losses**

A number of methods exist to quantify or demonstrate whether an increase may be recouping past losses and offer the following for consideration.

**Appendix B**  
**Justification for and Development of the Requested Rate Increase**

*Capped Historical Incurred Claims*

The 2014 Long-Term Care Model Regulation (Model Regulation) contemplates recouping past losses in Section 20.1.C for newly issued policies. Specifically, recouping past losses is limited by not allowing past actual claims in excess of expected claims by calendar year in the minimum loss ratio test (Section 20.1.C(2)).

While Section 20.1.C is not applicable to these policies, to demonstrate that the nationwide rate increase request is not recouping past losses we capped actual historical claims by those expected in pricing by calendar year in demonstrating compliance with the applicable minimum loss ratio requirements for these policies. Expected claims are calculated as earned premium multiplied by expected loss ratio for each calendar year.

Tables B-3 and B-4 reflect the capped historical incurred claims and demonstrate compliance with the applicable minimum loss ratio requirements for the pre- and post-rate stability regulation (Model Regulation Sections 19 and 20), respectively. Tables B-3 and B-4 provide similar information as that in Section 15 of the actuarial memorandum, except for capping historical incurred claims at that expected.

**Table B-3**  
**Nationwide Lifetime Loss Ratios with Capped Historical Incurred Claims**  
**at the Maximum Valuation Interest Rate**  
**by Policy Form Cohort and Benefit Period**

Policy Form Cohort	Benefit Period	Before Increase	After Increase
Prior to Series 11	All	103%	98%
Series 11 Individual	All	117	100
Series 11 Group	All	106	91
All	Non-Lifetime	95	86
All	Lifetime	147	120
All	All	110	96

**Table B-4**  
**Alternative 58%/85% Test with Capped Historical Incurred Claims**  
**by Policy Form Cohort and Benefit Period**

Policy Form Cohort	Benefit Period	Alternative 58% Loss Ratio	Item 5 <sup>[1]</sup>	Item 7 <sup>[2][3]</sup>	Result <sup>[4]</sup>
Prior to Series 11	All	66%	\$166.3	\$256.8	Pass
Series 11 Individual	All	58	339.8	581.9	Pass
Series 11 Group	All	70	163.1	225.0	Pass
All	Non-Lifetime	64	483.8	674.5	Pass
All	Lifetime	60	185.6	373.5	Pass
All	All	63	669.5	1,054.2	Pass

[1] Item 5 is the Lifetime Earned Premium (in millions) Times Prescribed Factor.

[2] Item 7 is Lifetime Incurred Claims with Rate Increase (in millions). The historical incurred claims by calendar year reflect the lesser of actual and expected pricing claims. The future projected incurred claims were increased by 15% to reflect assumptions with moderately adverse experience.

[3] The capped historical incurred claims are calculated for each indicated cohort. The difference results in the sum of the cohort and/or benefit period not tying to the totals.

[4] Test of whether Item 7 is not less than Item 5.

*HATF Discussion and Lifetime Premium Equivalence*

One approach that was considered by the NAIC Health Actuarial Task Force (HATF) during discussions for the development of the Model Regulation was that past losses should be defined as past premium inadequacies given current, updated information. A company would demonstrate this approach by restating premiums to the proposed rate level from inception and demonstrating compliance with minimum loss ratio tests.

This approach was determined by HATF to not be a realistic method to define past losses because in reality there is no opportunity for the company to have perfect knowledge from policy inception and this approach greatly expands the risk on the product. Ultimately, HATF settled on the approach that past losses should be defined as any excess

**Appendix B**  
**Justification for and Development of the Requested Rate Increase**

of actual past claims over expected claims, which led to the approach outlined in Section 20.1.C of the Model Regulation and described above. For additional background on HATF's review of methods of defining past losses please see the article 'Recouping Past LTC Losses' in the April 2017 issue of the Society of Actuaries Long-Term Care Section newsletter, Long-Term Care News.

While it is not appropriate to use this restrictive method of restating premiums to the proposed rate level from inception to determine the rate increase, we can use it to confirm that current policyholders are not paying more over their lifetime than what they would have if the company had perfect knowledge.

With perfect knowledge, the company would have charged 95% higher rates from issue to reproduce the original pricing loss ratio of 63%. To avoid recouping premium on past policies that will not receive the rate increase, we compare lifetime premiums on a present value basis for the subset of policies that are in-force with lifetime-pay. These policies would have paid \$588 million in the history and \$812 million over the lifetime if the company had perfect knowledge and charged 95% higher premiums from issue. In contrast, the actual premium paid by these policies has been \$327 million in the history and is projected to be \$589 million over the lifetime including the requested rate increase. Therefore, these in-force policies will pay less over their lifetime than what they would have paid if the company had perfect knowledge at issue.

Table B-5 below provides a summary of the present value of lifetime premiums under the scenario discussed above by cohort and benefit period.

**Table B-5**  
**Lifetime Premium Equivalence**  
**In-force Policies**

Policy Form Cohort	Benefit Period	Original Pricing Loss Ratios	Increase Needed from Inception	Present Value of Lifetime Premium (Millions) with:	
				Perfect Knowledge at Issue <sup>[1]</sup>	Actual History and Requested Increase in Future
Prior to Series 11	All	66%	54%	\$99	\$82
Series 11 Individual	All	58	129	553	343
Series 11 Group	All	70	79	198	164
All	Non-Lifetime	64	63	499	417
All	Lifetime	60	190	318	172
All	All	63	95	812	589

*[1] The increase needed from inception is calculated for each indicated cohort for all lives while the present value of premium is calculated based on lifetime-pay policies currently in force. The difference results in the sum of the cohort and/or benefit period not tying to the totals.*

**Exhibit B-1a**  
**MedAmerica and Affinity Partners**  
**Actual and Projected Experience using Current Assumptions by Calendar Year**  
**Nationwide Experience Restated to Assume Implementation of the Originally Requested Rate Increases**  
**Series 11 and Prior Policy Forms with a Non-Lifetime Benefit Period**

		Loss Ratio Demonstration						
		Without Interest			D	With Max. Val. Interest		
		A	B	C = B / A		E	F	G = F / E
Calendar Year	Earned Premium	Incurred Claims	Incurred Loss Ratio	End of Year Lives	Earned Premium	Incurred Claims	Incurred Loss Ratio	
Historical Experience	1992	17,107	0	0%	109	70,691	0	0%
	1993	548,363	112,031	20%	618	1,968,133	390,130	20%
	1994	1,422,762	28,415	2%	1,328	4,743,366	93,904	2%
	1995	2,303,659	103,954	5%	1,804	7,074,477	310,846	4%
	1996	3,056,353	37,966	1%	2,352	8,681,349	104,007	1%
	1997	3,508,641	258,439	7%	2,382	9,405,579	722,059	8%
	1998	3,868,205	631,867	16%	2,680	9,845,945	1,628,343	17%
	1999	4,639,240	1,009,169	22%	3,364	11,206,370	2,463,156	22%
	2000	5,901,199	1,121,780	19%	4,372	13,542,501	2,631,992	19%
	2001	7,826,358	1,379,844	18%	5,994	17,090,117	3,095,051	18%
	2002	10,551,853	2,694,010	26%	8,319	21,963,845	5,686,110	26%
	2003	14,450,349	1,632,121	11%	13,894	28,712,002	3,282,919	11%
	2004	18,607,419	4,081,354	22%	14,961	35,319,853	7,791,705	22%
	2005	19,782,715	4,516,825	23%	16,067	35,912,350	8,251,874	23%
	2006	20,097,050	4,734,626	24%	15,962	34,852,938	8,263,665	24%
	2007	19,834,507	6,850,962	35%	16,091	32,866,805	11,437,260	35%
	2008	19,643,967	5,323,056	27%	15,980	31,108,187	8,491,987	27%
	2009	19,085,365	7,968,212	42%	15,608	28,908,046	12,141,446	42%
	2010	18,224,371	9,450,936	52%	14,772	26,409,637	13,787,545	52%
2011	17,829,171	10,200,270	57%	14,090	24,720,670	14,214,151	57%	
2012	21,284,416	10,167,657	48%	14,112	28,226,925	13,541,527	48%	
2013	20,563,594	10,637,364	52%	13,859	26,091,492	13,567,908	52%	
2014	19,228,654	15,688,299	82%	13,493	23,348,968	19,134,334	82%	
2015	18,262,265	12,902,717	71%	13,044	21,229,405	15,049,880	71%	
2016	17,495,763	13,612,856	78%	12,945	19,470,208	15,194,627	78%	
2017	16,590,002	16,273,957	98%	12,230	17,686,085	17,381,210	98%	
2018	16,584,881	14,915,919	90%	11,453	16,943,109	15,246,960	90%	
Projected Future Experience (60 Years)	2019	21,635,093	13,854,242	64%	10,815	21,177,662	13,553,978	64%
	2020	21,259,154	14,528,844	68%	10,478	19,940,272	13,605,341	68%
	2021	20,250,144	15,374,313	76%	10,141	18,201,734	13,781,855	76%
	2022	19,223,445	16,303,022	85%	9,804	16,559,956	13,991,101	84%
	2023	17,927,764	17,248,973	96%	9,467	14,804,433	14,172,897	96%
	2024	16,660,658	18,238,088	109%	9,129	13,191,034	14,348,879	109%
	2025	15,616,201	19,235,735	123%	8,791	11,855,549	14,491,777	122%
	2026	14,665,392	20,259,628	138%	8,452	10,676,913	14,616,283	137%
	2027	13,770,472	21,312,281	155%	8,113	9,614,426	14,724,869	153%
	2028	12,812,749	22,381,518	175%	7,775	8,578,524	14,809,931	173%
	2029	11,985,579	23,585,415	197%	7,435	7,698,060	14,948,152	194%
	2030	11,186,480	24,895,126	223%	7,095	6,893,647	15,114,083	219%
	2031	10,409,197	26,166,420	251%	6,753	6,155,836	15,219,605	247%
	2032	9,652,801	27,373,655	284%	6,412	5,479,241	15,256,362	278%
	2033	8,921,121	28,511,895	320%	6,071	4,861,568	15,229,389	313%
	2034	8,214,129	29,533,389	360%	5,733	4,298,373	15,121,086	352%
	2035	7,533,382	30,400,729	404%	5,397	3,786,339	14,922,657	394%
	2036	6,880,243	31,079,561	452%	5,065	3,322,207	14,628,581	440%
	2037	6,256,310	31,563,926	505%	4,738	2,902,986	14,248,853	491%
	2038	5,663,227	31,856,337	563%	4,418	2,525,858	13,795,357	546%
	2039	5,102,293	31,904,775	625%	4,106	2,188,000	13,256,458	606%
	2040	4,574,551	31,756,564	694%	3,804	1,886,638	12,662,159	671%
	2041	4,080,925	31,368,975	769%	3,512	1,619,122	12,005,053	741%
	2042	3,622,199	30,775,862	850%	3,232	1,382,919	11,307,393	818%
	2043	3,198,744	29,946,245	936%	2,965	1,175,517	10,564,898	899%
	2044	2,810,339	28,983,971	1,031%	2,712	994,380	9,819,749	988%
	2045	2,456,408	27,839,876	1,133%	2,474	837,058	9,059,673	1,082%
	2046	2,136,091	26,536,951	1,242%	2,250	701,212	8,296,488	1,183%
	2047	1,848,174	25,091,168	1,358%	2,041	584,598	7,538,210	1,289%
	2048	1,591,211	23,529,960	1,479%	1,847	485,101	6,794,076	1,401%
2049-2053	5,053,403	93,601,788	1,852%	6,840	1,399,513	24,206,999	1,730%	
2054-2058	2,122,719	58,478,222	2,755%	3,981	492,401	12,475,618	2,534%	
2059-2063	823,609	33,879,985	4,114%	2,230	160,900	6,003,697	3,731%	
2064-2068	297,925	17,741,329	5,955%	1,141	49,435	2,635,697	5,332%	
2069-2073	100,887	8,207,544	8,135%	491	14,342	1,034,831	7,215%	
2074-2078	32,623	3,281,626	10,059%	162	3,988	362,893	9,099%	
History		341,208,228	156,334,605	46%	261,883	537,399,053	213,904,596	40%
Future		300,375,643	966,627,936	322%	195,869	206,499,741	438,604,929	212%
Lifetime		641,583,871	1,122,962,541	175%	457,752	743,898,793	652,509,525	88%

**Exhibit B-1b**  
**MedAmerica and Affinity Partners**  
**Actual and Projected Experience using Current Assumptions by Calendar Year**  
**Nationwide Experience Restated to Assume Implementation of the Originally Requested Rate Increases**  
**Series 11 and Prior Policy Forms with a Lifetime Benefit Period**

		Loss Ratio Demonstration						
		Without Interest			D	With Max. Val. Interest		
		A	B	C = B / A		E	F	G = F / E
Calendar Year	Earned Premium	Incurred Claims	Incurred Loss Ratio	End of Year Lives	Earned Premium	Incurred Claims	Incurred Loss Ratio	
Historical Experience	1992	217	0	0%	2	895	0	0%
	1993	9,165	0	0%	16	32,606	0	0%
	1994	77,720	0	0%	48	257,091	0	0%
	1995	181,369	5,697	3%	139	541,395	17,932	3%
	1996	395,761	96,296	24%	279	1,085,958	259,253	24%
	1997	749,280	0	0%	502	1,946,204	0	0%
	1998	1,202,904	0	0%	767	2,979,493	0	0%
	1999	1,818,242	460,544	25%	1,147	4,302,098	1,086,524	25%
	2000	2,607,379	51,212	2%	1,530	5,897,702	115,617	2%
	2001	3,627,362	651,632	18%	2,150	7,846,556	1,407,790	18%
	2002	5,065,390	1,435,880	28%	2,825	10,481,039	2,998,934	29%
	2003	6,527,659	1,688,863	26%	3,487	12,921,939	3,341,157	26%
	2004	7,991,585	2,159,800	27%	3,832	15,134,313	4,088,836	27%
	2005	8,299,890	2,287,738	28%	3,861	15,040,397	4,144,540	28%
	2006	8,256,056	2,501,450	30%	3,825	14,308,884	4,336,561	30%
	2007	8,103,745	3,731,231	46%	3,761	13,432,719	6,189,984	46%
	2008	7,775,784	2,831,760	36%	3,674	12,333,260	4,495,494	36%
	2009	7,413,059	3,180,528	43%	3,592	11,251,787	4,831,753	43%
	2010	6,930,855	6,374,822	92%	3,459	10,067,325	9,271,650	92%
2011	6,649,615	3,204,986	48%	3,325	9,243,405	4,458,597	48%	
2012	7,779,749	5,082,142	65%	3,238	10,349,072	6,765,834	65%	
2013	7,123,928	3,720,661	52%	3,168	9,068,863	4,742,664	52%	
2014	6,250,581	6,833,873	109%	3,086	7,614,698	8,330,868	109%	
2015	5,700,309	10,949,151	192%	2,941	6,646,014	12,772,840	192%	
2016	5,193,157	8,062,388	155%	2,842	5,795,023	9,000,247	155%	
2017	4,845,653	9,778,716	202%	2,753	5,175,536	10,447,081	202%	
2018	5,657,873	7,825,374	138%	2,608	5,783,470	7,999,634	138%	
Projected Future Experience (60 Years)	2019	9,994,972	9,547,413	96%	2,416	9,777,925	9,339,612	96%
	2020	10,104,471	10,080,578	100%	2,338	9,460,462	9,436,639	100%
	2021	9,643,083	10,753,094	112%	2,258	8,640,772	9,632,882	111%
	2022	9,165,259	11,437,097	125%	2,175	7,860,037	9,804,663	125%
	2023	8,651,547	12,097,810	140%	2,091	7,101,067	9,924,785	140%
	2024	8,105,980	12,787,456	158%	2,004	6,367,863	10,039,293	158%
	2025	7,627,284	13,427,405	176%	1,916	5,734,851	10,088,367	176%
	2026	7,160,041	14,069,678	197%	1,826	5,152,756	10,116,535	196%
	2027	6,701,832	14,708,870	219%	1,736	4,616,344	10,121,632	219%
	2028	6,250,434	15,336,461	245%	1,646	4,121,027	10,100,142	245%
	2029	5,807,077	16,021,179	276%	1,556	3,664,840	10,097,915	276%
	2030	5,372,549	16,766,095	312%	1,465	3,245,583	10,113,806	312%
	2031	4,948,993	17,447,129	353%	1,375	2,861,927	10,073,242	352%
	2032	4,538,869	18,036,065	397%	1,286	2,512,669	9,967,045	397%
	2033	4,143,913	18,531,017	447%	1,198	2,196,153	9,802,246	446%
	2034	3,766,190	18,966,378	504%	1,112	1,910,904	9,603,486	503%
	2035	3,407,516	19,373,481	569%	1,028	1,655,321	9,390,350	567%
	2036	3,068,603	19,623,229	639%	947	1,427,312	9,105,349	638%
	2037	2,749,793	19,792,357	720%	868	1,224,735	8,792,183	718%
	2038	2,451,790	19,775,892	807%	792	1,045,739	8,410,970	804%
	2039	2,175,110	19,650,285	903%	720	888,497	8,002,548	901%
	2040	1,919,412	19,328,603	1,007%	651	750,963	7,538,156	1,004%
	2041	1,684,497	18,861,848	1,120%	586	631,306	7,044,872	1,116%
	2042	1,470,098	18,208,703	1,239%	526	527,815	6,513,734	1,234%
	2043	1,275,849	17,491,120	1,371%	469	438,885	5,992,324	1,365%
	2044	1,101,186	16,725,251	1,519%	416	362,977	5,487,527	1,512%
	2045	945,174	15,922,071	1,685%	368	298,570	5,003,118	1,676%
	2046	806,961	15,108,727	1,872%	324	244,312	4,546,683	1,861%
	2047	685,405	14,223,098	2,075%	284	198,901	4,099,038	2,061%
	2048	579,358	13,354,606	2,305%	247	161,158	3,685,649	2,287%
	2049-2053	1,755,258	53,115,699	3,026%	813	437,302	12,980,720	2,968%
	2054-2058	672,474	30,354,030	4,514%	358	135,425	5,980,342	4,416%
2059-2063	226,739	13,823,464	6,097%	136	36,685	2,183,125	5,951%	
2064-2068	65,200	5,314,747	8,151%	45	8,439	674,647	7,994%	
2069-2073	16,361	1,616,340	9,879%	14	1,710	164,627	9,627%	
2074-2078	3,810	460,490	12,085%	4	335	37,953	11,343%	
History		126,234,286	82,914,744	66%	62,857	199,537,741	111,103,788	56%
Future		139,043,089	582,137,764	419%	37,993	95,701,567	273,896,206	286%
Lifetime		265,277,376	665,052,508	251%	100,850	295,239,307	384,999,994	130%

**Exhibit B-2a**  
**MedAmerica and Affinity Partners**  
**Actual and Projected Experience using Current Assumptions by Calendar Year**  
**Nationwide Experience Restated to Reflect Maryland-Specific Rate Increase History and Request**  
**Series 11 and Prior Policy Forms with a Non-Lifetime Benefit Period**

		Loss Ratio Demonstration						
		Without Interest			D End of Year Lives	With Max. Val. Interest		
		A Earned Premium	B Incurred Claims	C = B / A Incurred Loss Ratio		E Earned Premium	F Incurred Claims	G = F / E Incurred Loss Ratio
Calendar Year								
Historical Experience	1992	17,107	0	0%	109	70,691	0	0%
	1993	548,363	112,031	20%	618	1,968,133	390,130	20%
	1994	1,422,762	28,415	2%	1,328	4,743,366	93,904	2%
	1995	2,303,659	103,954	5%	1,804	7,074,477	310,846	4%
	1996	3,056,353	37,966	1%	2,352	8,681,349	104,007	1%
	1997	3,508,641	258,439	7%	2,382	9,405,579	722,059	8%
	1998	3,868,205	631,867	16%	2,680	9,845,945	1,628,343	17%
	1999	4,639,240	1,009,169	22%	3,364	11,206,370	2,463,156	22%
	2000	5,901,199	1,121,780	19%	4,372	13,542,501	2,631,992	19%
	2001	7,826,358	1,379,844	18%	5,994	17,090,117	3,095,051	18%
	2002	10,551,853	2,694,010	26%	8,319	21,963,845	5,686,110	26%
	2003	14,450,349	1,632,121	11%	13,894	28,712,002	3,282,919	11%
	2004	18,607,419	4,081,354	22%	14,961	35,319,853	7,791,705	22%
	2005	19,782,715	4,516,825	23%	16,067	35,912,350	8,251,874	23%
	2006	20,097,050	4,734,626	24%	15,962	34,852,938	8,263,665	24%
	2007	19,834,507	6,850,962	35%	16,091	32,866,805	11,437,260	35%
	2008	19,643,967	5,323,056	27%	15,980	31,108,187	8,491,987	27%
	2009	19,085,365	7,968,212	42%	15,608	28,908,046	12,141,446	42%
	2010	18,246,062	9,450,936	52%	14,772	26,441,089	13,787,545	52%
2011	18,311,371	10,200,270	56%	14,090	25,387,084	14,214,151	56%	
2012	18,220,009	10,167,657	56%	14,112	24,162,947	13,541,527	56%	
2013	18,397,195	10,637,364	58%	13,859	23,344,552	13,567,908	58%	
2014	17,498,288	15,688,299	90%	13,493	21,250,406	19,134,334	90%	
2015	16,731,529	12,902,717	77%	13,044	19,452,580	15,049,880	77%	
2016	16,359,092	13,612,856	83%	12,945	18,208,344	15,194,627	83%	
2017	15,499,263	16,273,957	105%	12,230	16,525,185	17,381,210	105%	
2018	14,383,180	14,915,919	104%	11,453	14,694,161	15,246,960	104%	
Projected Future Experience (60 Years)	2019	14,387,005	13,796,426	96%	10,955	14,082,229	13,497,428	96%
	2020	14,276,978	14,250,854	100%	10,186	13,388,987	13,345,062	100%
	2021	13,789,607	14,085,770	102%	9,557	12,389,750	12,626,363	102%
	2022	14,762,683	14,891,579	101%	9,244	12,709,784	12,779,136	101%
	2023	15,328,718	15,827,156	103%	8,930	12,649,243	13,003,776	103%
	2024	14,913,242	16,736,550	112%	8,615	11,800,222	13,166,521	112%
	2025	14,659,296	17,646,415	120%	8,300	11,124,510	13,293,309	119%
	2026	14,370,394	18,577,933	129%	7,985	10,461,796	13,401,899	128%
	2027	13,554,230	19,516,792	144%	7,669	9,464,120	13,483,139	142%
	2028	12,583,060	20,465,420	163%	7,353	8,425,252	13,540,741	161%
	2029	11,756,259	21,537,137	183%	7,036	7,551,391	13,648,570	181%
	2030	10,960,034	22,700,402	207%	6,718	6,754,844	13,780,109	204%
	2031	10,187,215	23,826,809	234%	6,399	6,025,425	13,857,105	230%
	2032	9,436,431	24,893,197	264%	6,080	5,357,395	13,872,105	259%
	2033	8,711,761	25,897,067	297%	5,761	4,748,548	13,830,731	291%
	2034	8,012,841	26,795,139	334%	5,443	4,194,190	13,716,952	327%
	2035	7,341,093	27,553,160	375%	5,128	3,690,903	13,522,529	366%
	2036	6,697,745	28,139,188	420%	4,816	3,235,336	13,242,052	409%
	2037	6,084,244	28,548,170	469%	4,509	2,824,418	12,884,719	456%
	2038	5,502,052	28,786,432	523%	4,208	2,455,249	12,463,021	508%
	2039	4,952,298	28,805,338	582%	3,915	2,124,942	11,965,562	563%
	2040	4,435,882	28,648,384	646%	3,629	1,830,682	11,419,621	624%
	2041	3,953,554	28,275,368	715%	3,354	1,569,779	10,817,779	689%
	2042	3,505,930	27,717,945	791%	3,090	1,339,666	10,180,518	760%
	2043	3,093,254	26,948,372	871%	2,837	1,137,822	9,503,906	835%
	2044	2,715,206	26,063,369	960%	2,597	961,719	8,826,930	918%
	2045	2,371,123	25,011,241	1,055%	2,371	808,918	8,135,955	1,006%
	2046	2,060,079	23,816,216	1,156%	2,159	677,101	7,442,801	1,099%
	2047	1,780,818	22,495,042	1,263%	1,960	564,054	6,755,310	1,198%
2048	1,531,860	21,073,564	1,376%	1,776	467,688	6,082,004	1,300%	
2049-2053	4,853,802	83,505,233	1,720%	6,597	1,346,650	21,587,646	1,603%	
2054-2058	2,032,397	51,857,534	2,552%	3,863	472,533	11,057,770	2,340%	
2059-2063	788,584	30,034,508	3,809%	2,176	154,476	5,317,988	3,443%	
2064-2068	286,053	15,820,605	5,531%	1,118	47,600	2,344,731	4,926%	
2069-2073	96,959	7,349,248	7,580%	482	13,817	921,908	6,672%	
2074-2078	31,244	2,910,572	9,316%	158	3,826	319,835	8,360%	
History		328,791,098	156,334,605	48%	261,883	522,738,902	213,904,596	41%
Future		265,803,931	874,804,134	329%	186,977	176,854,865	399,635,534	226%
Lifetime		594,595,029	1,031,138,739	173%	448,860	699,593,767	613,540,130	88%



**Exhibit B-2b**  
**MedAmerica and Affinity Partners**  
**Actual and Projected Experience using Current Assumptions by Calendar Year**  
**Nationwide Experience Restated to Reflect Maryland-Specific Rate Increase History and Request**  
**Series 11 and Prior Policy Forms with a Lifetime Benefit Period**

		Loss Ratio Demonstration						
		Without Interest			D	With Max. Val. Interest		
		A	B	C = B / A		E	F	G = F / E
Calendar Year		Earned Premium	Incurred Claims	Incurred Loss Ratio	End of Year Lives	Earned Premium	Incurred Claims	Incurred Loss Ratio
Historical Experience	1992	217	0	0%	2	895	0	0%
	1993	9,165	0	0%	16	32,606	0	0%
	1994	77,720	0	0%	48	257,091	0	0%
	1995	181,369	5,697	3%	139	541,395	17,932	3%
	1996	395,761	96,296	24%	279	1,085,958	259,253	24%
	1997	749,280	0	0%	502	1,946,204	0	0%
	1998	1,202,904	0	0%	767	2,979,493	0	0%
	1999	1,818,242	460,544	25%	1,147	4,302,098	1,086,524	25%
	2000	2,607,379	51,212	2%	1,530	5,897,702	115,617	2%
	2001	3,627,362	651,632	18%	2,150	7,846,556	1,407,790	18%
	2002	5,065,390	1,435,880	28%	2,825	10,481,039	2,998,934	29%
	2003	6,527,659	1,688,863	26%	3,487	12,921,939	3,341,157	26%
	2004	7,991,585	2,159,800	27%	3,832	15,134,313	4,088,836	27%
	2005	8,299,890	2,287,738	28%	3,861	15,040,397	4,144,540	28%
	2006	8,256,056	2,501,450	30%	3,825	14,308,884	4,336,561	30%
	2007	8,103,745	3,731,231	46%	3,761	13,432,719	6,189,984	46%
	2008	7,775,784	2,831,760	36%	3,674	12,333,260	4,495,494	36%
	2009	7,413,059	3,180,528	43%	3,592	11,251,787	4,831,753	43%
	2010	6,937,781	6,374,822	92%	3,459	10,077,395	9,271,650	92%
2011	6,932,054	3,204,986	46%	3,325	9,636,156	4,458,597	46%	
2012	6,736,310	5,082,142	75%	3,238	8,961,049	6,765,834	76%	
2013	6,569,442	3,720,661	57%	3,168	8,363,208	4,742,664	57%	
2014	5,921,043	6,833,873	115%	3,086	7,213,426	8,330,868	115%	
2015	5,461,691	10,949,151	200%	2,941	6,367,952	12,772,840	201%	
2016	5,149,543	8,062,388	157%	2,842	5,746,480	9,000,247	157%	
2017	4,820,289	9,778,716	203%	2,753	5,148,492	10,447,081	203%	
2018	4,722,673	7,825,374	166%	2,608	4,827,516	7,999,634	166%	
Projected Future Experience (60 Years)	2019	4,936,040	9,515,427	193%	2,464	4,828,849	9,308,331	193%
	2020	4,888,516	9,847,735	201%	2,282	4,576,923	9,218,708	201%
	2021	4,072,011	8,801,415	216%	2,104	3,648,684	7,884,515	216%
	2022	4,257,723	9,186,741	216%	2,028	3,651,256	7,875,465	216%
	2023	4,614,220	9,842,556	213%	1,949	3,787,114	8,074,579	213%
	2024	4,957,067	10,539,918	213%	1,870	3,893,934	8,274,741	213%
	2025	5,359,721	11,210,353	209%	1,788	4,029,623	8,422,614	209%
	2026	5,783,227	11,900,848	206%	1,706	4,161,579	8,557,085	206%
	2027	6,221,216	12,606,114	203%	1,623	4,284,865	8,674,686	202%
	2028	6,664,702	13,319,941	200%	1,540	4,393,654	8,772,172	200%
	2029	6,961,095	14,076,407	202%	1,456	4,392,587	8,872,224	202%
	2030	6,556,867	14,761,083	225%	1,372	3,960,657	8,904,422	225%
	2031	6,058,808	15,377,982	254%	1,289	3,503,556	8,878,725	253%
	2032	5,574,776	15,915,928	285%	1,206	3,086,205	8,795,562	285%
	2033	5,093,695	16,368,653	321%	1,125	2,699,620	8,658,564	321%
	2034	4,629,274	16,764,851	362%	1,045	2,348,915	8,488,855	361%
	2035	4,188,130	17,145,208	409%	967	2,034,611	8,310,307	408%
	2036	3,771,465	17,391,044	461%	891	1,754,299	8,069,481	460%
	2037	3,379,666	17,575,068	520%	818	1,505,319	7,806,975	519%
	2038	3,013,527	17,594,011	584%	747	1,285,358	7,482,591	582%
	2039	2,673,675	17,518,351	655%	680	1,092,165	7,133,691	653%
	2040	2,359,687	17,262,822	732%	615	923,217	6,731,580	729%
	2041	2,071,256	16,878,221	815%	555	776,240	6,302,757	812%
	2042	1,808,047	16,316,826	902%	497	649,128	5,835,405	899%
	2043	1,569,614	15,698,105	1,000%	444	539,908	5,376,167	996%
	2044	1,355,226	15,030,518	1,109%	395	446,678	4,929,310	1,104%
	2045	1,163,722	14,332,565	1,232%	349	367,565	4,501,250	1,225%
	2046	994,056	13,622,883	1,370%	308	300,912	4,096,968	1,362%
2047	844,820	12,834,317	1,519%	270	245,115	3,696,123	1,508%	
2048	714,607	12,057,907	1,687%	235	198,731	3,324,973	1,673%	
2049-2053	2,170,999	48,061,719	2,214%	775	540,587	11,730,957	2,170%	
2054-2058	839,363	27,578,692	3,286%	342	168,816	5,424,552	3,213%	
2059-2063	287,641	12,644,472	4,396%	130	46,437	1,993,351	4,293%	
2064-2068	84,102	4,867,442	5,788%	43	10,862	617,300	5,683%	
2069-2073	21,031	1,462,830	6,955%	13	2,196	148,908	6,782%	
2074-2078	4,760	409,511	8,604%	4	418	33,720	8,069%	
History		123,353,393	82,914,744	67%	62,857	196,136,008	111,103,788	57%
Future		119,944,354	516,318,463	430%	35,927	74,136,580	241,207,616	325%
Lifetime		243,297,746	599,233,207	246%	98,784	270,272,588	352,311,403	130%