

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

<u>Product</u>	<u>Number</u>
Prior to Series 11	
Facility Only Form	LTC-LBP9-MD
Comprehensive Form	LTC-CD8-MD
Comprehensive Form	LTC-CD9-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
Home Health Only Form	HTQ11-338-MA-MD-1100

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 to achieve the same cumulative rate increase, except where limited by regulatory restrictions. This actuarial memorandum captures the pooled nationwide experience of the above-listed policy form(s) and 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 rate increase of 15% in Maryland in order to comply with COMAR 31.14.01.04(5). This actuarial memorandum reflects the nationwide requested increase, except the 15% capped requested increase in Maryland is reflected in Section 19, the proposed rate tables, and the supplement to the actuarial memorandum.

**1. Purpose of Filing**

This actuarial memorandum has been prepared for the purpose of demonstrating that the nationwide cumulative 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 to achieve the cumulative rate increases shown below. The company is seeking this current rate increase request to help alleviate the adverse performance on this block of business.

The cumulative rate increase levels were determined to vary by benefit period to better align the rate increase with the adverse experience. MedAmerica's goal is equity across all jurisdictions, to the extent practical. The rate increase was determined in such a way that minimizes subsidization across jurisdictions due to differences in the previously filed rate increases.

The table below provides the average prior, requested, and cumulative increases by benefit period based on the nationwide distribution business. The enclosed cover letter provides similar information based on the jurisdiction-specific distribution.

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

**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	62.0%	45.1%	135%
	Lifetime	73.5	130.0	299
Series 11 Individual	Non-Lifetime	51.5	55.2	135
	Lifetime	67.0	138.9	299
Series 11 Group	Non-Lifetime	77.0	32.8	135
	Lifetime	69.6	135.2	299
Average		63.8	67.1	174

*[1] As of December 31, 2017 and excludes policies assumed to be paid up prior to implementation of the requested rate increase. The enclosed cover letter provides the jurisdiction-specific distribution.*

A larger cumulative rate increase is needed to certify that rates will remain stable under moderately adverse conditions. The company will continue to monitor the business and reserves the right to request additional rate increases in the future.

Corresponding rate tables reflecting the proposed rate increases for the policy form(s) affected by this rate increase are enclosed with this filing. Please note that the actual rates implemented may vary from those in the enclosed rate tables slightly due to implementation rounding algorithms.

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.

**4. Renewability**

These policies are guaranteed renewable for life.

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

**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 three years of retrospective improvement to bring the *Guidelines* forward to 2017. 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-4a of Appendix A to this memorandum.
- b. Mortality Rates reflect the 1994 Group Annuitant Mortality (GAM) Static gender-distinct table with retrospective improvement applied to bring this table forward to 2017. These mortality rates are further adjusted based on historical mortality experience by individual/group, issue age band, and duration as shown in the following tables.

<b>Mortality Durational Adjustment Factors for Individual Business</b>												
<b>Duration*</b>	<b>Issue Age</b>											
	<b>&lt;25</b>	<b>25-29</b>	<b>30-34</b>	<b>35-39</b>	<b>40-44</b>	<b>45-49</b>	<b>50-54</b>	<b>55-59</b>	<b>60-64</b>	<b>65-69</b>	<b>70-74</b>	<b>75+</b>
1	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	20%
2	35	35	35	35	35	35	35	35	35	35	35	30
3	40	40	40	40	40	40	40	40	40	40	40	45
4	43	43	43	43	43	43	43	43	44	45	45	50
5	46	46	46	46	46	46	46	46	48	50	50	55
6	49	49	49	49	49	49	49	49	52	55	55	60
7	52	52	52	52	52	52	52	52	56	60	60	65
8	55	55	55	55	55	55	55	55	60	65	65	70
9	56	56	56	56	56	56	56	56	61	68	69	76
10	57	57	57	57	57	57	57	57	62	71	73	82
11	58	58	58	58	58	58	58	58	63	74	77	88
12	59	59	59	59	59	59	59	59	64	77	81	94
13	60	60	60	60	60	60	60	60	65	80	85	100
14	62	62	62	62	62	62	62	62	69	82	88	101
15	64	64	64	64	64	64	64	64	73	84	91	102
16	66	66	66	66	66	66	66	66	77	86	94	103
17	68	68	68	68	68	68	68	68	81	88	97	104
18	70	70	70	70	70	70	70	70	85	90	100	105
23	70	70	70	70	70	70	70	85	90	100	105	105
28	70	70	70	70	70	70	70	85	90	100	105	105
33	70	70	70	70	70	85	90	100	105	105	105	105
38	70	70	70	70	85	90	100	105	105	105	105	105
43	70	70	70	85	90	100	105	105	105	105	105	105
48	70	70	85	90	100	105	105	105	105	105	105	105
53	70	85	90	100	105	105	105	105	105	105	105	105
58	85	90	100	105	105	105	105	105	105	105	105	105
63	90	100	105	105	105	105	105	105	105	105	105	105
68	100	105	105	105	105	105	105	105	105	105	105	105
73+	105	105	105	105	105	105	105	105	105	105	105	105

\* The assumption varies by duration for 18+, but is shown every five years for display purposes.

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

<b>Mortality Durational Adjustment Factors for Group Business</b>												
<b>Duration*</b>	<b>Issue Age</b>											
	<b>&lt;25</b>	<b>25-29</b>	<b>30-34</b>	<b>35-39</b>	<b>40-44</b>	<b>45-49</b>	<b>50-54</b>	<b>55-59</b>	<b>60-64</b>	<b>65-69</b>	<b>70-74</b>	<b>75+</b>
1	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	40%
2	70	70	70	70	70	70	70	70	70	70	70	60
3	80	80	80	80	80	80	80	80	80	80	80	90
4	86	86	86	86	86	86	86	86	88	90	90	100
5	92	92	92	92	92	92	92	92	96	100	100	105
6	83	83	83	83	83	83	83	83	88	94	94	102
7	83	83	83	83	83	83	83	83	90	96	96	104
8	83	83	83	83	83	83	83	83	90	98	98	105
9	81	81	81	81	81	81	81	81	88	98	99	105
10	79	79	79	79	79	79	79	79	86	98	101	105
11	77	77	77	77	77	77	77	77	83	98	102	105
12	74	74	74	74	74	74	74	74	81	97	102	105
13	72	72	72	72	72	72	72	72	78	96	102	105
14	74	74	74	74	74	74	74	74	82	98	105	105
15	76	76	76	76	76	76	76	76	86	99	105	105
16	77	77	77	77	77	77	77	77	90	101	105	105
17	79	79	79	79	79	79	79	79	94	102	105	105
18	81	81	81	81	81	81	81	81	98	104	105	105
23	77	77	77	77	77	77	77	94	99	105	105	105
28	74	74	74	74	74	74	89	95	105	105	105	105
33	70	70	70	70	70	85	90	100	105	105	105	105
38	70	70	70	70	85	90	100	105	105	105	105	105
43	70	70	70	85	90	100	105	105	105	105	105	105
48	70	70	85	90	100	105	105	105	105	105	105	105
53	70	85	90	100	105	105	105	105	105	105	105	105
58	85	90	100	105	105	105	105	105	105	105	105	105
63	90	100	105	105	105	105	105	105	105	105	105	105
68	100	105	105	105	105	105	105	105	105	105	105	105
73+	105	105	105	105	105	105	105	105	105	105	105	105

\* The assumption varies by duration for 18+, but is shown every five years for display purposes.

- c. Voluntary Lapse Rates vary by policy duration, policy form cohort, and premium payment option. The lifetime-pay voluntary lapse rates are shown in the table below.

<b>Duration</b>	<b>Prior to Series 11</b>	<b>Series 11 Individual</b>	<b>Series 11 Group</b>
1	16.50%	8.50%	6.50%
2	8.50	4.00	6.00
3	5.00	2.75	4.00
4	3.50	2.00	3.50
5	2.00	1.50	3.00
6	1.50	1.25	2.50
7	1.50	1.25	2.00
8	1.50	1.00	1.50
9	1.50	0.75	1.30
10+	1.00	0.60	1.30

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

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

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

- For the twenty-pay option, a reduction of 50% of the above lapse rates is assumed for durations one through eight, a reduction of 75% of the above 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 *Guidelines* with adjustments for historical benefit expiry experience and vary by gender, benefit period, and attained age as shown in the following table.

Gender	Benefit Period in Years	Attained Age*										
		<65	65	70	75	80	85	90	95	100	105	110+
Female	1	0.0%	0.1%	0.1%	0.3%	0.7%	2.5%	6.1%	10.7%	13.4%	16.7%	33.0%
	2	0.0	0.0	0.1	0.2	0.5	1.6	4.5	8.7	11.7	16.3	33.0
	3	0.0	0.0	0.1	0.1	0.4	1.2	3.4	6.9	9.7	15.0	33.0
	4	0.0	0.0	0.0	0.1	0.3	1.0	2.5	5.0	7.8	13.2	33.0
	5	0.0	0.0	0.0	0.1	0.2	0.7	1.7	3.8	6.3	11.2	33.0
	Unlimited	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	0.0	0.1	0.2	0.5	1.5	3.9	6.3	7.8	9.4	33.0
	2	0.0	0.0	0.1	0.1	0.3	1.0	2.5	4.3	5.4	7.3	33.0
	3	0.0	0.0	0.1	0.1	0.2	0.7	1.7	3.0	4.0	5.8	33.0
	4	0.0	0.0	0.0	0.1	0.1	0.4	1.1	2.0	2.8	4.6	33.0
	5	0.0	0.0	0.0	0.0	0.1	0.3	0.8	1.5	2.3	3.6	33.0
	Unlimited	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\* 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 based on the percentage of policies that elect CBUL and RBO is assumed.

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 for lifetime-pay policies based on the varying cumulative rate increase levels. Limited-pay policies are assumed to not elect CBUL or RBO.

**Policyholder Behavior Assumptions<sup>[1]</sup>**

Benefit Period	CBUL Election Rate	RBO Election Rate	Approximate Reduction for RBO	Morbidity Increase for Adverse Selection
Non-Lifetime	11%	20%	13%	5.5%
Lifetime	12	25	21	6.5

[1] The values shown are based on the average cumulative amounts found in Section 2. The assumption is applied on a seriatim basis and prorated for the requested increase needed to achieve the cumulative amounts in Section 2.

- 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 4.3%) is used to demonstrate compliance with the minimum loss ratio requirements.

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

- g. Annual Improvement in the mortality and morbidity assumptions is assumed for 15 years starting in 2018. Annual mortality improvement factors vary by attained age based on the G2 improvement scale from the 2012 Individual Annuity Mortality table. Annual morbidity improvement is assumed to be 1.0%.
- h. Expenses have not been explicitly projected. 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 and, where appropriate, other similar 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 policy form(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.

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

**11. Area Factors**

Area factors are not used for these products.

**12. Premium Modalization Rules**

The following modal factors and percent distributions (based on the nationwide in-force count as of December 31, 2017) are applied to the annual premium (AP):

<b>Premium Mode</b>	<b>Modal Factors</b>	<b>Percent Distribution</b>
Annual	1.00*AP	45%
Semi-Annual	0.52*AP	4
Quarterly	0.26*AP	29
Monthly	0.09*AP	22

**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. Claim reserves as of December 31, 2017 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, 2017 has been allocated to the 2017 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 form(s) and similar individual and group policy forms 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 2017 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 2010 and April 2018, which average 64% 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, annual loss ratios, and cumulative 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 exceed the minimum loss ratio required by pre-rate stability regulation. The final row corresponds to that shown in Exhibit I.

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

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

<b>Policy Form Cohort</b>	<b>Benefit Period</b>	<b>Before Increase</b>	<b>After Increase</b>
Prior to Series 11	All	103%	98%
Series 11 Individual	All	124	105
Series 11 Group	All	103	91
All	Non-Lifetime	96	87
All	Lifetime	161	132
All	All	113	100

Exhibit II provides a demonstration that the nationwide requested rate increase meets the 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 58%,
2. 85% of the accumulated value of prior premium rate schedule increases,
3. Present value of projected initial earned premium times 58%, 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 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.

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

<b>Policy Form Cohort</b>	<b>Benefit Period</b>	<b>Item 5<sup>[1]</sup></b>	<b>Item 7<sup>[2]</sup></b>	<b>Result<sup>[3]</sup></b>
Prior to Series 11	All	\$148.5	\$256.7	Pass
Series 11 Individual	All	322.9	585.2	Pass
Series 11 Group	All	138.8	216.0	Pass
All	Non-Lifetime	431.0	655.9	Pass
All	Lifetime	179.2	402.0	Pass
All	All	610.2	1,057.9	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.



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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

**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	98%	93%	66%	1.49	1.42
Series 11 Individual	All	115	98	58	1.97	1.69
Series 11 Group	All	91	81	70	1.31	1.16
All	Non-Lifetime	88	81	64	1.39	1.27
All	Lifetime	150	124	60	2.51	2.08
All	All	105	93	63	1.68	1.49

Actual and projected experience in the above table is identical to that described in Exhibit I, except uses the current most-likely interest rate assumption of 5.00%. This rate represents MedAmerica's expectation of its long-term investment earnings rate, which is supported by the average net investment earnings rate projected for MedAmerica's 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).

Nationwide, there have been two prior rate increase requests on this block of business, which began in December 2009. Departments of insurance filed these increases for use between 2010 and 2017. As the goal of achieving similar cumulative rate increases across all jurisdictions is ongoing, additional increases have also been filed for use in 2018. On average, a cumulative increase of 64% has been filed for use on this block of business.

**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. Please note that to isolate the impact of each changed assumption from pricing, the experience in the table below has been restated to reflect no prior rate increases.

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

**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 2017 & projections with pricing assumptions	71	14%	180%
Historical experience through 2017 & projections with pricing assumptions except for current:			
Interest	92	29	265
Interest, lapse	97	5	41
Interest, lapse, mortality	123	28	198
Interest, lapse, mortality, morbidity	124	0	2
Interest, lapse, mortality, morbidity, improvement	119	-4	-26
Historical experience through 2017 & projections with all current most-likely assumptions <sup>[3]</sup>	119	90	634

*[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 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, 2017 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, and the annualized premium reflects all rate increases filed for use as of April 12, 2018.

**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</b>
Prior to Series 11	Non-Lifetime	33	\$2,164	\$2,489
	Lifetime	10	3,029	3,483
	Total	43	2,365	2,720
Series 11 Individual	Non-Lifetime	36	2,458	2,827
	Lifetime	11	3,077	3,539
	Total	47	2,603	2,993
Total	Non-Lifetime	69	2,317	2,665
	Lifetime	21	3,054	3,512
	Total	90	2,489	2,862

**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.

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

**21. Distribution of Business as of December 31, 2017 (Based on Nationwide In-Force Insured Count)**

<b>Issue Ages</b>	<b>Percent Distribution</b>
<40	8%
40-44	7
45-49	11
50-54	17
55-59	21
60-64	18
65-69	11
70-74	6
75+	1

<b>Elimination Period</b>	<b>Percent Distribution</b>
0-Day	4%
20-Day	21
30-Day	<1
60-Day	6
90-Day	53
100-Day	5
180-Day	10
365-Day	<1

<b>Benefit Period</b>	<b>Percent Distribution</b>
1-Year	<1%
2-Year	17
3-Year	39
4-Year	8
5-Year	18
Lifetime	18

<b>Inflation Option</b>	<b>Percent Distribution</b>
None	40%
Simple for Life	3
Compound for Life	38
Simple for 20 Years	19
GPO	<1

<b>Premium Payment Option</b>	<b>Percent Distribution</b>
Ten-Pay	14%
Twenty-Pay	10
Lifetime-Pay	76

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

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

**22. Number of Insureds and Annualized Premium (Based on December 31, 2017 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, and the annualized premium reflects all rate increases filed for use as of April 12, 2018.

**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	33	\$71,398
	Lifetime	10	30,295
	Total	43	101,693
Series 11 Individual	Non-Lifetime	36	88,482
	Lifetime	11	33,843
	Total	47	122,324
Total	Non-Lifetime	69	159,880
	Lifetime	21	64,137
	Total	90	224,018

**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	855	\$1,882,265
	Lifetime	401	1,054,068
	Total	1,256	2,936,333
Series 11 Individual	Non-Lifetime	5,095	8,845,290
	Lifetime	1,713	4,713,899
	Total	6,808	13,559,189
Series 11 Group	Non-Lifetime	5,149	7,885,909
	Lifetime	73	179,276
	Total	5,222	8,065,185
Total	Non-Lifetime	11,099	18,613,464
	Lifetime	2,187	5,947,243
	Total	13,286	24,560,707

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

**Series 11 and Prior Actuarial Memorandum**

**August 27, 2018**

**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.

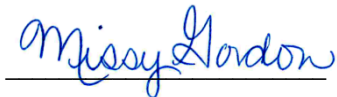
In my opinion, the rates are not excessive or unfairly discriminatory, and bear reasonable relationship to the benefits based on the loss ratio standards of this jurisdiction.

This filing will enhance premium adequacy, but may not be sufficient to prevent future rate action. Additional rate increases are needed to certify that rates will remain stable under moderately adverse conditions.

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: August 27, 2018

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

	Calendar Year	Actual or Projected Experience using Current Assumptions				Cumulative LR with Interest
		A Earned Premium	B Incurred Claims	C = B / A Incurred Loss Ratio	D End of Year Lives	E Actual (Column C) with Max. Val. Interest
Historical Experience	1992	17,324	0	0%	111	0%
	1993	557,528	112,935	20%	634	19%
	1994	1,500,482	28,746	2%	1,376	7%
	1995	2,485,029	109,652	4%	1,943	6%
	1996	3,462,207	134,262	4%	2,687	5%
	1997	4,391,783	264,541	6%	3,003	5%
	1998	5,340,763	631,867	12%	3,664	7%
	1999	6,825,955	1,469,714	22%	4,763	11%
	2000	8,935,626	1,172,992	13%	6,197	11%
	2001	11,902,742	2,210,887	19%	8,449	13%
	2002	16,096,324	4,269,807	27%	11,471	16%
	2003	21,497,993	3,540,618	16%	17,712	16%
	2004	27,113,898	6,347,428	23%	19,115	18%
	2005	28,578,579	6,751,292	24%	20,244	19%
	2006	28,839,355	7,395,470	26%	20,095	20%
	2007	28,383,387	10,644,803	38%	20,145	22%
	2008	27,838,059	8,302,139	30%	19,941	23%
	2009	26,881,880	11,107,735	41%	19,480	24%
2010	25,543,217	15,851,176	62%	18,490	27%	
2011	24,605,324	14,100,771	57%	17,662	29%	
2012	25,238,498	16,193,346	64%	17,589	31%	
2013	24,380,172	14,635,134	60%	17,254	33%	
2014	22,501,372	23,851,886	106%	16,796	36%	
2015	21,535,035	24,822,983	115%	16,188	39%	
2016	21,200,216	22,803,799	108%	15,979	41%	
2017	20,290,067	24,920,645	123%	15,486	44%	
Projected Future Experience (60 Years)	2018	20,160,101	23,437,745	116%	14,591	46%
	2019	20,409,564	24,519,507	120%	14,074	48%
	2020	20,280,014	25,947,839	128%	13,589	50%
	2021	19,511,160	27,458,679	141%	13,103	52%
	2022	18,478,095	29,023,103	157%	12,617	54%
	2023	17,235,027	30,574,267	177%	12,132	56%
	2024	16,001,079	32,186,531	201%	11,649	58%
	2025	14,960,197	33,746,050	226%	11,167	60%
	2026	13,997,487	35,318,229	252%	10,687	63%
	2027	13,097,004	36,915,618	282%	10,210	65%
	2028	12,169,960	38,493,952	316%	9,737	67%
	2029	11,337,776	40,050,776	353%	9,269	70%
	2030	10,539,591	41,549,905	394%	8,806	72%
	2031	9,772,280	42,944,911	439%	8,350	74%
	2032	9,035,048	44,180,071	489%	7,900	77%
	2033	8,329,513	45,499,037	546%	7,458	79%
	2034	7,653,677	46,871,039	612%	7,022	81%
	2035	7,007,189	48,086,821	686%	6,593	84%
	2036	6,390,910	48,984,238	766%	6,173	86%
	2037	5,805,860	49,641,116	855%	5,762	88%
	2038	5,252,740	49,951,719	951%	5,362	90%
	2039	4,732,129	49,936,198	1,055%	4,974	92%
	2040	4,244,382	49,556,133	1,168%	4,600	94%
	2041	3,789,925	48,805,734	1,288%	4,240	96%
	2042	3,369,174	47,677,195	1,415%	3,897	98%
	2043	2,981,852	46,247,223	1,551%	3,571	99%
	2044	2,627,355	44,626,890	1,699%	3,263	101%
	2045	2,304,637	42,794,267	1,857%	2,973	102%
2046	2,012,700	40,800,636	2,027%	2,702	104%	
2047	1,750,230	38,606,295	2,206%	2,450	105%	
2048-2052	5,729,232	157,780,238	2,754%	9,105	109%	
2053-2057	2,572,498	101,166,015	3,933%	5,318	112%	
2058-2062	1,086,882	58,328,449	5,367%	3,008	113%	
2063-2067	437,018	31,208,982	7,141%	1,591	113%	
2068-2072	166,355	14,977,982	9,004%	736	113%	
2073-2077	60,394	6,593,432	10,917%	277	113%	

**With Interest Accum./Disc. To 12/31/2017 at Max. Val. Interest**

History	676,463,033	295,592,596	44%
Future	207,442,993	707,218,337	341%
Lifetime	883,906,026	1,002,810,933	113%

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

	Calendar Year	Actual or Projected Experience using Current Assumptions				Cumulative LR with Interest
		A Earned Premium	B Incurred Claims	C = B / A Incurred Loss Ratio	D End of Year Lives	E Actual (Column C) with Max. Val. Interest
Historical Experience	1992	17,324	0	0%	111	0%
	1993	557,528	112,935	20%	634	19%
	1994	1,500,482	28,746	2%	1,376	7%
	1995	2,485,029	109,652	4%	1,943	6%
	1996	3,462,207	134,262	4%	2,687	5%
	1997	4,391,783	264,541	6%	3,003	5%
	1998	5,340,763	631,867	12%	3,664	7%
	1999	6,825,955	1,469,714	22%	4,763	11%
	2000	8,935,626	1,172,992	13%	6,197	11%
	2001	11,902,742	2,210,887	19%	8,449	13%
	2002	16,096,324	4,269,807	27%	11,471	16%
	2003	21,497,993	3,540,618	16%	17,712	16%
	2004	27,113,898	6,347,428	23%	19,115	18%
	2005	28,578,579	6,751,292	24%	20,244	19%
	2006	28,839,355	7,395,470	26%	20,095	20%
	2007	28,383,387	10,644,803	38%	20,145	22%
	2008	27,838,059	8,302,139	30%	19,941	23%
2009	26,881,880	11,107,735	41%	19,480	24%	
2010	25,543,217	15,851,176	62%	18,490	27%	
2011	24,605,324	14,100,771	57%	17,662	29%	
2012	25,238,498	16,193,346	64%	17,589	31%	
2013	24,380,172	14,635,134	60%	17,254	33%	
2014	22,501,372	23,851,886	106%	16,796	36%	
2015	21,535,035	24,822,983	115%	16,188	39%	
2016	21,200,216	22,803,799	108%	15,979	41%	
2017	20,290,067	24,920,645	123%	15,486	44%	
Projected Future Experience (60 Years)	2018	20,160,101	23,437,745	116%	14,591	46%
	2019	23,940,291	23,836,189	100%	13,538	47%
	2020	27,226,638	24,345,168	89%	12,921	49%
	2021	27,446,759	25,633,115	93%	12,403	50%
	2022	26,662,533	26,999,149	101%	11,937	52%
	2023	24,891,098	28,397,202	114%	11,485	53%
	2024	23,073,543	29,863,010	129%	11,034	55%
	2025	21,562,554	31,288,551	145%	10,585	56%
	2026	20,164,124	32,734,152	162%	10,137	58%
	2027	18,849,598	34,208,980	181%	9,691	60%
	2028	17,491,936	35,672,675	204%	9,249	62%
	2029	16,276,327	37,124,754	228%	8,811	63%
	2030	15,110,600	38,533,648	255%	8,378	65%
	2031	13,990,305	39,855,468	285%	7,950	67%
	2032	12,914,476	41,035,606	318%	7,528	69%
	2033	11,885,784	42,302,158	356%	7,113	71%
	2034	10,901,426	43,623,147	400%	6,703	73%
	2035	9,961,176	44,805,033	450%	6,299	75%
	2036	9,066,553	45,696,313	504%	5,902	77%
	2037	8,218,997	46,364,725	564%	5,514	78%
	2038	7,419,435	46,710,600	630%	5,136	80%
	2039	6,668,635	46,751,367	701%	4,768	82%
	2040	5,966,935	46,446,529	778%	4,413	84%
	2041	5,314,804	45,791,886	862%	4,072	85%
	2042	4,712,524	44,776,689	950%	3,746	87%
	2043	4,159,472	43,476,736	1,045%	3,435	88%
2044	3,654,613	41,994,709	1,149%	3,142	89%	
2045	3,196,271	40,307,806	1,261%	2,865	91%	
2046	2,782,780	38,461,398	1,382%	2,606	92%	
2047	2,412,014	36,414,550	1,510%	2,365	93%	
2048-2052	7,819,761	149,015,565	1,906%	8,808	96%	
2053-2057	3,440,166	95,678,209	2,781%	5,165	98%	
2058-2062	1,419,019	55,182,238	3,889%	2,932	99%	
2063-2067	555,906	29,587,701	5,322%	1,555	100%	
2068-2072	206,207	14,241,293	6,906%	720	100%	
2073-2077	73,271	6,275,070	8,564%	271	100%	

**With Interest Accum./Disc. To 12/31/2017 at Max. Val. Interest**

History	676,463,033	295,592,596	44%
Future	281,100,696	662,874,765	236%
Lifetime	957,563,729	958,467,361	100%

**Exhibit II**  
**Demonstration that the Requested Cumulative Rate Increase Passes the 58%/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	646,425,805	x	58%	=	374,926,967
2a	Accumulated value of earned premium	676,463,033				
2b	Accumulated value of prior premium rate schedule increases (2a - 1)	30,037,228	x	85%	=	25,531,644
3	Present value of future projected initial earned premium	108,296,977	x	58%	=	62,812,246
4a	Present value of future projected premium	281,100,696				
4b	Present value of future projected premium in excess of the projected initial earned premiums (4a - 3)	172,803,719	x	85%	=	146,883,161
<b>5</b>	<b>Lifetime Earned Premium Times Prescribed Factor: Sum of 1, 2b, 3, and 4b</b>					<b>610,154,018</b>
6a	Accumulated value of incurred claims without the inclusion of active life reserves					295,592,596
6b	Present value of future projected incurred claims without the inclusion of active life reserves					762,305,980
<b>7</b>	<b>Lifetime Incurred Claims with Rate Increase: Sum 6a and 6b</b>					<b>1,057,898,576</b>
8	Test: 7 is not less than 5					Pass
<p><i>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%.</i></p> <p><i>Future projected initial earned premium schedule (i.e., without the requested rate increase) reflects the assumed impact of CBUL and RBO.</i></p> <p><i>The future projected incurred claims (item 6b) were increased by 15% to reflect assumptions with moderately adverse experience.</i></p>						



**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 three years of retrospective improvement to bring the <i>Guidelines</i> forward to 2017. 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-4a 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>	1994 Group Annuitant Mortality (GAM) Static gender-distinct table with retrospective improvement applied to bring this table forward to 2017. These mortality rates are further adjusted based on historical mortality experience by issue age band and duration. Tables providing these adjustment factors are provided in Section 6 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.

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

		<b>Lapse Rates</b>			
<b>Current Assumptions</b> <b>Series 11 and Prior</b>		Voluntary lapse rates (excludes benefit expiry) vary by policy duration and policy form cohort.			
		<b>Lifetime-Pay Lapse Rates</b>			
		<b>Duration</b>	<b>Prior to Series 11</b>	<b>Series 11 Individual</b>	<b>Series 11 Group</b>
		<b>1</b>	16.50%	8.50%	6.50%
		<b>2</b>	8.50%	4.00%	6.00%
		<b>3</b>	5.00%	2.75%	4.00%
		<b>4</b>	3.50%	2.00%	3.50%
		<b>5</b>	2.00%	1.50%	3.00%
		<b>6</b>	1.50%	1.25%	2.50%
		<b>7</b>	1.50%	1.25%	2.00%
<b>8</b>	1.50%	1.00%	1.50%		
<b>9</b>	1.50%	0.75%	1.30%		
<b>10+</b>	1.00%	0.60%	1.30%		
		For the 10-pay option, a reduction of 65% of these lapse rates is assumed for durations 1 to 4, a reduction of 70% of these lapse rates is assumed for durations 5 to 8, and 0% lapse thereafter. For the 20-pay option, a reduction of 50% of these lapse rates is assumed for durations 1 to 8, a reduction of 75% of these lapse rates is assumed for durations 9 to 15, 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>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>Original Assumptions</b>	<b>Series 11</b>	<b>Series 11 Individual</b>						
			<b>Lapse Rates by Issue Age</b>					
		<b>Duration</b>	<b>&lt;60</b>	<b>60-64</b>	<b>65-69</b>	<b>70-74</b>	<b>75-79</b>	<b>80+</b>
		<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>					
		<b>Duration</b>	<b>&lt;60</b>	<b>60-64</b>	<b>65-69</b>	<b>70-74</b>	<b>75-79</b>	<b>80+</b>
		<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>							
<b>Duration</b>	<b>&lt;60</b>	<b>60-64</b>	<b>65-69</b>	<b>70-79</b>	<b>80+</b>			
<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 <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 5.00%. This rate represents MedAmerica's expectation of its long-term investment earnings rate, which is supported by the average net investment earnings rate projected for MedAmerica's cash flow testing.  The maximum valuation interest rate applicable to the year of issue ranges from 3.5% to 5.5% and averages 4.3%.
<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 15 years starting in 2018. Annual mortality improvement factors vary by attained age based on the G2 improvement scale from the 2012 Individual Annuity Mortality 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 and Justification of Current Assumptions

Milliman developed the current actuarial assumptions used in this filing.

The persistency and morbidity assumptions were developed using historical experience. Where actual experience had low credibility or did not exist, industry experience and actuarial judgement 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 and, where appropriate, other similar business. For persistency, policy termination experience through December 31, 2015 was used. For morbidity, claim experience through June 30, 2016 was used with six months of runout.

Improvement (mortality and morbidity) was developed based on individual annuitant or industry experience, along with actuarial judgment. The rate increase dependent assumptions were developed using historical experience, and actuarial judgement where experience had low credibility or did not exist.

Predictive analytics was used in the development of the morbidity assumption. The persistency assumption utilized traditional techniques and credibility measures.

The rest of this appendix provides details on the development and justification of the current assumptions.

### ***Persistency***

The assumptions for mortality and lifetime-pay voluntary lapse were developed based on detailed historical experience through December 31, 2015 for MedAmerica's organic (including affinity partners) and acquired business. For the acquired business, experience prior to acquisition was excluded as it predates MedAmerica's administration of the block. The assumptions for limited-pay voluntary lapse were developed based on experience through March 31, 2015.

The benefit expiry assumption was developed using the 2014 Milliman *Long-Term Care Guidelines (Guidelines)* with adjustments based on MedAmerica's actual benefit expiry experience through December 31, 2015 on its organic business.

### ***Mortality Durational Factors for Individual Policies***

Exhibit A-1a supports the individual business mortality assumption and provides the following information for all companies and products (both individual and group) combined, but separately for issue age bands (i) 75 and older, (ii) 70 to 74, (iii) 65 to 69, and (iv) 60 to 64:

- Exposure that reflects a full year of exposure for each death and the length of time a covered life is exposed to the risk of death during the year for each life that does not die.
- Mortality rates for actual, expected, and an additional standard table for comparison. All of these rates were brought forward to 2015 for consistency with the basis of the expected table by applying mortality improvement factors that reflect annual improvement of 0.5% for females and 1.0% for males.

Actual mortality rates equal the number of deaths divided by exposure. The number of deaths includes a scalar to capture improvement between the year of death and 2015. For example, if 10 males died in 2010, then the number of deaths (10) would be multiplied by 5 years of improvement (0.951).

2015GAM mortality rates equal 94GAM with 21 years of improvement, which results in scalars of 90% for females and 81% for males. These are the expected mortality rates to which the factors in Section 6 of the actuarial memorandum are applied.

2015IAM is equal to 2012 Individual Annuity Mortality (2012IAM) Period standard table mortality rates with 3 years of improvement (scalars of 98.5% for females and 97% for males).

- Ratios of actual and standard table mortality rates to the 2015GAM expected (A:E) mortality rates.
- Credibility percentage based on the number of deaths (with improvement scalars described above) and the credibility measure described at the end of this appendix.
- A:E ratio that is credibility weighted with the two standard table options for a complement.
- Smoothed durational factors that correspond to that shown in Section 6 of the actuarial memorandum.

## Appendix A Development and Justification of Current Assumptions

We developed the smoothed factors by issue age band and duration. We started with the older issue ages to develop an ultimate factor and then worked backward to younger issue age bands, making experience adjustments for the first 20 durations. In developing these experience adjustments, we considered the A:E ratios, level of credibility, whether in the select or ultimate period, and A:E credibility-weighted ratios.

An ultimate level of 105% of 2015GAM was assumed based on the combined experience of issue ages 70 and older for attained ages older than 95 to the extent credible. For the first 20 durations, the factors were pegged for the mid-point of a quinquennial durational band and then interpolated in between to develop smoothed factors. The smoothed factors were determined such that the bands of quinquennial durations reproduced the actual experience, to the extent credible.

Theoretical adjustments are made, following the diagonal, according to the adjustments made for older issue age bands to maintain mortality relationships across attained ages. For example, we assume an 85% factor for attained age 80, which appears in duration 18 for issue age 62 and duration 23 for issue age 57 as shown in Section 6 of the actuarial memorandum; following along this diagonal the assumption is consistent.

Exhibit A-1b provides similar information as Exhibit A-1a for individual business only with issue ages under 60. For development of the mortality assumption for issue ages under 60, the experience was split between individual and group because there is a material amount of group experience under 60. Mortality can differ between individual and group business because of adverse selection associated with group underwriting.

For projection purposes, two years of additional improvement was applied to the 2015GAM mortality rates to bring them forward to 2017 using the G2 improvement scale from the 2012IAM table. The G2 scale is discussed further in the Improvement section below.

### *Mortality Durational Factors for Group Certificates*

Exhibit A-1c supports the group business mortality assumption and provides exposure, actual and expected mortality rates, mortality A:E ratios, credibility percent, and smoothed scalars. The expected mortality rates include the individual durational mortality factors described above. The smoothed scalars were developed based on group products for issue ages under 60 only because it captures most of the group experience. We did not analyze group experience for other issue ages. These scalars are applied to the individual mortality durational factors, but capped at 105%, to produce the group mortality durational factors shown in Section 6 of the actuarial memorandum.

### *Lifetime-Pay Voluntary Lapse Rates*

Exhibit A-2a provides total exposure, composite termination rates, expected mortality rates, derived voluntary lapse rates, credibility percent, and smoothed voluntary lapse rates by duration for lifetime-pay Prior to Series 11 policies. Exhibit A-2b and Exhibit A-2c provide similar information for Series 11 Individual and Series 11 Group policies, respectively.

In general, the smoothed voluntary lapse rates were set in such a way that the combined duration smoothed rates were close to the derived voluntary lapse rates (see the rows at the bottom of the exhibits). The smoothed voluntary lapse rates in the early durations were chosen to reproduce actual history, to the extent possible, so that the transition from historical to projected policy persistency was smooth. In developing the ultimate voluntary lapse rate, the level of credibility of the actual voluntary lapse experience and the experience of other forms were considered, as applicable. The degree of closeness of the smoothed voluntary lapse rate compared to actual experience depends on the level of credibility.

The actual composite (mortality and voluntary lapse) termination rates were calculated by duration as follows:

$$\text{Annualized Composite Termination Rate} = \frac{\text{Number of Deaths and Voluntary Lapses during the Year}}{\text{Number of Lives Exposed during the Year}}$$

A death or voluntary lapse (excluding benefit expiry) was assigned to the duration in which it occurred, or the preceding duration, if the termination was on the anniversary date. Each death or voluntary lapse contributes 1.0 to the numerator and a full year to the denominator. For lives whose benefits expire or do not terminate, the number of lives exposed to termination is based on the length of time a covered life is exposed to the risk of termination due to death or voluntary lapse during the year. This calculation logic is consistent with that used in the LTC Insurance Persistency Experience reports sponsored by LIMRA International and the SOA LTC Experience Committee.

## Appendix A Development and Justification of Current Assumptions

The expected mortality rate assumes the gender-distinct 2015GAM table with the durational factors shown in Section 6 of the actuarial memorandum applied by duration.

The derived voluntary lapse rate is then calculated according to the following formula:

$$\text{Derived Voluntary Lapse Rate} = 1 - \frac{1 - \text{Composite Termination Rate}}{1 - \text{Expected Mortality Rate}}$$

### *Limited-Pay Voluntary Lapse Rates*

The algorithm for the limited-pay options is similar to that used in original pricing. The smoothed lapse rates are a scalar of the lifetime-pay lapse rates. Less than 4% of the in-force policies with a limited-pay option will be subject to the lapse assumption because they will not yet be paid-up during the first six years of the projection. As a result, the impact of the limited-pay 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.

### *Benefit Expiry*

Benefit expiry rates reflect assumed policy lapses due to exhaustion of benefits based on the 2014 *Guidelines* with adjustments for historical benefit expiry experience and vary by attained age, gender, and benefit period. Policies with lifetime benefits do not have an expiry assumption (i.e., rate of 0%).

We compared MedAmerica's actual benefit expiry experience through December 31, 2015 to that expected by the 2014 *Guidelines*. We developed adjustment factors by attained age based on the experience of a subset of MedAmerica's organic business, which included the Series 11 and Prior business. Factors were developed by quinquennial attained age band and then interpolated to produce scalars for each attained age. These scalars were then applied to the benefit expiry rates developed by the 2014 *Guidelines* in order to produce the final benefit expiry assumptions shown in Section 6 of the actuarial memorandum.

Exhibit A-3 provides exposure, actual and expected benefit expiry rates, A:E ratios, credibility percent, credibility-weighted A:E ratios, and smoothed adjustment factors. The exposure used reflects a full year of exposure for each benefit expiry and the length of time a covered life is exposed to the risk of benefit expiry during the year for each life that does not expire benefits.

### *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 1, 2004 through June 30, 2016, with runout through December 31, 2016. The experience-adjustment factors were developed using predictive analytics as described in the Predictive Analytics section below.

- Exhibit A-4a – 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-4b – 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 30, 2016, with runout through December 31, 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* expected 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.
  - Adjusted expected incurred claims [E] are calculated by applying each applicable adjustment from Exhibit A-4a to the 2014 *Guidelines* expected incurred claims [D].



## Appendix A Development and Justification of Current Assumptions

- A:E ratios are calculated as actual incurred claims to the 2014 *Guidelines* expected incurred claims [F] and adjusted expected incurred claims [G]. The adjusted A:E [G] provides an indication of fit. This fit will not be perfect (i.e., ratio deviates 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-4c – provides information similar to Exhibit A-4b, except provides the experience for all products of MedAmerica, its affinity partners, and any acquired 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, three years of 1.0% improvement was applied to the 2014 *Guidelines* to bring them forward to 2017.

### **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 is applied beginning in the first projection year and continues for 15 projection years.

For projected morbidity improvement, a level of 1.0% is assumed for 15 years beginning January 1, 2018. 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 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's actual CBUL and RBO election rate experience to the extent it exists and is credible and actuarial judgment, particularly at the higher rate increase magnitudes where little experience exists.

#### *Contingent Benefit Upon Lapse Election*

The assumed CBUL election rate varies based on the cumulative rate increase. The assumption is applied on a seriatim basis and prorated for the requested increase needed to achieve the cumulative rate increase amounts. 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 a RBO election rate that varies based on the cumulative rate increase. The assumption is applied on a seriatim basis and prorated for the requested increase needed to achieve the cumulative rate increase amounts. No RBO elections are assumed for limited-pay policies.

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

## Appendix A Development and Justification of Current Assumptions

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

Average premium level after the rate increase with RBO election  
= weighted average premium level of those assumed to elect RBO with those assumed to accept the full rate increase

### *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.

$\text{PoolMorb} = \text{AdvSelMorb} \times (1 - \text{CBUL} - \text{RBO}) + [(1 - 25\%) \times \text{AdvSelMorb}] \times \text{CBUL} + [(1 - 12.5\%) \times \text{AdvSelMorb}] \times \text{RBO}$ , 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 policies that elect CBUL  
RBO = percentage of policies that elect RBO

Solving the above for the adverse selection component results in the following formula for lifetime-pay policies:

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

### ***Predictive Analytics***

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

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 the penalty that minimized the *k*-fold cross-validation prediction error. Using this approach, we were able to determine the amount of weight to give actual experience versus the benchmark assumption through a statistically robust and automated process.

### ***Credibility***

The methodology employed to develop the persistency assumptions considers actual historical experience and its associated credibility. Credibility percentage for the persistency assumptions was determined as  $(\text{Number of Events} / \text{Credibility Threshold})^{1/2}$ , with events defined as deaths, voluntary lapses, or benefit expiries. A credibility standard of a 90% confidence interval for the number of events with an error of plus or minus 7.5% was chosen. Based on these parameters, 481 events is the criterion for full credibility.

**Exhibit A-1a**  
**Actual-to-Expected (A:E) Mortality Experience through December 31, 2015**  
**All Products**

Duration	Exposure	Mortality Rate			Ratios to 2015GAM		Credibility Percent	A:E Credibility-Weighted with:		Smoothed Durational Factors
		Actual (A)	2015GAM (E)	2015IAM (X)	Actual (A:E)	2015IAM (X:E)		2015GAM (E:E=1.00)	2015IAM (X:E)	
<b>Issue Age 75+</b>										
1-5	24,998	1.8%	4.4%	3.1%	0.40	0.70	95%	0.43	0.41	0.41
6-10	20,553	5.0%	7.0%	5.5%	0.71	0.78	100%	0.71	0.71	0.71
11-15	11,268	10.1%	10.5%	8.8%	0.96	0.84	100%	0.96	0.96	0.96
16-20	3,330	16.3%	16.1%	14.2%	1.02	0.88	100%	1.02	1.02	1.04
21-25	415	25.3%	22.2%	20.6%	1.14	0.93	47%	1.07	1.03	1.05
26+	25	7.8%	32.1%	30.8%	0.24	0.96	6%	0.95	0.91	1.05
21+	440	24.3%	22.8%	21.2%	1.07	0.93	47%	1.03	0.99	1.05
All	60,589	5.4%	7.2%	5.7%	0.75	0.79	100%	0.75	0.75	0.75
<b>Issue Ages 70 - 74</b>										
1-5	39,706	0.9%	2.2%	1.4%	0.41	0.64	87%	0.49	0.45	0.40
6-10	38,186	2.4%	3.7%	2.5%	0.66	0.67	100%	0.66	0.66	0.65
11-15	27,286	4.9%	6.0%	4.4%	0.83	0.74	100%	0.83	0.83	0.84
16-20	10,157	9.1%	9.4%	7.7%	0.98	0.82	100%	0.98	0.98	0.98
21-25	2,029	14.6%	14.3%	12.3%	1.02	0.86	78%	1.02	0.99	1.04
26+	138	25.8%	20.4%	18.6%	1.27	0.91	27%	1.07	1.01	1.05
21+	2,167	15.3%	14.7%	12.7%	1.04	0.87	83%	1.03	1.01	1.04
All	117,501	3.3%	4.4%	3.2%	0.75	0.73	100%	0.75	0.75	0.75
<b>Issue Ages 65 - 69</b>										
1-5	67,094	0.6%	1.4%	0.9%	0.42	0.65	90%	0.48	0.44	0.40
6-10	65,409	1.4%	2.2%	1.4%	0.64	0.64	100%	0.64	0.64	0.65
11-15	50,103	2.9%	3.7%	2.4%	0.78	0.66	100%	0.78	0.78	0.79
16-20	23,101	5.3%	5.9%	4.3%	0.90	0.74	100%	0.90	0.90	0.90
21-25	6,829	9.5%	9.3%	7.6%	1.03	0.82	100%	1.03	1.03	0.99
26+	533	13.8%	13.6%	11.6%	1.01	0.86	39%	1.01	0.92	1.04
21+	7,362	9.8%	9.6%	7.9%	1.03	0.82	100%	1.03	1.03	0.99
All	213,069	2.2%	3.0%	2.0%	0.75	0.69	100%	0.75	0.75	0.74
<b>Issue Ages 60 - 64</b>										
1-5	93,335	0.3%	0.9%	0.6%	0.41	0.72	82%	0.51	0.46	0.39
6-10	85,284	0.8%	1.4%	0.9%	0.57	0.65	100%	0.57	0.57	0.59
11-15	58,636	1.5%	2.3%	1.5%	0.68	0.65	100%	0.68	0.68	0.67
16-20	27,386	3.2%	3.8%	2.5%	0.85	0.67	100%	0.85	0.85	0.83
21-25	9,435	5.5%	6.1%	4.5%	0.90	0.75	100%	0.90	0.90	0.90
26+	782	9.5%	9.1%	7.5%	1.05	0.82	39%	1.02	0.91	0.97
21+	10,217	5.8%	6.3%	4.8%	0.92	0.76	100%	0.92	0.92	0.91
All	274,857	1.2%	1.8%	1.2%	0.68	0.68	100%	0.68	0.68	0.67

**Exhibit A-1b**  
**Actual-to-Expected (A:E) Mortality Experience through December 31, 2015**  
**Individual Products**

Duration	Exposure	Mortality Rate			Ratios to 2015GAM		Credibility Percent	A:E Credibility-Weighted with:		Smoothed Durational Factors
		Actual (A)	2015GAM (E)	2015IAM (X)	Actual (A:E)	2015IAM (X:E)		2015GAM (E:E=1.00)	2015IAM (X:E)	
<b>Issue Age &lt;60</b>										
1-5	213,822	0.1%	0.3%	0.2%	0.39	0.86	66%	0.59	0.55	0.38
6-10	134,800	0.3%	0.5%	0.4%	0.54	0.77	88%	0.59	0.56	0.54
11-15	57,646	0.6%	0.9%	0.7%	0.61	0.69	83%	0.67	0.62	0.60
16-20	24,577	1.1%	1.5%	1.0%	0.70	0.67	74%	0.78	0.69	0.70
21-25	9,193	1.7%	2.4%	1.6%	0.70	0.67	57%	0.83	0.68	0.79
26+	759	2.9%	4.4%	3.1%	0.65	0.72	21%	0.93	0.70	0.87
21+	9,952	1.8%	2.6%	1.7%	0.69	0.68	61%	0.81	0.68	0.80
All	440,797	0.3%	0.6%	0.4%	0.56	0.75	100%	0.56	0.56	0.57

**Exhibit A-1c**  
**Actual-to-Expected (A:E) Mortality Experience through December 31, 2015**  
**Group Products**

Duration	Exposure	Actual Mortality Rate	Expected Mortality Rate <sup>[1]</sup>	Mortality A:E	Credibility Percent	Smoothed Scalars
<b>Issue Age &lt;60</b>						
1-5	120,598	0.2%	0.1%	2.00	65%	2.00
6-10	109,681	0.3%	0.2%	1.48	85%	1.50
11-15	71,689	0.5%	0.4%	1.20	83%	1.20
16-20	25,556	0.7%	0.6%	1.15	59%	1.15
21-25	11,926	0.8%	0.9%	0.93	45%	1.10
26-30	305	1.3%	1.2%	1.06	9%	1.05
31+	0	N/A	N/A	N/A	0%	1.00

[1] Includes the durational adjustment factors developed for individual business.

**Exhibit A-2a**  
**Derived Lifetime-Pay Voluntary Lapse Experience through December 31, 2015**  
**Prior to Series 11 Policy Forms**

Duration	Exposure	Composite Termination Rates	Expected Mortality Rates	Derived Lapse Rates	Credibility Percent	Smoothed Lapse Rates
1	5,409	16.9%	0.6%	16.4%	100%	16.50%
2	4,493	9.3%	0.9%	8.4%	89%	8.50%
3	4,076	6.5%	1.3%	5.2%	68%	5.00%
4	3,810	5.3%	1.5%	3.6%	55%	3.50%
5	3,607	4.0%	1.9%	2.0%	41%	2.00%
6	3,457	3.1%	2.0%	0.9%	34%	1.50%
7	3,345	3.7%	2.3%	1.2%	29%	1.50%
8	3,209	4.6%	2.5%	1.8%	33%	1.50%
9	3,047	4.0%	2.8%	1.0%	30%	1.50%
10	2,913	4.5%	3.1%	1.2%	31%	1.00%
11	2,765	5.4%	3.4%	1.8%	27%	1.00%
12	2,604	5.2%	3.7%	1.3%	25%	1.00%
13	2,447	5.5%	3.9%	1.4%	22%	1.00%
14	2,289	5.6%	4.2%	1.2%	20%	1.00%
15	2,087	4.9%	4.6%	0.2%	16%	1.00%
16	1,858	5.7%	5.0%	0.6%	18%	1.00%
17	1,504	6.8%	5.5%	1.3%	18%	1.00%
18	1,104	6.6%	6.0%	0.5%	9%	1.00%
19	710	7.2%	6.6%	0.5%	8%	1.00%
20	422	8.8%	7.1%	1.7%	6%	1.00%
21	224	8.9%	7.5%	1.4%	6%	1.00%
22	99	12.1%	8.9%	3.5%	6%	1.00%
23	28	7.2%	10.6%	-3.8%	5%	1.00%
24	1	0.0%	12.6%	-14.4%	0%	1.00%
1-3	13,978	11.4%	0.9%	10.5%	100%	10.6%
4-6	10,875	4.1%	1.8%	2.2%	77%	2.4%
7-9	9,601	4.1%	2.5%	1.4%	53%	1.5%
5+	37,720	4.8%	3.4%	1.3%	100%	1.3%
6+	34,113	4.9%	3.6%	1.2%	92%	1.2%
7+	30,656	5.1%	3.8%	1.2%	85%	1.2%
8+	27,311	5.3%	4.0%	1.2%	80%	1.1%
9+	24,103	5.4%	4.2%	1.1%	73%	1.1%
10+	21,056	5.6%	4.3%	1.1%	66%	1.0%
All	55,509	6.5%	2.7%	3.8%	100%	3.8%

**Exhibit A-2b**  
**Derived Lifetime-Pay Voluntary Lapse Experience through December 31, 2015**  
**Series 11 Individual Policy Forms**

Duration	Exposure	Composite Termination Rates	Expected Mortality Rates	Derived Lapse Rates	Credibility Percent	Smoothed Lapse Rates
1	12,157	8.6%	0.2%	8.3%	100%	8.50%
2	11,116	4.4%	0.4%	4.0%	96%	4.00%
3	10,632	3.4%	0.5%	2.8%	79%	2.75%
4	10,244	2.6%	0.6%	2.0%	65%	2.00%
5	9,933	2.1%	0.8%	1.3%	54%	1.50%
6	9,696	2.3%	0.9%	1.4%	54%	1.25%
7	9,432	2.4%	1.1%	1.3%	52%	1.25%
8	9,116	2.1%	1.3%	0.8%	41%	1.00%
9	8,825	2.4%	1.5%	0.9%	38%	0.75%
10	8,499	2.5%	1.7%	0.8%	36%	0.60%
11	8,129	2.5%	1.9%	0.6%	34%	0.60%
12	7,460	2.7%	2.1%	0.5%	31%	0.60%
13	5,806	3.0%	2.4%	0.5%	25%	0.60%
14	4,305	3.2%	2.8%	0.4%	23%	0.60%
15	2,813	3.4%	3.2%	0.2%	12%	0.60%
16	1,878	3.6%	3.4%	0.2%	8%	0.60%
17	1,351	5.0%	3.5%	1.6%	8%	0.60%
18	108	2.8%	3.7%	-1.0%	0%	0.60%
1-3	33,905	5.6%	0.4%	5.2%	100%	5.2%
4-6	29,874	2.4%	0.8%	1.6%	100%	1.6%
7-9	27,373	2.3%	1.3%	1.0%	76%	1.0%
5+	87,352	2.6%	1.6%	0.9%	100%	0.9%
6+	77,419	2.6%	1.8%	0.8%	100%	0.8%
7+	67,722	2.7%	1.9%	0.8%	100%	0.8%
8+	58,290	2.7%	2.0%	0.7%	89%	0.7%
9+	49,175	2.8%	2.1%	0.6%	80%	0.6%
10+	40,349	2.9%	2.3%	0.6%	70%	0.6%
All	131,501	3.3%	1.2%	2.1%	100%	2.1%

**Exhibit A-2c**  
**Derived Lifetime-Pay Voluntary Lapse Experience through December 31, 2015**  
**Series 11 Group Policy Forms**

Duration	Exposure	Composite Termination Rates	Expected Mortality Rates	Derived Lapse Rates	Credibility Percent	Smoothed Lapse Rates
1	7,058	6.4%	0.1%	6.3%	95%	6.50%
2	6,497	6.4%	0.2%	6.2%	91%	6.00%
3	5,951	4.4%	0.2%	4.2%	71%	4.00%
4	5,489	4.0%	0.3%	3.7%	63%	3.50%
5	5,008	3.3%	0.3%	3.0%	56%	3.00%
6	4,811	2.7%	0.4%	2.3%	46%	2.50%
7	4,644	2.2%	0.4%	1.8%	40%	2.00%
8	4,498	2.3%	0.5%	1.8%	40%	1.50%
9	4,297	1.7%	0.6%	1.1%	32%	1.30%
10	4,093	2.0%	0.6%	1.4%	36%	1.30%
11	3,468	2.4%	0.7%	1.7%	32%	1.30%
12	2,846	1.8%	0.8%	1.0%	26%	1.30%
13	1,498	1.3%	0.8%	0.5%	12%	1.30%
14	346	3.2%	0.7%	2.5%	10%	1.30%
15	74	1.4%	0.9%	0.5%	5%	1.30%
16	31	3.2%	1.0%	2.2%	5%	1.30%
17	3	0.0%	1.5%	-1.5%	0%	1.30%
1-3	19,506	5.8%	0.2%	5.6%	100%	5.6%
4-6	15,308	3.4%	0.3%	3.0%	96%	3.0%
7-9	13,439	2.1%	0.5%	1.6%	65%	1.6%
5+	35,618	2.3%	0.5%	1.8%	100%	1.8%
6+	30,609	2.2%	0.6%	1.6%	98%	1.6%
7+	25,799	2.1%	0.6%	1.5%	87%	1.5%
8+	21,154	2.0%	0.6%	1.4%	77%	1.3%
9+	16,656	1.9%	0.7%	1.3%	66%	1.3%
10+	12,359	2.0%	0.7%	1.3%	57%	1.3%
All	60,612	3.6%	0.4%	3.2%	100%	3.2%



**Exhibit A-3**  
**Actual-to-Expected (A:E) Benefit Expiration Experience through December 31, 2015**  
**Subset of MedAmerica Organic Business**

Attained Age Band	Exposure	Actual Expiry Rate	Expected Expiry Rate	Expiry A:E	Credibility Percent	Credibility-Weighted A:E	Smoothed Adjustment Factors
<80	528,089	0.03%	0.04%	0.70	56%	0.83	0.85
80-84	50,683	0.52%	0.41%	1.27	74%	1.20	1.25
85-89	22,568	1.52%	1.04%	1.46	85%	1.39	1.45
90+	6,638	4.43%	2.47%	1.79	78%	1.62	1.65
All	607,979	0.17%	0.14%	1.28	100%	1.28	1.28

**Exhibit A-4a**  
**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-4b**  
**MedAmerica and Affinity Partners**  
**Actual-to-Expected (A:E) Morbidity Experience through June 30, 2016 with Claim Runout**  
**Series 11 and Prior Policy Forms**

Policy or Policyowner Characteristic	Exposure [A]	Actual Incurred Claims		Expected Incurred Claims		A:E Incurred Claims	
		Count [B]	Dollars [C]	2014 Guidelines [D]	New [E]	2014 Guidelines [F] = [C] / [D]	New [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-4c**  
**MedAmerica, Affinity Partners, and Acquired Business**  
**Actual-to-Expected (A:E) Morbidity Experience through June 30, 2016 with Claim Runout**  
**All Products**

Policy or Policyowner Characteristic	Exposure [A]	Actual Incurred Claims		Expected Incurred Claims		A:E Incurred Claims	
		Count [B]	Dollars [C]	2014 Guidelines [D]	New [E]	2014 Guidelines [F] = [C] / [D]	New [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>