2020 Virtual Summer National Meeting
Materials Package

Long-Term Care Actuarial (B) Working Group
and
Health Actuarial (B) Task Force
LONG-TERM CARE ACTUARIAL (B) WORKING GROUP
Tuesday, August 4, 2020
11:00 a.m. – 1:00 p.m. PT / 12:00 – 2:00 p.m. MT / 1:00 – 3:00 p.m. CT / 2:00 – 4:00 p.m. ET

ROLL CALL

Perry Kupferman, Chair California
Steve Ostlund Alabama
Paul Lombardo Connecticut
Benjamin Ben Florida
Weston Trexler Idaho
Nicole Boyd Kansas
Marti Hooper Maine
Fred Andersen Minnesota
Rhonda Ahrens Nebraska
Anna Krylova New Mexico
Bill Carmello New York
Laura Miller Ohio
Andrew Schallhorn Oklahoma
Tracie Gray Pennsylvania
Andrew Dvorine South Carolina
Mike Boerner Texas
Tomasz Serbinowski Utah

NAIC Support Staff: Eric King

AGENDA

1:00 – 1:05 p.m.  1. Call to Order/Roll Call—Perry Kupferman (CA)

1:05 – 1:10 p.m.  2. Consider Adoption of its Jan. 23 and 2019 Fall National Meeting Minutes
               —Perry Kupferman (CA)

1:10 – 1:30 p.m.  3. Hear an Update from the American Academy of Actuaries (Academy) on Long-Term Care Insurance (LTCI) Working Group Activities
                   —Warren Jones (Academy)

1:30 – 1:50 p.m.  4. Hear an Update from the Society of Actuaries (SOA) on LTCI Research
                   —Dale Hall (SOA)

1:50 – 2:20 p.m.  5. Consider Adoption of the Long-Term Care Pricing (B) Subgroup Report
                   —Paul Lombardo (CT)

2:20 – 2:50 p.m.  6. Consider Adoption of the Long-Term Care Valuation (B) Subgroup Report
                   —Fred Andersen (MN)

2:50 – 3:00 p.m.  7. Discuss Any Other Matters Brought Before the Working Group
                   —Perry Kupferman (CA)

8. Adjournment

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The Long-Term Care Actuarial (B) Working Group of the Health Actuarial (B) Task Force met via conference call Jan. 23, 2020. The following Working Group members participated: Perry Kupferman, Chair (CA); Steve Ostlund (AL); Benjamin Ben (FL); Nicole Boyd (KS); Marti Hooper (ME); Fred Andersen (MN); Rhonda Ahrens (NE); Anna Krylova (NM); Laura Miller (OH); Andrew Schallhorn (OK); Andrew Dvorine (SC); Raja Malkani (TX); and Jaakob Sundberg (UT).

1. Adopted a Draft of Revisions to the Forms

Mr. Kupferman presented draft of revisions (Attachment Two-A) to the Long-Term Care Experience Reporting Forms (Forms) found in the annual financial statement and instructions (Attachment Two-B) for the revised Forms. He said the draft was produced as a response to a referral from the Financial Analysis (E) Working Group that requests assistance from the Long-Term Care Actuarial (B) Working Group with long-term care insurance (LTCI) total reserve reporting in the Forms and the annual financial statement. He said the draft revisions were exposed for public comment, and he presented a comment letter (Attachment Two-C) from the American Council of Life Insurers (ACLI) and America’s Health Insurance Plans (AHIP).

Ms. Ahrens suggested that the Total Inception-to-Date rows be deleted for the Assumed and Ceded sections of Form 1. The Working Group agreed to these changes.

Jan Graeber (ACLI) asked if the current Form 3 will be retained in the set of Forms. Mr. Kupferman said Form 3 will be retained, and no changes to it have been proposed.

Mr. Ostlund made a motion, seconded by Ms. Ahrens, to adopt the draft Forms (Attachment Two-D) and instructions (Attachment Two-E) with changes agreed to during the discussion. The motion passed unanimously. Mr. Kupferman said the draft Forms and instructions will be forwarded to the Health Actuarial (B) Task Force for its consideration.

Having no further business, the Long-Term Care Actuarial (B) Working Group adjourned.
The Long-Term Care Actuarial (B) Working Group of the Health Actuarial (B) Task Force met in Austin, TX, Dec. 6, 2019. The following Working Group members participated: Steve Ostlund, Deputy Chair (AL); Paul Lombardo (CT); John Reilly (FL); Weston Trexler (ID); Nicole Boyd (KS); Marti Hooper (ME); Fred Andersen (MN); Rhonda Ahrens (NE); Anna Krylova (NM); Laura Miller (OH); Tracie Gray (PA); Andrew Dvorine (SC); Mike Boerner and Raja Malkani (TX); and Tomasz Serbinowski (UT).


Ms. Ahrens made a motion, seconded by Mr. Lombardo, to adopt the Working Group’s Oct. 24 (Attachment Four-A), Sept. 24 (Attachment Four-B), Aug. 28 (Attachment Four-C), Aug. 20 (Attachment Four-D), and Aug. 2 (see NAIC Proceedings – Summer 2019, Health Actuarial (B) Task Force, Attachment One) minutes. The motion passed unanimously.

2. **Heard an Update from the Academy on LTC Work Group Activities**

Warren Jones (PricewaterhouseCoopers LLP) gave an update (Attachment Four-E) on the American Academy of Actuaries (Academy) Long-Term Care Valuation Work Group’s development of mortality and lapse valuation tables. He said the Academy has published the “Long-Term Care (LTC) Combination Product Valuation Practice Note,” as requested by the Working Group in July 2015.

3. **Heard an Update on SOA LTCI Research**

Dale Hall (Society of Actuaries—SOA) gave an update (Attachment Four-F) on recent work on the SOA’s Long-Term Care Experience Study.

4. **Adopted the Report of the Long-Term Care Pricing (B) Subgroup**

Mr. Lombardo said the Long-Term Care Pricing (B) Subgroup met Sept. 12 and took the following action: 1) discussed group long-term care insurance (LTCI) pricing.

Mr. Lombardo made a motion, seconded by Ms. Ahrens, to adopt the report of the Long-Term Care Pricing (B) Subgroup, including its Sept. 12 minutes (Attachment Four-G). The motion passed unanimously.

5. **Adopted the Report of the Long-Term Care Valuation (B) Subgroup**

Mr. Andersen said an *Actuarial Guideline LI—The Application of Asset Adequacy Testing to Long-Term Care Insurance Reserves (AG 51)* guidance document (Guidance Document) (Attachment Four-H) was developed to be used for year-end 2019 AG 51 filings, and it is available on the Subgroup’s webpage. He said a review group composed of Subgroup members has reviewed AG 51 year-end 2018 filings for the 50 largest, based on policyholder exposure, LTCI companies. He said the review group has conducted in-person meetings with 11 insurers to further discuss their AG 51 filings.

Mr. Andersen made a motion, seconded by Mr. Boerner, to adopt the report of the Long-Term Care Valuation (B) Subgroup, and the Guidance Document. The motion passed unanimously.

Having no further business, the Long-Term Care Actuarial (B) Working Group adjourned.
The Long-Term Care Pricing (B) Subgroup of the Long-Term Care Actuarial (B) Working Group of the Health Actuarial (B) Task Force met via conference call Feb. 6, 2020. The following Subgroup members participated: Paul Lombardo, Chair (CT); Steve Ostlund (AL); Perry Kupferman (CA); Benjamin Ben (FL); Weston Trexler (ID); Nicole Boyd (KS); Marti Hooper (ME); Fred Andersen (MN); David Yetter (NC); Rhonda Ahrens (NE); David Sky (NH); Anna Krylova (NM); Laura Miller (OH); Tomasz Serbinowski (UT); and Joylynn Fix (WV). Also participating was: Sarah Neil (RI).

1. Discussed LTCI Cash Value Buyouts

Mr. Lombardo said the Subgroup will continue its discussion of pricing considerations for long-term care insurance (LTCI) cash value buyouts (CVBs) to policyholders in lieu of rate increases from its Jan. 6 conference call. He said CVBs offer policyholders an additional option that is beyond the scope of their existing LTCI contracts. He said most LTCI policies were not initially priced assuming CVBs would be offered. He said the amount of the CVB will likely be calculated as a percentage of the statutory reserve held for the given policy and that the percentage used is an important aspect of CVB considerations. He said the percentage needs to be high enough to appeal to policyholders, but not so high that it affects policyholders that continue their LTCI coverage.

Mr. Lombardo said possible factors influencing the CVB take-up rate by policyholders are: 1) the policyholder’s financial situation; 2) the policyholder’s attained age; and 3) the policyholder’s perception of needing long-term care (LTC) in the future. He said state insurance regulators have a responsibility to ensure that the election of CVBs does not result in harm to remaining policyholders or financial harm to insurers due to potential unpriced for increases in claims costs to the remaining block of policyholders. He said he thinks the balance of the statutory reserve that remains after the percentage of it is paid to policyholders electing CVBs should be earmarked for supporting the block of remaining policyholders. Mr. Andersen agreed that these reserve balances should be earmarked.

Mr. Andersen said insurers that pay out CVBs should consider the effect of morbidity on the remaining block of policyholders for subsequent valuations of liabilities. Mr. Lombardo agreed and said he understands “morbidity” to include claim incidence, claim continuance and percent of maximum allowable benefit utilization. Mr. Andersen agreed with the components of morbidity.

Mr. Lombardo said the Subgroup should discuss whether CVBs should be one-time offers and how long after the offer of a CVB will policyholders be given to decide whether to elect it. He said the number and frequency of CVB offers have the potential to influence the degree of antiselection.

Jan Graeber (American Council of Life Insurers—ACLI) said the ACLI will meet with some of its member companies to discuss the issues above, as well as potential legal issues associated with the offering of CVBs. She said there are concerns that a policyholder or representative could sue an insurer if a CVB were elected, and the CVB recipient later required LTC, or that remaining policyholders could sue the insurer in response to rate increases or financial instability resulting from antiselection against the remaining block. She said ACLI members will also discuss potential tax ramifications to policyholders with tax-qualified LTCI policies upon election of a CVB. She said she will report the results of the ACLI member meeting to the Subgroup during a future conference call.

Ray Nelson (America’s Health Insurance Plans—AHIP) said discussions he has had with AHIP member companies indicate companies are interested in possibly offering CVBs and do not want this option to be prohibited. He said AHIP member companies have expressed the same concerns as those identified by the Subgroup.

Mr. Lombardo said he has discussed the possibility of offering CVBs to policyholders with three insurers. He said one insurer has analyzed the issues associated with CVBs and is interested in further consideration, and two insurers have not analyzed CVBs but are interested in considering offering them.

Ms. Neil asked Ms. Graeber and Mr. Nelson if either are aware of insurers currently offering CVBs. Ms. Graeber and Mr. Nelson said they are not aware if any insurers are or are not. Mr. Lombardo asked Ms. Graeber to ask ACLI members at
the upcoming ACLI meeting if any are currently offering CVBs. Ms. Graeber said she will consult with ACLI legal staff to determine if this is information she can share with the Subgroup.

Mr. Lombardo said the concept of CVBs is also being discussed in one of the workstreams of the Long-Term Care Insurance (EX) Task Force and that Subgroup members might assist the Task Force in this effort.

2. Discussed LTCI Hybrid Products

Mr. Lombardo said there have been recent discussions in the Connecticut Legislature concerning the ability of stand-alone LTCI policyholders to convert their policies to some form of hybrid LTCI policy, using some of the accumulated value of the stand-alone policy to offset the cost of the hybrid policy. He asked if others think this proposal is feasible.

Birny Birnbaum (Center for Economic Justice—CEJ) said there may be issues with calculating what value will be assigned to cancelling the stand-alone coverage that will be transferred to the hybrid coverage that are similar to calculating a CVB value.

Having no further business, the Long-Term Care Pricing (B) Subgroup adjourned.
The Long-Term Care Pricing (B) Subgroup of the Long-Term Care Actuarial (B) Working Group of the Health Actuarial (B) Task Force met via conference call Jan. 6, 2020. The following Subgroup members participated: Paul Lombardo, Chair (CT); Steve Ostlund (AL); Perry Kupferman (CA); Marti Hooper (ME); Fred Andersen (MN); William Leung (MO); Rhonda Ahrens (NE); Anna Krylova (NM); David Yetter (NC); Laura Miller (OH); Raja Malkani (TX); Tomasz Serbinowski (UT); and Joylynn Fix (WV).

1. Discussed LTCI Cash Value Buyouts

Mr. Lombardo said the Subgroup will discuss pricing considerations for long-term care insurance (LTCI) cash value buyouts (CVBs) to policyholders in lieu of rate increases. He said he does not believe most LTCI carriers account for the option of CVBs to policyholders in their initial pricing. He said this may subject carriers to antiselection, and they may become financially disadvantaged in the event policyholders elect CVBs.

Mr. Andersen said he and other state insurance regulators have begun a study of the mathematical aspects of the impacts on policyholders who elect a CVB and the effect on the remaining block of policyholders. He said state insurance regulators’ main concern is that the remaining policyholders may be in a worse position after others have opted for CVBs. He said preliminary findings indicate three factors may influence whether CVB election will harm remaining policyholders. He said the first factor is the amount of the CVB, such as if it is calculated as a percentage of held statutory reserves within a given rating cell, where the risk of harm to remaining policyholders increases as the percentage applied increases. He said the second factor is the percentage of policyholders opting for CVBs, with increasing percentages increasing the risk to remaining policyholders. He said the third factor is the degree of antiselection that may occur if healthier policyholders opt for CVBs, resulting in higher-than-anticipated claims costs among the pool of remaining policyholders.

Mr. Andersen said three factors were identified that may contribute to antiselection in the presence of CVBs. He said it is possible that policyholders that elect CVBs tend to be more likely to lapse in general, whether or not a CVB is offered. He said there may be a tendency for policyholders that are aware that they are likely to die soon to elect CVBs, and when such individuals are no longer in the pool of remaining policyholders, the reduction in remaining pool mortality may result in claims costs in excess of those initially priced for. He said there may be a tendency for policyholders that have expectations that they will have lower-than-average long-term care (LTC) claims costs to elect CVBs, and when such individuals are no longer in the pool of remaining policyholders, the reduction in remaining pool morbidity may result in claims costs in excess of those initially priced for.

Ms. Ahrens said the Nebraska Department of Insurance (DOI) is generally not in favor of CVBs, as it is difficult to determine the effect that policyholder election of CVBs will have on the remaining policyholder block’s experience. She said there are other options for policyholders, and the DOI questions what purpose offering CVBs serves. She said CVBs are extra-contractual benefits and do not preserve insurance benefits.

Mr. Kupferman said he thinks the percentage of policyholders that opt for CVBs is very small. Mr. Serbinowski said since the percentage of policyholders that will elect CVBs is likely small, the Utah Insurance Department likely would not prohibit an insurer from offering CVBs.

Mr. Lombardo said that some policyholders that are eligible for CVBs may also be eligible for nonforfeiture benefits (NFBs), and the CVB will likely be much greater than the NFB amount. He asked if the CVB is in lieu of, and not in addition to, the NFB. Mr. Andersen said he believes the CVB is in lieu of the NFB.

Mr. Andersen said he and other state insurance regulators discussed a scenario where the offered CVB is a low percentage of the held statutory reserve, and the insurer expects to experience a financial gain when the CVB is elected. He asked if state insurance regulators should require the insurer to hold this gain as a reserve for the block of remaining policyholders. He said if this is required, state insurance regulators will need to determine how to measure the amount of the gain.
Jan Graeber (American Council of Life Insurers—ACLI) said she will survey ACLI member companies for their input related to offering CVBs to policyholders, and policyholder take-up rates on the various reduced benefit and nonforfeiture options offered. She said she estimates, in general, that 92% of policyholders presented with a rate increase choose to continue coverage at the unmodified increased premium level. Ray Nelson (America’s Health Insurance Plans—AHIP) said he will survey AHIP member companies for the same information.

Mr. Lombardo said the Subgroup will continue to discuss and analyze CVB options.

Having no further business, the Long-Term Care Pricing (B) Subgroup adjourned.
Requests of the LTC Valuation Work Group

- Develop a replacement mortality table for LTC active life reserves
  - Based on the 2012 Annuitant Mortality Table
  - Recommend a margin for conservatism
- Develop a replacement lapse table
  - Recommend a margin for conservatism
- Consider developing tables for valuation on total lives basis as well as active lives basis
Progress Since Fall National Meeting

- Completed review of actual-to-expected lapse on total lives basis
- Completed review of reasonableness of total terminations on total lives basis
- Developed mortality improvement from mid-point of exposure period, 2008 – 2011, to 2020 using scale G2
- Developed margins for lapse and mortality
- Developed lapse tables on an active lives basis
Remaining Tasks

- Develop mortality tables on an active lives basis
- Complete Report
Recommended Mortality Tables
(Total Lives)
## Death Counts (Total Lives)

By Sex, Risk Class, Attained Age, and Marital Status

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<th>Female: Preferred Risk</th>
<th>Female: Standard Risk</th>
<th>Male: Preferred Risk</th>
<th>Male: Standard Risk</th>
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<td>330</td>
<td>373</td>
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## Recommended Marital Status Adjustment Factors for Mortality Table (Total Lives)

### Representative rates shown

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<th>Duration</th>
<th>Att Age</th>
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<td>Ultimate</td>
</tr>
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<td>1.00 1.00 1.00 1.00 1.00</td>
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### Married Adjustment Factors

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<tr>
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<td>1.00 1.00 1.00 1.00 1.00</td>
<td>1.00 1.00 1.00 1.00 1.00</td>
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### Not Married Adjustment Factors

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<td>26 27 28 29 30</td>
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<tr>
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<td>1.00 1.00 1.00 1.00 1.00</td>
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</tbody>
</table>

### Table Notes

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# Recommended Underwriting Class Adjustment Factors for Mortality Table (Total Lives)

## Representative rates shown

| Issue | Duration | Att | Age | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | Ultimate |
|       |          |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

### Preferred Underwriting Class Adjustment Factors

| Issue | Duration | Att | Age | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | Ultimate |

### Standard Underwriting Class Adjustment Factors

| Issue | Duration | Att | Age | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | Ultimate |

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Recommended Lapse Tables
(Total Lives and Active Lives)
# Recommended Individual Lapse Table (Total Lives)

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<th>60-64</th>
<th>65-69</th>
<th>70-74</th>
<th>75 &amp; Over</th>
<th>Issue Age Group</th>
<th>Marital Status Adjustment Factor</th>
<th>Underwriting Class Adjustment Factor</th>
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# Recommended Group Lapse Table (Total Lives)

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Recommended Individual Lapse Table (Active Lives)

<table>
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<tr>
<th>Policy Year</th>
<th>Under 55</th>
<th>55-59</th>
<th>60-64</th>
<th>65-69</th>
<th>70-74</th>
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<td>2.0%</td>
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<tr>
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Policy Year

<table>
<thead>
<tr>
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<th>75 &amp; Over</th>
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<td>4.6%</td>
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<tr>
<td>75 &amp; Over</td>
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Marital Status

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Underwriting Class

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# Recommended Group Lapse Table (Active Lives)

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<thead>
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<th>40-44</th>
<th>45-49</th>
<th>50-54</th>
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<th>60 &amp; Over</th>
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<td>6.5%</td>
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<td>1.3%</td>
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</tr>
<tr>
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<td>2.1%</td>
<td>1.9%</td>
<td>1.6%</td>
<td>1.3%</td>
<td>1.0%</td>
<td>0.9%</td>
</tr>
<tr>
<td>16 &amp; Over</td>
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<td>1.8%</td>
<td>1.5%</td>
<td>1.4%</td>
<td>1.1%</td>
<td>0.8%</td>
<td>0.7%</td>
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</tbody>
</table>
Data Credibility for Individual Lapses

Minimum of Number of Individual Lapses and 1,082 (Full Credibility) by Issue Age Group and Policy Duration

- Under 55
- 55-59
- 60-64
- 65-69
- 70-74
- 75+

47% Partial Credibility
Data Credibility for Group Lapses

Minimum of Number of Group Lapses and 1,082 (Full Credibility) by Issue Age Group and Policy Duration

- Under 35
- 35-39
- 40-44
- 45-49
- 50-54
- 55-59
- 60 & Over
- 55% Partial Credibility
Mortality Improvement to 2020
Recommended Mortality Improvement

- The study period is 2008 through 2011
- Recommend to apply improvement trend using the 2012 IAM G2 scale from 2010 to 2020 (11 years)
- Recommended tables represent industry experience as of 2020
- G2 scale applies to both total lives and active lives
Alternatives for Mortality Improvement

- The mortality tables can be made dynamic by continuing to apply the G2 scale to future valuation dates.
- For first principle valuation approach, G2 scale can be applied to both active lives and disabled lives.
Recommended Margins
Recommended Margins

- 10% for mortality
- 15% for lapse
- Same for total lives and active lives
Actual Total Lives Mortality to Expected (Based on Recommended Tables) By Company

A 10% margin will result in 7 out of 10 companies with over 100% actual lapses to the new expected
Actual Individual Total Lives Lapses to Expected (Based on Recommended Tables) By Company

A 15% margin will result in 6 out of 9 companies with over 100% actual lapses to the new expected.
Actual to Expected Mortality Rates

(Expected Based on Recommended Tables)
Actual Total Lives Mortality to Expected By Policy Year

Total Lives Actual to Expected Mortality by Policy Year
With and Without Margins

Without Margins
With Margins

99%
111%

Policy Year
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16+ All Years
Actual Total Lives Mortality to Expected By Issue Age Group

Total Lives Actual to Expected Mortality by Issue Age Group With and Without Margins

- Without Margins
- With Margins

Under 55: 99%
55-59: 111%
60-64: 60%
65-69: 70%
70-74: 80%
75+: 90%
All Ages: 100%

With Margins
Under 55: 99%
55-59: 111%
60-64: 60%
65-69: 70%
70-74: 80%
75+: 90%
All Ages: 100%

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Actual Total Lives Mortality to Expected By Marital Status and Underwriting Class

Total Lives Actual to Expected Mortality by Martial Status and Underwriting Class
With and Without Margins

- Married
- Single
- Preferred
- Standard

Without Margins
With Margins

- 98% 100% 101% 98%
- 109% 111% 112%
- 109%
- 60%
- 70%
- 80%
- 90%
- 100%
- 110%
- 120%
- 130%
- 140%
Actual to Expected Lapse Rates

(Expected Based on Recommended)
Actual Individual Total Lives Lapses to Expected Lapses by Policy Year

Greater actual to expected ratios in later policy years are due to restricting non-increasing pattern in recommended rates by policy year.
Actual Individual Total Lives Lapses to Expected
By Issue Age Group

![Graph showing actual individual total lives lapses to expected lapses by issue age group with and without margins.](image-url)
Actual Individual Total Lives Lapses to Expected
By Marital Status and Underwriting Class

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Underwriting Class</th>
<th>Without Margins</th>
<th>With Margins</th>
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</thead>
<tbody>
<tr>
<td>Married</td>
<td>Preferred</td>
<td>106%</td>
<td>125%</td>
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<tr>
<td></td>
<td>Not Married</td>
<td>105%</td>
<td>124%</td>
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<tr>
<td></td>
<td>Standard</td>
<td>105%</td>
<td>123%</td>
</tr>
<tr>
<td></td>
<td>Substandard</td>
<td>105%</td>
<td>128%</td>
</tr>
</tbody>
</table>

Actual Individual Total Lives Lapses to Expected Lapses
by Martial Status and Underwriting Class
With and Without Margins

Marital Status:
- Married
- Not Married

Underwriting Class:
- Preferred
- Standard
- Substandard
Actual Group Total Lives Lapses to Expected By Policy Year
Actual Group Total Lives Lapses to Expected By Issue Age Group

![Chart showing actual group total lives lapses to expected by issue age group with and without margins.]

- Under 35
- 35-39
- 40-44
- 45-49
- 50-54
- 55-59
- 60 & Over
- All Ages

Without Margins
- 102%
- 120%
- 60.0%
- 80.0%
- 100.0%
- 120.0%
- 140.0%
- 160.0%
- 180.0%
- 200.0%

With Margins
- 102%
- 120%

- 102%
- 120%

- 102%
- 120%

- 102%
- 120%

- 102%
- 120%

- 102%
- 120%

- 102%
- 120%
Actual Individual Active Lives Lapses to Lapses By Policy Year

Greater actual to expected ratios in later policy years are due to restricting non-increasing pattern in recommended rates by policy year.
Actual Individual Active Lives Lapses to Expected By Issue Age Group
Actual Group Active Lives Lapses to Expected By Policy Year
Actual Group Active Lives Lapses to Expected By Issue Age Group

![Graph showing actual group active lives lapses to expected by issue age group with and without margins.]

- Without Margins
- With Margins

- Under 35: 102%
- 35-39: 120%
- 40-44: 60%
- 45-49: 80%
- 50-54: 100%
- 55-59: 120%
- 60 & Over: 140%
- All Ages: 160%

- Under 35: 100%
- 35-39: 120%
- 40-44: 60%
- 45-49: 80%
- 50-54: 100%
- 55-59: 120%
- 60 & Over: 140%
- All Ages: 160%
Actual to Expected Total Policy Termination Rates

(Mortality and Lapse Combined – Total Lives Only)
Actual Individual Total Lives to Expected by Mortality and Lapse

![Chart showing actual to expected individual total lives mortality and lapse with and without margins.](chart.png)

- **Without Margins**
  - Years 16+ Mortality: 97%
  - All Years: 99%
  - Years 16+ Lapse: 175%
  - All Years: 106%
  - Years 16+ Total Termination: 107%
  - All Years: 111%
  - Years 16+: 125%
  - All Years: 121%
  - Total: 119%

- **With Margins**
  - Years 16+ Mortality: 107%
  - All Years: 111%
  - Years 16+ Lapse: 205%
  - All Years: 125%
  - Years 16+ Total Termination: 107%
  - All Years: 104%
Actual Individual Total Lives Total Terminations to Expected by Policy Year

<table>
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<th>With Margins</th>
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<td>104%</td>
<td>119%</td>
</tr>
<tr>
<td>2</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>3-6</td>
<td>100%</td>
<td>120%</td>
</tr>
<tr>
<td>7-10</td>
<td>140%</td>
<td>160%</td>
</tr>
<tr>
<td>11-15</td>
<td>180%</td>
<td>200%</td>
</tr>
<tr>
<td>16+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With and Without Margins
## Actual Individual Total Lives Total Terminations to Expected by Issue Age Group

<table>
<thead>
<tr>
<th>Issue Age Group</th>
<th>Without Margins</th>
<th>With Margins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 55</td>
<td>104%</td>
<td>119%</td>
</tr>
<tr>
<td>55-59</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>60-64</td>
<td>100%</td>
<td>120%</td>
</tr>
<tr>
<td>65-69</td>
<td>140%</td>
<td>160%</td>
</tr>
<tr>
<td>70-74</td>
<td>180%</td>
<td>200%</td>
</tr>
<tr>
<td>75+</td>
<td>119%</td>
<td>104%</td>
</tr>
<tr>
<td>All Ages</td>
<td>120%</td>
<td>140%</td>
</tr>
</tbody>
</table>

The chart above shows the actual to expected individual total lives total terminations by issue age group, with and without margins.
Actual Group Total Lives to Expected by Mortality and Lapse

[Chart showing actual to expected group total lives mortality and lapse with and without margins for years 16+ and all years, with percentages ranging from 60% to 200%]
### Actual Group Total Lives Total Terminations to Expected by Policy Year

<table>
<thead>
<tr>
<th>Policy Year</th>
<th>Without Margins</th>
<th>With Margins</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>103%</td>
<td>121%</td>
</tr>
<tr>
<td>2</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>3</td>
<td>100%</td>
<td>120%</td>
</tr>
<tr>
<td>4</td>
<td>140%</td>
<td>160%</td>
</tr>
<tr>
<td>5</td>
<td>180%</td>
<td>200%</td>
</tr>
<tr>
<td>6-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The bars represent the actual to expected group total lives total terminations with and without margins. The percentages indicate the deviation from the expected values for each policy year and the overall years combined.
Actual Group Total Lives Total Terminations to Expected by Issue Age Group

![Bar chart showing actual to expected group total lives and total terminations for different age groups with and without margins.](chart.png)
Devin Boerm
Deputy Director of Public Policy
American Academy of Actuaries
Boerm@actuary.org
202-785-6931
Presentation Disclaimer

The material and information contained in this presentation is for general information only. It does not replace independent professional judgment and should not be used as the basis for making any business, legal or other decisions. The Society of Actuaries assumes no responsibility for the content, accuracy or completeness of the information presented.
Data

• Data collected on policies exposed between 1/1/2000 and 12/31/2016
• 18 companies submitted data
• Over 80% of all 2016 LTC Earned Premium
• Data requested was expanded from the previous study.

New data collected:
• Additional underwriting information
• Expanded benefit information
• ICD-9-CM/ICD-10-CM claim information
Status Update

• Completed steps
  • Validation and logic checks defined and programmed
  • Exposure calculations defined and implemented
  • Data validation
  • Contributor data has been validated, exposure calculated and initial database built

• To be completed
  • Build final database
  • Review of aggregated results
  • Database released
Deliverables

• A database of claim termination and incidence data including:
  • Report that defines the database and calculations
  • Summary of data collected
  • High level results

• Data will be HIPAA compliant and follow safe harbor reporting rules
  • Results for ages 90+ required to be grouped
  • Other grouping added to satisfy Safe Harbor while maintaining the highest level of detail as the prior study

• Expected completion date: July 31, 2020
  • Four year lag between latest data collected and publication
  • Comparable to past LTC studies
Challenges of the current study

• Heightened awareness of HIPAA compliance by participating companies
  • Additional research into HIPAA compliance options
  • Contracting between data compiler and contributors
  • Data restrictions

• Delays in data collection and reporting phases
2020 Summer National Meeting
Virtual Meeting

HEALTH ACTUARIAL (B) TASK FORCE
Tuesday, August 4, 2020
1:00 – 3:00 p.m. PT / 2:00 – 4:00 p.m. MT / 3:00 – 5:00 p.m. CT / 4:00 – 6:00 p.m. ET

ROLL CALL

Member
Todd E. Kiser, Chair
Eric A. Cioppa, Vice Chair
Jim L. Ridling
Lori K. Wing-Heier
Elizabeth Perri
Ricardo Lara
Michael Conway
Andrew N. Mais
Karima M. Woods
Dean L. Cameron
Robert H. Muriel
Stephen W. Robertson
Vicki Schmidt
Chlora Lindley-Myers
Bruce R. Ramge
Marlene Caride
Mike Causey
Jillian Froment
Glen Mulready
Jessica K. Altman
Kent Sullivan
Scott A. White
Mike Kreidler
James A. Dodrill

Representative
Jaakob Sundberg
Marti Hooper
Steve Ostlund
Jacob Lauten
Elizabeth Perri
Perry Kupferman
Eric Unger
Paul Lombardo
Efren Tanhehco
Weston Trexler
Eric Anderson
Karl Knable
Nicole Boyd
William Leung
Rhonda Ahrens
Seong-min Eom
David Yetter
Laura Miller
Andrew Schallhorn
Katie Dzurec
Mike Boerner
David Shea
Lichiu Lee
Joylynn Fix

State
Utah
Maine
Alabama
Alaska
American Samoa
California
Colorado
Connecticut
District of Columbia
Idaho
Illinois
Indiana
Kansas
Missouri
Nebraska
New Jersey
North Carolina
Ohio
Oklahoma
Pennsylvania
Texas
Virginia
West Virginia

NAIC Support Staff: Eric King

AGENDA

1. Call to Order/Roll Call—Jaakob Sundberg (UT)

2. Consider Adoption of its May 27, April 23, and Feb. 14 Minutes—Jaakob Sundberg (UT)

3. Hear an Update from the Society of Actuaries (SOA) on Health Research—Dale Hall (SOA)

4. Consider Adoption of the Report of the Long-Term Care Actuarial (B) Working Group—Perry Kupferman (CA)

5. Consider Adoption of the Report of the Health Care Reform Actuarial (B) Working Group—David Shea (VA)
   a. Hear an Update from the Federal Center for Consumer Information and Insurance Oversight (CCIIIO)—(CCIO)
6. Hear an Update from the American Academy of Actuaries (Academy) Council on Professionalism—(Academy)

7. Hear an Update from the Academy Health Practice Council—(Academy)

8. Discuss Any Other Matters Brought Before the Task Force—Jaakob Sundberg (UT)

9. Adjournment
The Health Actuarial (B) Task Force met via conference call May 27, 2020. The following Task Force members participated:

Todd E. Kiser, Chair, represented by Jaakob Sundberg (UT); Eric A. Cioppa, Vice Chair, represented by Marti Hooper (ME); Lori K. Wing-Heier represented by Jacob Lauten (AK); Jim L. Ridling represented by Steve Ostlund (AL); Ricardo Lara represented by Perry Kupferman (CA); Michael Conway represented by Eric Unger (CO); Andrew N. Mais represented by Paul Lombardo (CT); Dean L. Cameron represented by Weston Trexler (ID); Robert H. Muriel represented by Eric Anderson (IL); Stephen W. Robertson represented by Karl Knable (IN); Chlora Lindley-Myers (MO): Mike Causey represented by Ted Hamby (NC); Bruce R. Ramge represented by Rhonda Ahrens (NE); Marlene Caride represented by Seong-min Eom (NJ); Jillian Froment represented by Laura Miller (OH); Jessica K. Altman represented by Tracie Gray (PA); Scott A. White represented by David Shea (VA); Mike Kreidler represented by Lichiou Lee (WA); and James A. Dodrill represented by Joylynn Fix (WV).

1. **Adopted a 2021 ACA Rates COVID-19 Guideline**

Mr. Sundberg presented comment letters from America’s Health Insurance Plans (AHIP) (Attachment XX), the Blue Cross Blue Shield Association (BCBSA) (Attachment XX), and Risk & Regulatory Consulting LLC (RRC) (Attachment XX) that were submitted in response to the Task Force’s public exposure of a draft guideline that state insurance regulators may use to assist the states in assessing the impact of COVID-19 on 2021 federal Affordable Care Act (ACA) health insurance rates. He said the guideline is not intended to be prescriptive and is not proposed as a requirement, but is offered by the Task Force only as a guidance document.

Ray Nelson (AHIP) gave an overview of AHIP’s comment letter. He said AHIP member companies agree that the guideline may be helpful, but its use should not be mandatory. He suggested that wording be added to the guideline to stress that it may be used as a guide, but it is not required as a checklist for required information. Mr. Trexler said individual states should be given the discretion and flexibility to use the guideline as they see fit, including making it a requirement. The Task Force decided that the language included on the Overview & Contents tab, which indicates that the guideline is not prescriptive, but a state may require its use, is sufficient. The Task Force agreed to make changes related to mislabeled items and add Milliman’s 2021 COVID Impact document to the Table of Actuarial Resources tab as noted in the comment letter.

Barb Klever (BCSA) gave an overview of the BCBSA’s comment letter.

Becky Sheppard (RRC) gave an overview of RRC’s comment letter. The Task Force agreed to make changes related to making the Table of Actuarial Resources tab a standalone document, additions to the Impact to Risk Adjustment 2021 tab, and fixing various typographical errors as noted in the comment letter.

Mr. Kupferman made a motion, seconded by Mr. Ostlund, to adopt the guideline with the changes described above. Mr. Sundberg said the guideline will be forwarded to the Health Insurance and Managed Care (B) Committee for its consideration.

Having no further business, the Health Actuarial (B) Task Force adjourned.
The Health Actuarial (B) Task Force met via conference call April 23, 2020. The following Task Force members participated:

Todd E. Kiser, Chair, represented by Jaakob Sundberg (UT); Eric A. Cioppa, Vice Chair, represented by Marti Hooper (ME); Lori K. Wing-Heier represented by Jacob Lauten (AK); Jim L. Ridling represented by Steve Ostlund (AL); Ricardo Lara represented by Perry Kupferman (CA); Michael Conway (CO); Andrew N. Mais represented by Paul Lombardo (CT); Dean L. Cameron represented by Weston Trexler (ID); Robert H. Muriel represented by Eric Anderson (IL); Vicki Schmidt represented by Nicole Boyd (KS); Chlora Lindley-Myers (MO); Mike Causey represented by David Yetter (NC); Bruce R. Range represented by Michael Muldoon (NE); Marlene Caride represented by Seong-min Eom (NJ); Jillian Froment represented by Laura Miller (OH); Kent Sullivan represented by Raja Malkani (TX); Scott A. White represented by David Shea (VA); Mike Kreidler represented by Lichiou Lee (WA); and James A. Dodrill represented by Joylynn Fix (WV).

1. Discussed the Impact of COVID-19 on 2021 ACA Rates

Mr. Sundberg said the Task Force will hear presentations on factors arising from COVID-19 testing and treatment that may affect the pricing of 2021 federal Affordable Care Act (ACA) health insurance policies.

Cori Uccello (American Academy of Actuaries—Academy) gave a presentation (Attachment XX) on the effects that COVID-19 may have on 2020 claims experience, changes in enrollment in various health insurance markets, 2021 premium development, and 2021 rate filing deadlines. Mr. Sundberg asked if the economic downturn and its impact on small businesses may create anti-selection in the small group market or have effects on the individual market if small employers direct employees to obtain individual or Consolidated Omnibus Budget Reconciliation Act of 1986 (COBRA) coverage. Ms. Uccello said she is not sure, but Small Business Administration loans that are part of the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act provide funds for small businesses to continue payment of small group insurance premiums. Mr. Shea said employees who lose small group coverage may experience financial hardship when presented with the cost of individual market or COBRA coverage.

Kurt Giesa (Oliver Wyman) gave a presentation (Attachment XX) on behalf of the Blue Cross Blue Shield Association (BCBSA) related to health plans’ pricing for COVID-19. Commissioner Conway said he assumes that the Medicare and Medicaid markets will experience greater COVID-19 impacts than commercial markets, and he asked Mr. Giesa if the modelling of this using state-level data has begun. Mr. Giesa confirmed that work has begun on this, and he agreed with Commissioner Conway’s assumption. Mr. Sundberg asked if insurers with knowledge of each other’s COVID-19-related pricing assumptions before filing rates will enhance pricing accuracy. Mr. Giesa said if insurers with knowledge of each other’s COVID-19-related pricing assumptions before filing rates will enhance pricing accuracy. Mr. Giesa said there are advantages and disadvantages to this approach, but he is unable to answer the question.

Justin Giovannelli (Georgetown University) gave a presentation (Attachment XX) on behalf of the NAIC Consumer Representatives regarding their concerns related to the impact of COVID-19 on state insurance markets. Mr. Sundberg said if a multiple-scenario, multiple-filing system is used, there will still be uncertainties associated with whichever scenario is chosen. Mr. Giovannelli said the later that the decision is made, the less that uncertainty will be present. Mr. Muldoon said the Nebraska Department of Insurance (DOI) supports insurers making a single rate filing that reflects scenarios with no, low, medium and high COVID-19 incidence. He said he does not understand why separate rate filings with each scenario being approved and implemented at an insurer’s discretion will be necessary, and he thinks this may be burdensome. He stated that the date for final rate approval would need to be later than the Aug. 19 date currently prescribed by the federal Centers for Medicare & Medicaid Services (CMS) in order for this plan to be feasible. Director Lindley-Meyers and Mr. Shea agreed that the date of Aug. 19 will need to be extended for a multiple-scenario system to work.

Jeanette Thornton (America’s Health Insurance Plans—AHIP) gave a presentation (Attachment XX) on cost estimates of COVID-19 treatment for U.S. private insurers in 2020 and 2021. Commissioner Conway asked if it will enhance pricing accuracy if insurers can know each other’s COVID-19-related pricing assumptions before filing rates. Ms. Thornton said she will present this question to AHIP member companies, and she has concerns about competitive issues that may arise if this is allowed.
R. Dale Hall (Society of Actuaries—SOA), Dave Dillon (Lewis & Ellis Inc.) and Greg Fann (Axene Health Partners) gave a presentation (Attachment XX) on the SOA’s COVID-19 research and its impact on 2021 pricing.

Having no further business, the Health Actuarial (B) Task Force adjourned.
The Health Actuarial (B) Task Force met via conference call Feb.14, 2020. The following Task Force members participated:
Todd E. Kiser, Chair, represented by Jaakob Sundberg (UT); Eric A. Cioppa, Vice Chair, represented by Marti Hooper (ME); Lori K. Wing-Heier represented by Jacob Lauten (AK); Ricardo Lara represented by Perry Kupferman (CA); Vicki Schmidt represented by Nicole Boyd (KS); Chlora Lindley-Myers represented by William Leung (MO); Mike Causey represented by David Yetter (NC); Bruce R. Ramge represented by Michael Muldoon (NE); Marlene Caride represented by Seong-min Eom (NJ); Jillian Froment represented by Laura Miller (OH); Glen Mulready represented by Andrew Schallhorn (OK); Jessica K. Altman represented by Tracie Gray (PA); Kent Sullivan represented by Mike Boerner (TX); Mike Kreidler represented by Lichiou Lee (WA); and James A. Dodrill represented by Joylynn Fix (WV).

1. Adopted its 2019 Fall National Meeting Minutes

Mr. Lauten made a motion, seconded by Ms. Eom, to adopt the Task Force’s Dec. 6, 2019, minutes (see NAIC Proceedings–Fall 2019, Health Actuarial (B) Task Force). The motion passed unanimously.

2. Adopted a Draft of Revisions to the Forms

Mr. Kupferman presented a draft of revisions (Attachment One-A) to the Long-Term Care Experience Reporting Forms (Forms) found in the annual financial statement and instructions (Attachment One-B) for the revised forms as forwarded to the Task Force by the Long-Term Care Actuarial (B) Working Group. He also presented comments (Attachment One-C) on the revisions submitted by Utah.

Mr. Kupferman gave an overview of the revisions and said the changes suggested in the Utah comment letter will be incorporated into the draft.

Bob Yee (PricewaterhouseCoopers LLP—PwC) suggested that the reserves reported on Form 3 should be recast using current assumptions. Ray Nelson (America’s Health Insurance Plans—AHIP) said AHIP member companies think Form 3 should reflect the actual history of reserves held. He said requiring reserves to be recast would make completion of the forms more difficult and may create systems programming issues. Mr. Sundberg said he agrees with Mr. Nelson. Mr. Yee suggested companies be given the option of recasting reserves, with a checkbox to indicate this has been done on Form 3. The Task Force agreed to this change.

Mr. Nelson suggested that policies that have received contingent nonforfeiture benefits be considered as in-force policies for Forms reporting purposes, as they are still eligible to receive benefits and require a reserve to be held. The Task Force agreed to this classification.

Mr. Nelson suggested that the Form 2 instructions not prescribe the classification of comprehensive policies that later drop rider coverage. The Task Force agreed to this change.

Mr. Sundberg suggested the Forms include a way for companies to indicate whether waiver of premium amounts are included in claims and premium reporting. The Task Force agreed to this change.

Mr. Kupferman made a motion, seconded by Mr. Muldoon, to adopt the revised draft Forms and instructions with the changes discussed. The motion passed unanimously.

Mr. Sundberg said the revised draft forms (Attachment One-D) and instructions (Attachment One-E) will be forwarded to the Senior Issues (B) Task Force and the Health Insurance and Managed Care (B) Committee for their consideration.

Having no further business, the Health Actuarial (B) Task Force adjourned.
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2021 Health Care Cost Model

Goal: To Assist Regulators, Insurance Company Actuaries and Consulting Actuaries in estimating the impact of COVID-19 on claim costs.

• VBA Excel Model projecting future monthly costs with user inputs
• Commercial Group and Individual, Medicare and Medicaid LOBs
• Model includes different types of trended costs; Updated in July
  • Base Costs
    • Includes Foregone, Deferred, and Recouped Expenses subject to Return Stages
• Direct COVID-19 Costs
  • SIR Model can generate infection rate scenarios
  • User selected hospitalization rates
• Behavioral Health Costs Due to Social Distancing
• COVID-19 Testing and Vaccine Costs
# SOA Experience Studies

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Objective</th>
<th>Expected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2015 IDI Persistency</td>
<td>Complete a study of policy terminations for individual disability and release a report with the findings.</td>
<td>Complete. On SOA web site. ¹</td>
</tr>
<tr>
<td>2006-2015 Individual Disability Income - Incidence Report</td>
<td>Complete a study of incidence for individual disability and release a report with the findings and an aggregated database of the experience data.</td>
<td>Complete. On SOA web site. ²</td>
</tr>
<tr>
<td>2000 - 2016 Long Term Care - Report</td>
<td>Develop a database for Long-Term Care claim termination and incidence experience.</td>
<td>7/31/2020</td>
</tr>
<tr>
<td>2000-2011 LTC Lapse and Mortality Valuation Assumptions</td>
<td>Develop a replacement mortality LTC valuation table and a proposal to replace the current LTC voluntary lapse parameters. Work done in conjunction with the AAA.</td>
<td>10/31/2020</td>
</tr>
</tbody>
</table>

¹ [https://www.soa.org/resources/research-reports/2020/us-individual-disability/](https://www.soa.org/resources/research-reports/2020/us-individual-disability/)
## SOA Practice Research & DDIR

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Objective</th>
<th>Expected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021 Health Care Cost Model v1.0</td>
<td>Release a model that will enable users to estimate health care cost levels in insured plans across a wide variety of Return Stage scenarios <em>(Robert Wood Johnson Foundation funded project).</em></td>
<td>Complete. On SOA web site. ¹</td>
</tr>
<tr>
<td>Direct Primary Care – Evaluating a New Model of Delivery and Financing</td>
<td>Conduct Market Survey and Literature Review to Define DPC and Examine its expected efficacy. Interview Physicians who operate under a DPC model. Create case Study to quantify the impact of DPCs.</td>
<td>Complete. On SOA web site. ²</td>
</tr>
<tr>
<td>State of ACA Marketplace</td>
<td>Examine the success of the ACA to different stakeholders in the individual and Medicaid Marketplaces.</td>
<td>Complete. On SOA web site. ³</td>
</tr>
<tr>
<td>2021 Health Care Cost Model v2.0</td>
<td>Release a model that will enable users to estimate health care cost levels in insured plans across a wide variety of Return Stage scenarios <em>(Robert Wood Johnson Foundation funded project).</em></td>
<td>7/13/2020</td>
</tr>
<tr>
<td>Comparing Measures of Social Determinants of Health to Assess Population Risk</td>
<td>Assess how well different measures of SDOH quantify and characterize patient risk status in order to optimize a variety of population health and payment purposes.</td>
<td>8/15/2020</td>
</tr>
<tr>
<td>PrEP Toolkit</td>
<td>Create a toolkit to help actuaries estimate the costs of covering HIV related Pre-Exposure and Post-Exposure Prophylaxis drugs.</td>
<td>11/30/2020</td>
</tr>
<tr>
<td>Initiative 18/11 - 5/50 Project - Analyzing Characteristics or the top 5% members by cost who drive 50% of Medical Expenses</td>
<td>Validate the 5/50 Premise through % of total costs and average allowed annual costs by percentile grouping. Analyze ability to predict the 5% based on prior claims and risk factors. Calculate Transition probabilities between different groups. Develop a methodology for identifying and stratifying future year risks.</td>
<td>9/15/2020</td>
</tr>
</tbody>
</table>

¹ [https://www.soa.org/resources/research-reports/2020/covid-19-cost-model/](https://www.soa.org/resources/research-reports/2020/covid-19-cost-model/)
³ [https://www.soa.org/resources/research-reports/2020/50-states-50-stories/](https://www.soa.org/resources/research-reports/2020/50-states-50-stories/)