

# Review of Life Mortality Risk-Based Capital (RBC)

Wayne Stuenkel, MAAA, FSA  
C2 Life Mortality RBC Work Group  
American Academy of Actuaries

August 6, 2017



AMERICAN ACADEMY *of* ACTUARIES

*Objective. Independent. Effective.™*

# C-2 Life Mortality RBC Work Group

## Work Group Purpose:

The C-2 work group was formed in 2017 to review the current NAIC C-2 risk-based capital (RBC) requirement for life insurance. The group is reviewing assumptions and methodology and will recommend revisions, as appropriate, which may include structure and factor updates.

In-Scope	Out-of-Scope
<ul style="list-style-type: none"><li>Life Insurance<ul style="list-style-type: none"><li>Individual &amp; Industrial Life</li><li>Group &amp; Credit Life</li></ul></li></ul>	<ul style="list-style-type: none"><li>Accident &amp; Health Insurance</li><li>Annuities*</li></ul> <p>*The group will consider interdependencies with the longevity risk review</p>



# C-2 Life Mortality Risk RBC Factors

## Current Life C-2 Factors (original factors used since 1993\*):

Net Amount at Risk (NAR)	Individual & Industrial Life C-2 factor per \$1K of NAR	Group & Credit Life C-2 factor per \$1K of NAR
First \$500M	1.50	1.20
Next \$4.5B	1.00	0.80
Next \$20B	0.75	0.60
\$25B+	0.60	0.50

\* Statistical safety level was based on 95<sup>th</sup> percentile over 5 years for individual (over 3 years for group).

## Life C-2 factors intended to address mortality risks related to:

- ▣ **Volatility** – natural mortality deviation
- ▣ **Level** – base mortality rates
- ▣ **Trend** – mortality improvement
- ▣ **Catastrophe** – severe events



AMERICAN ACADEMY of ACTUARIES

Objective. Independent. Effective.™

© 2017 American Academy of Actuaries. All rights reserved.  
May not be reproduced without express permission.

# 2017 Progress and Next Steps

## 2017 C-2 Work Group Progress

- Compiled list of mortality risk considerations
- Reviewed methodology used in current factor development
  - Obtained documentation
  - Approximately replicated original 1993 factors
- Reviewed other capital regimes' C-2 methods
  - Including Solvency II, Canadian LICAT, and IAIS
- Reviewed potential methods, structures, and approaches

## 2017 C-2 Work Group Next Steps

- Analyze mortality risk using a Monte-Carlo simulation model (similar to original C-2 work)
  - Will include establishing updated assumptions and mortality risk distributions (volatility, level, trend, and catastrophe)
  - Will consider factor bases more granular than current approach



AMERICAN ACADEMY of ACTUARIES

*Objective. Independent. Effective.™*

© 2017 American Academy of Actuaries. All rights reserved.  
May not be reproduced without express permission.

# Contact Information

**Chris Trost, MAAA, FSA**

Chairperson, C2 Work Group

American Academy of Actuaries

[christrost@northwesternmutual.com](mailto:christrost@northwesternmutual.com)

**Ian Trepanier**

Life Analyst

American Academy of Actuaries

[trepanier@actuary.org](mailto:trepanier@actuary.org)



AMERICAN ACADEMY *of* ACTUARIES

*Objective. Independent. Effective.™*

© 2017 American Academy of Actuaries. All rights reserved.  
May not be reproduced without express permission.