

COVID-19 Mortality Modeling Survey Summary of Results

April 13, 2020





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CONTENTS

Section 1: Introduction	4
Section 2: Survey Highlights	5
Section 3: Mortality Modeling Survey Questions and Response Detail	6
3.1 From what perspective are you responding to this survey?	6
3.2 Is your company modeling COVID-19 mortality scenarios?	6
3.3 What factors are you incorporating in modeling COVID-19 mortality scenarios?	7
3.4 Rank the factors you are incorporating in modeling COVID-19 mortality scenarios in order of importance to the model results.	7
3.5 What is your view of Deaths in a baseline scenario? [Total US Population]	8
3.6 What is your view of Deaths in a worst case scenario? [Total US Population]	8
3.7 What is your view of Infection Rates in a baseline scenario? [Total US Population]	9
3.8 What is your view of Infection Rates in a worst case scenario? [Total US Population]	9
3.9 What is your view of Case Fatality Rates in a baseline scenario? [Total US Population]	10
3.10 What is your view of Case Fatality Rates in a worst case scenario?	10
3.11 What % of your life insurance mortality claims are due to Influenza/Pneumonia in a typical year?	11
3.12 What is your company's current view on the approximate impact of COVID-19 on your company's 2020 individual life insurance mortality claims?	11
3.13 What is your company's current view on the approximate impact of COVID-19 on your company's 2020 group life insurance mortality claims?	12
3.14 On average, what is the household income level range for your life insurance policyholders?	12
3.15 Which of the following best describes your company's biggest concern related to covid-19 and reinsurance?	13
3.16 What Information sources are you using to inform your company's COVID-19 mortality estimates? ..	13
3.17 How frequently are you providing updates to key stakeholder groups regarding preparedness for COVID-19 mortality impacts?	14
Section 4: Acknowledgments	15
About The Society of Actuaries	16
About LIMRA	17
About Oliver Wyman	17

COVID-19 Mortality Modeling Survey

Summary of Results

Section 1: Introduction

The Society of Actuaries (SOA) has partnered with LIMRA, Oliver Wyman, and the American Council of Life Insurance (ACLI) to conduct a series of 'sprint' surveys on the coronavirus (COVID-19) pandemic and its potential impacts on the U.S. life insurance industry. This report contains a summary of the results of the first survey on best practices in monitoring and modeling the potential impact of COVID-19 mortality on life insurance industry claims. The survey was directed at actuaries and/or risk management staff of insurers and reinsurers in the U.S. and Canada. Fifty-three companies responded to the survey. Highlights of the survey responses are found in Section 2 and a summary of results for each question in the survey is found in Section 3.

Section 2: Survey Highlights

This survey covers four topics related to COVID-19 mortality: modeling, scenarios, claims/impact, and data/communication.

Modeling: Most respondents (85%) report modeling COVID-19 mortality scenarios. The top two factors incorporated in modeling are age and infection rates and case fatality rates, which are used by more than half of respondents. Many respondents also report incorporating time period and geography in their models.

Scenarios: When asked about their view of the ultimate number of COVID-19 deaths for 2020 in the U.S. population, a plurality of respondents expect 100,000 to 250,000 deaths in a baseline scenario and 1 million to 5 million deaths in a worst case scenario.

For U.S. infection rates for 2020, a plurality of respondents expect a <15% infection rate in a baseline scenario and a 25-50% infection rate in a worst case scenario. Infection rates are not expected to vary significantly across age groups; however, respondents do expect differences by age for case fatality rates (CFR).

Most respondents expect the CFR will be <0.5% for ages under 40, 0.5%-2.5% for ages 40-60, 2.5%-10% for ages 60-80, and 5%-15% for ages 80+ in a baseline scenario. In a worst case scenario, most respondents still expect the CFR will be <0.5% for ages under 40, 0.5%-2.5% for ages 40-60, 5%-10% for ages 60-80, and >15% for ages 80+.

Claims / Impact: About two-thirds of respondents don't know or don't track the percentage of influenza/pneumonia claims relative to total claims. Of those who do have this information, 80% reported that influenza/pneumonia deaths make up less than 5% of total claims. For COVID-19 mortality claims, most respondents expect a larger increase for individual life claims (>10%) vs. group life claims (1%-5%).

The survey requested information on the quintile level of household income of their policyholders. Given that mortality levels tend to vary with socio-economic status, knowing this information may be useful in benchmarking future mortality against population mortality statistics. About 40% of the responses were 'did not know'; the remaining responses varied, indicating socio-economic diversity across companies.

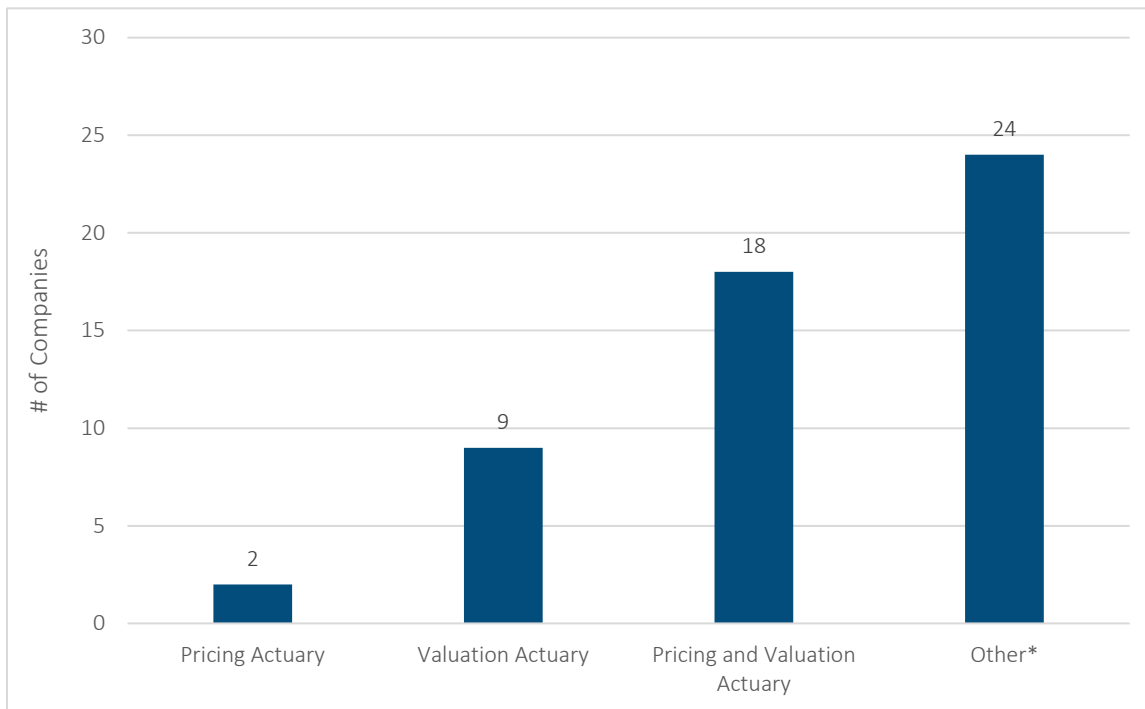
Respondents report a range of views on the potential impact of COVID-19 on reinsurance: about a third are not worried about reinsurance in light of COVID-19, while about a quarter are worried about reinsurer financial health or changes in underwriting standards for what reinsurers will accept.

Data / Communication: Respondents report using a wide range of information sources to support COVID-19 efforts; >80% are using government data sources, with more than half using academic studies, or vendor consultation.

Many survey respondents report daily updates to senior management, monthly board updates, and ad hoc updates with regulators and rating agencies. Questions from these stakeholder groups are often focused on COVID-19's impact on financial health, modeling efforts, and policyholder behavior.

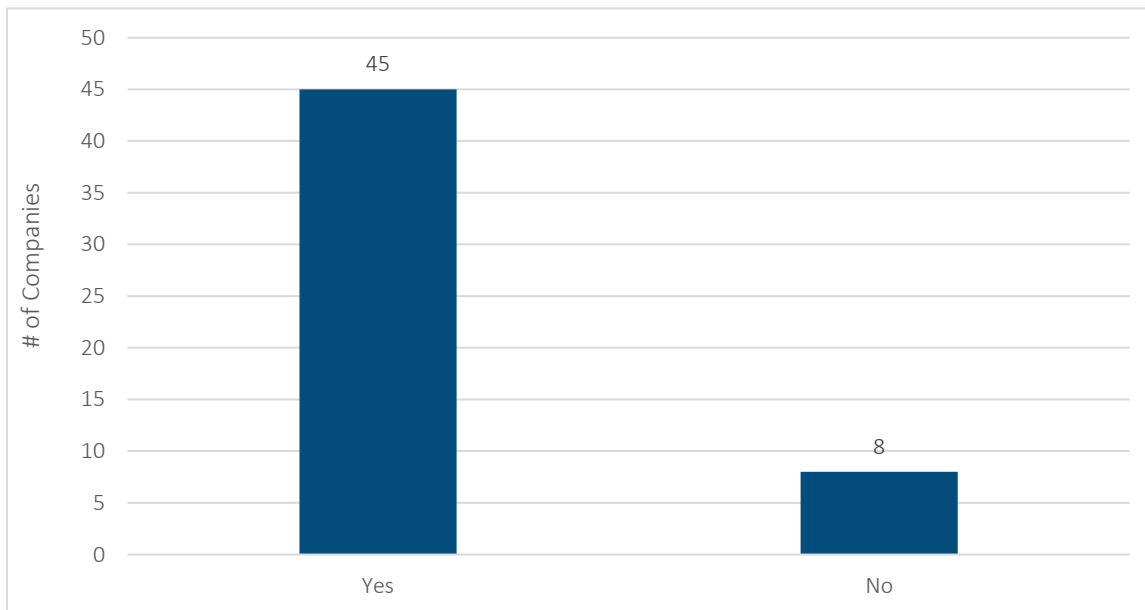
Section 3: Mortality Modeling Survey Questions and Response Detail

3.1 FROM WHAT PERSPECTIVE ARE YOU RESPONDING TO THIS SURVEY?



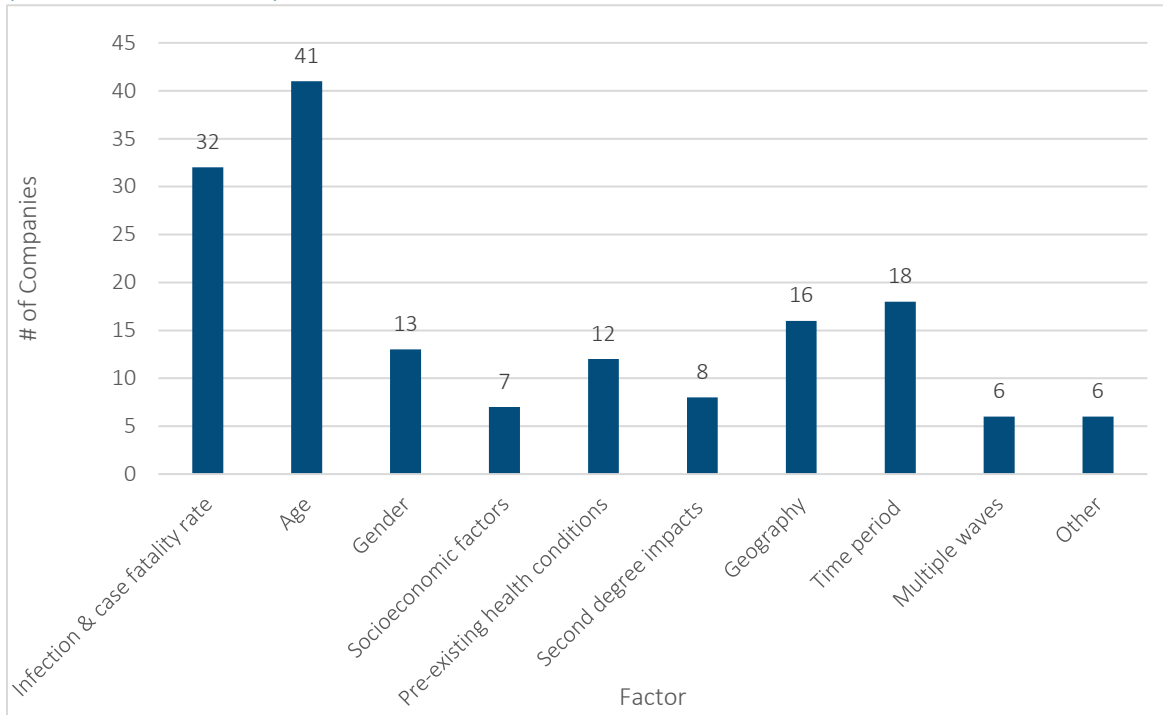
*Other includes Chief Actuaries, Risk Management, Experience Studies, and Assumption Setting Functions

3.2 IS YOUR COMPANY MODELING COVID-19 MORTALITY SCENARIOS?



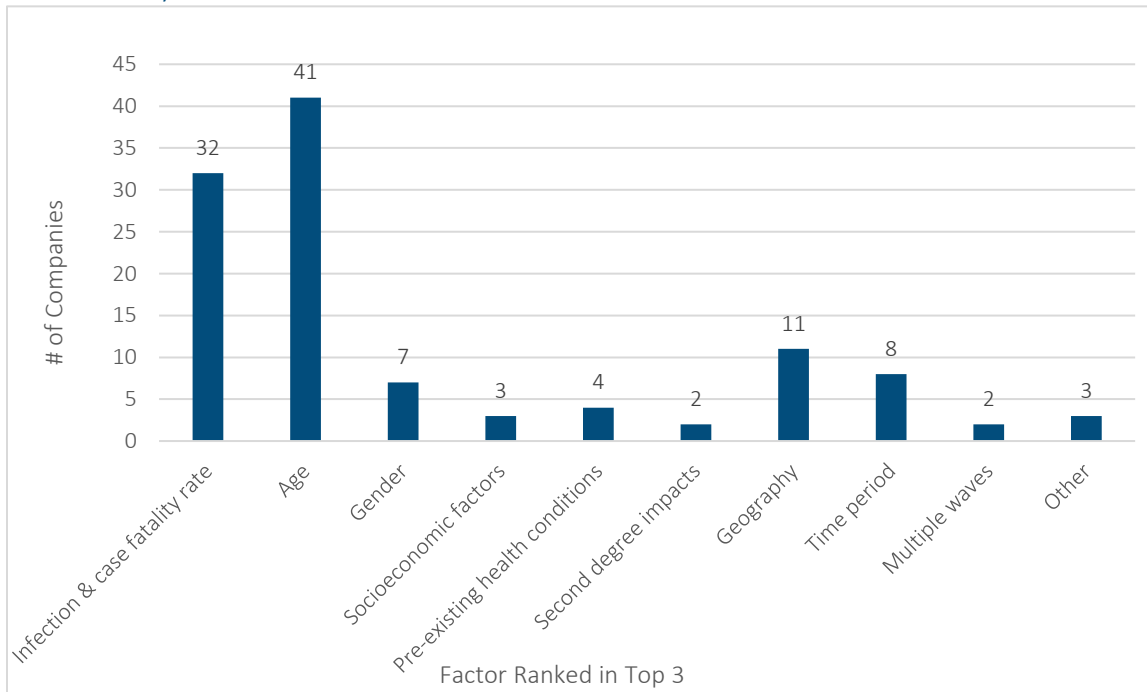
3.3 WHAT FACTORS ARE YOU INCORPORATING IN MODELING COVID-19 MORTALITY SCENARIOS?

(SELECT ALL THAT APPLY)



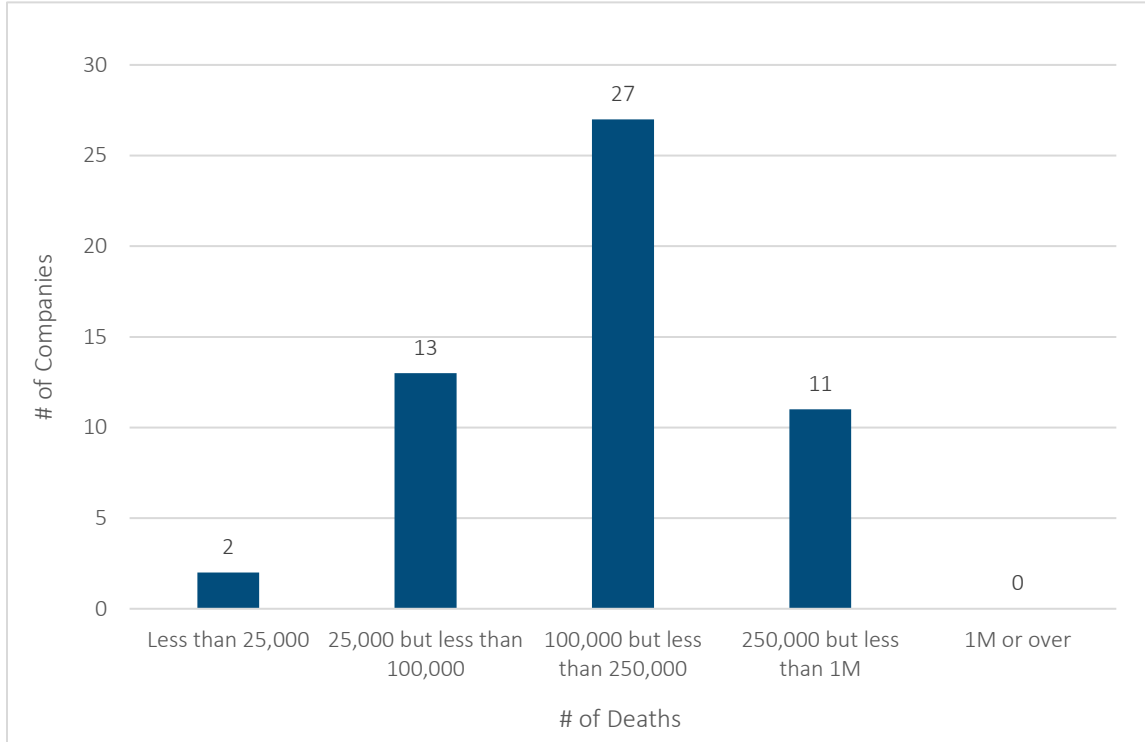
3.4 RANK THE FACTORS YOU ARE INCORPORATING IN MODELING COVID-19 MORTALITY SCENARIOS IN ORDER OF IMPORTANCE TO THE MODEL RESULTS.

(CHART INDICATES THE NUMBER OF COMPANIES THAT RATED THE GIVEN FACTOR IN THE TOP 3 IN TERMS OF IMPORTANCE.)



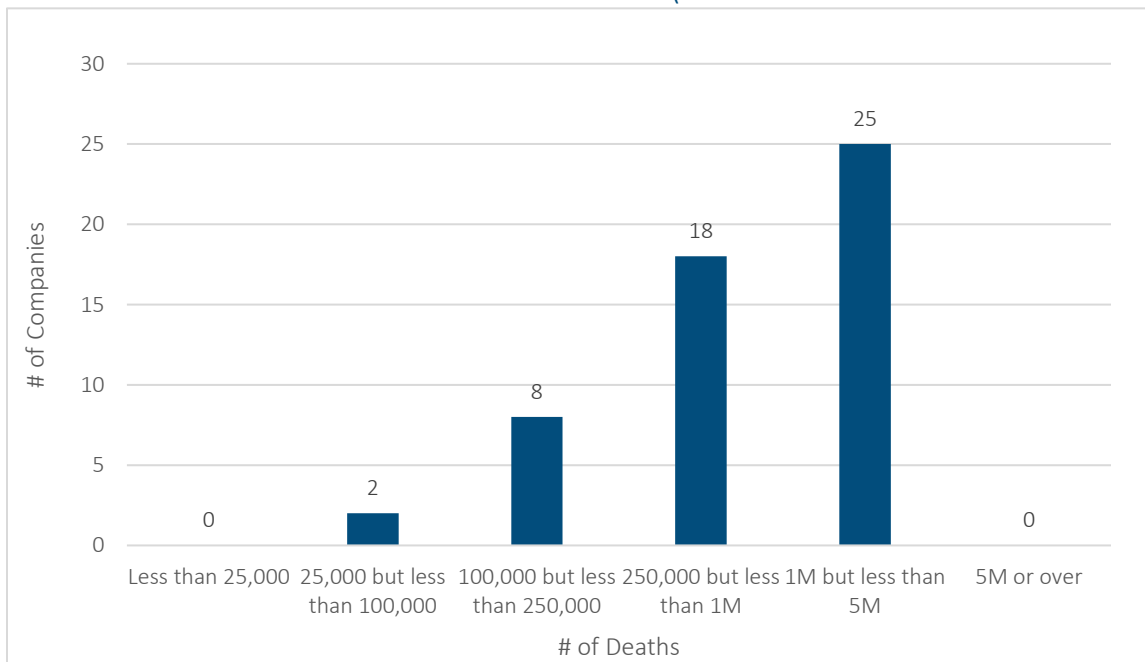
3.5 WHAT IS YOUR VIEW OF DEATHS IN A BASELINE SCENARIO? [TOTAL US POPULATION]

WHEN ANSWERING THE FOLLOWING QUESTION, RESPOND WITH YOUR VIEW ON THE ULTIMATE NUMBER OF DEATHS FROM COVID-19 FOR 2020 IN THE U.S. POPULATION (I.E. NOT SPECIFIC TO YOUR INSURED BLOCK).



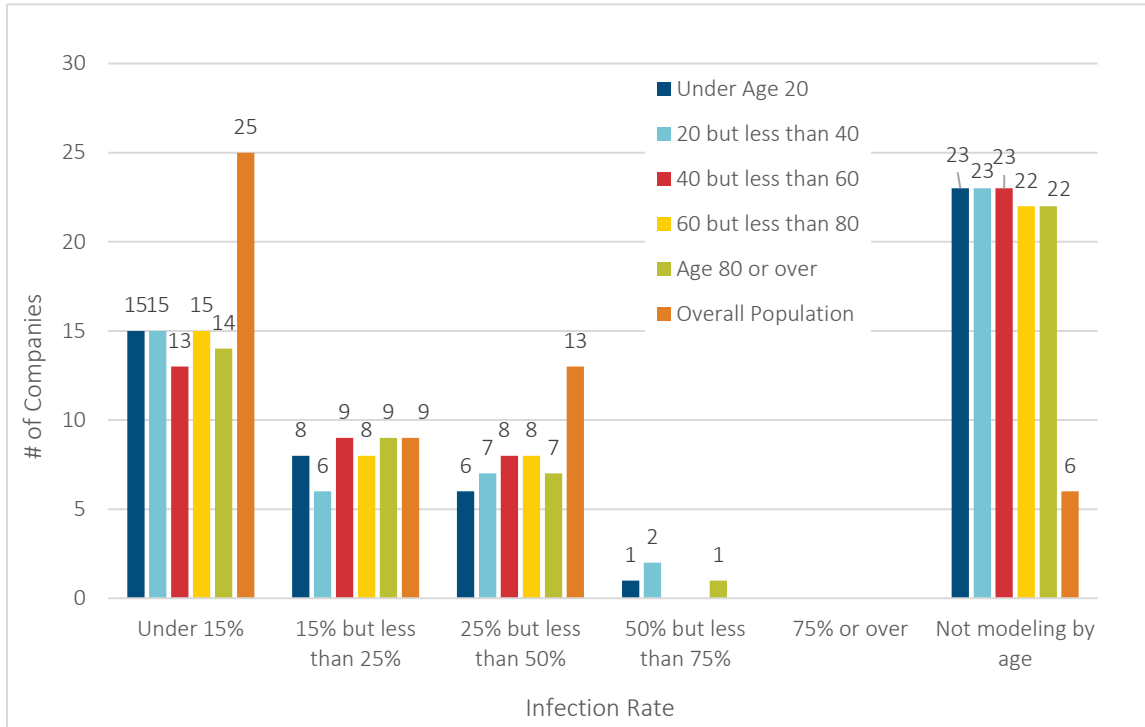
3.6 WHAT IS YOUR VIEW OF DEATHS IN A WORST CASE SCENARIO? [TOTAL US POPULATION]

WHEN ANSWERING THE FOLLOWING QUESTION, RESPOND WITH YOUR VIEW ON THE ULTIMATE NUMBER OF DEATHS FROM COVID-19 FOR 2020 IN THE U.S. POPULATION (I.E. NOT SPECIFIC TO YOUR INSURED BLOCK).



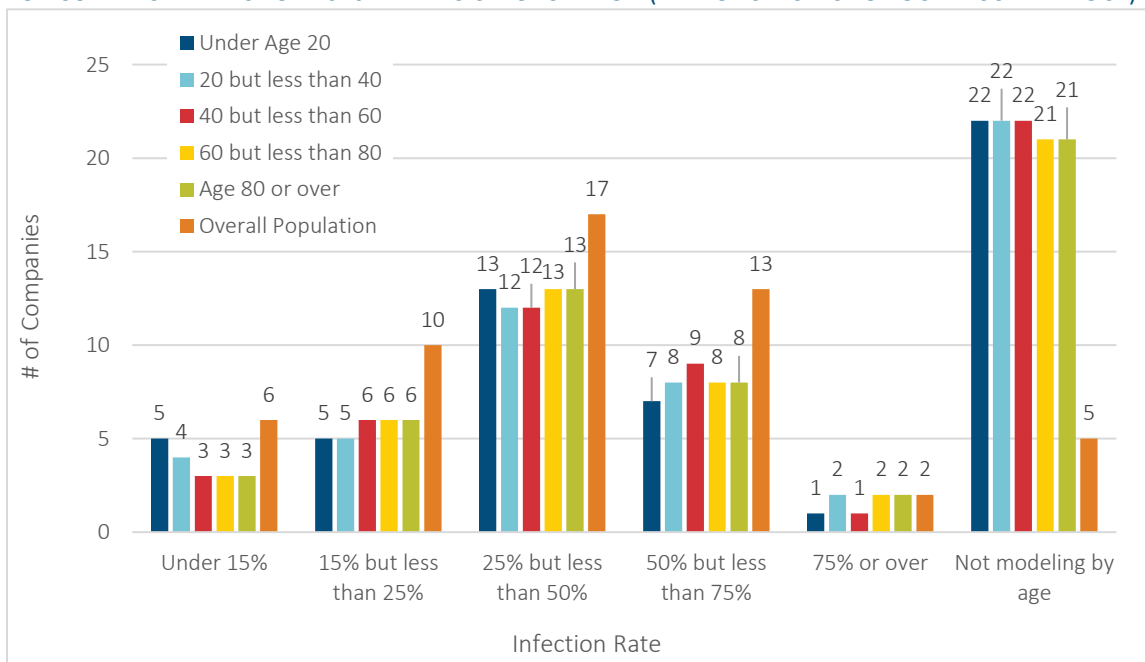
3.7 WHAT IS YOUR VIEW OF INFECTION RATES IN A BASELINE SCENARIO? [TOTAL US POPULATION]

WHEN ANSWERING THE FOLLOWING QUESTION, RESPOND WITH YOUR VIEW ON THE ULTIMATE INFECTION RATES FOR COVID-19 DEATHS FOR 2020 IN THE U.S. POPULATION (I.E. NOT SPECIFIC TO YOUR INSURED BLOCK).

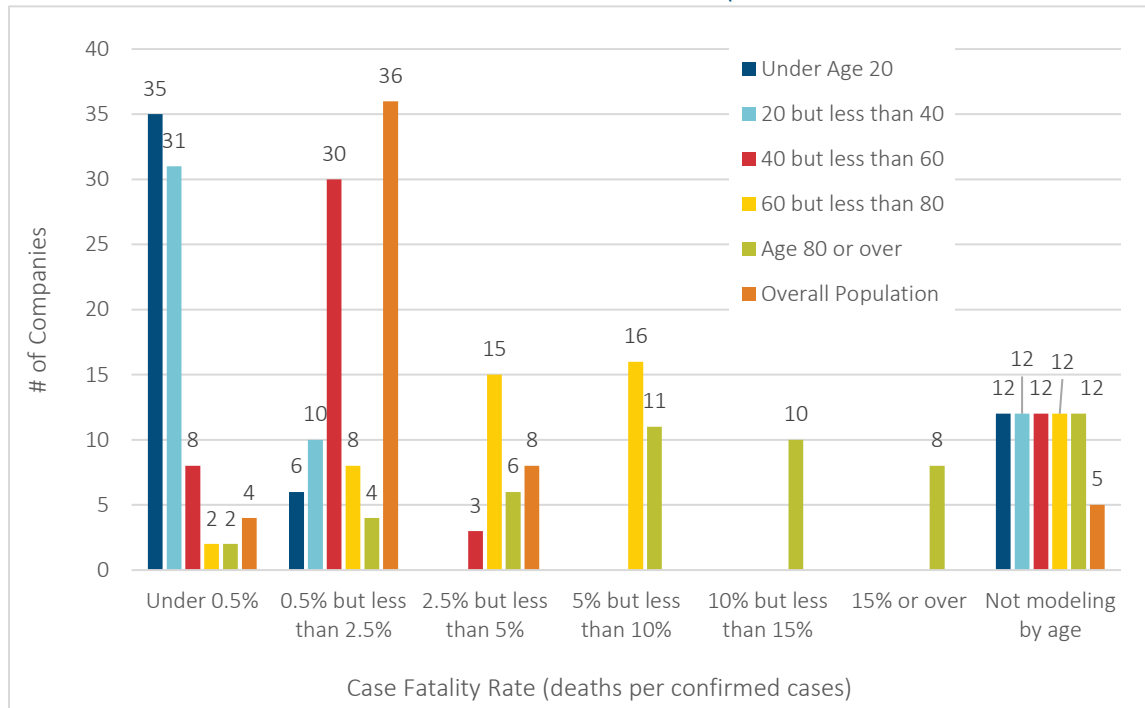


3.8 WHAT IS YOUR VIEW OF INFECTION RATES IN A WORST CASE SCENARIO? [TOTAL US POPULATION]

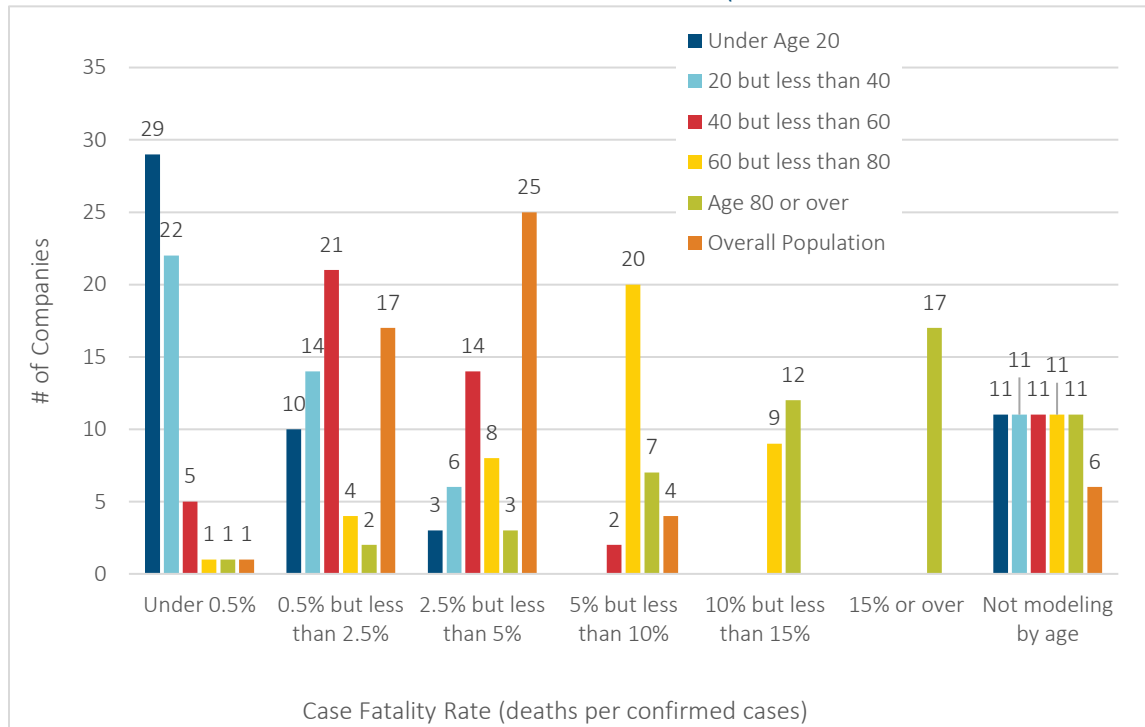
WHEN ANSWERING THE FOLLOWING QUESTION, RESPOND WITH YOUR VIEW ON THE ULTIMATE INFECTION RATES FOR COVID-19 DEATHS FOR 2020 IN THE U.S. POPULATION (I.E. NOT SPECIFIC TO YOUR INSURED BLOCK).



3.9 WHAT IS YOUR VIEW OF CASE FATALITY RATES IN A BASELINE SCENARIO? [TOTAL US POPULATION]
 WHEN ANSWERING THE FOLLOWING QUESTION, RESPOND WITH YOUR VIEW ON THE ULTIMATE CASE FATALITY RATES FOR COVID-19 DEATHS FOR 2020 IN THE U.S. POPULATION (I.E. NOT SPECIFIC TO YOUR INSURED BLOCK).

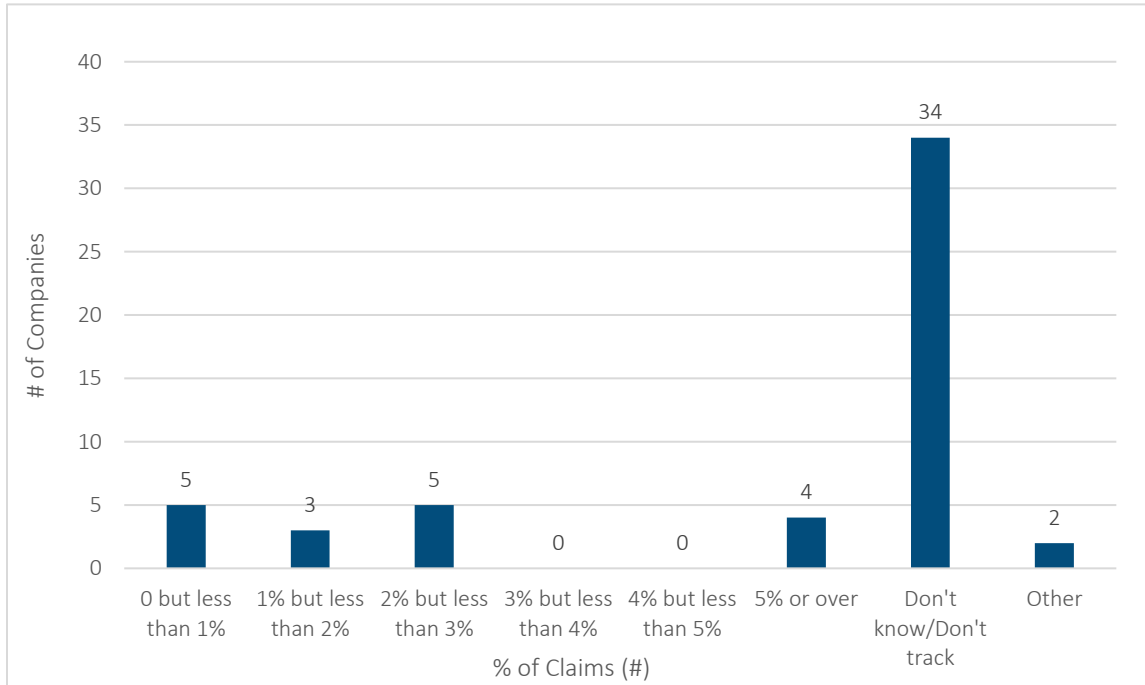


3.10 WHAT IS YOUR VIEW OF CASE FATALITY RATES IN A WORST CASE SCENARIO?
 WHEN ANSWERING THE FOLLOWING QUESTION, RESPOND WITH YOUR VIEW ON THE ULTIMATE CASE FATALITY RATES FOR COVID-19 DEATHS FOR 2020 IN THE U.S. POPULATION (I.E. NOT SPECIFIC TO YOUR INSURED BLOCK).



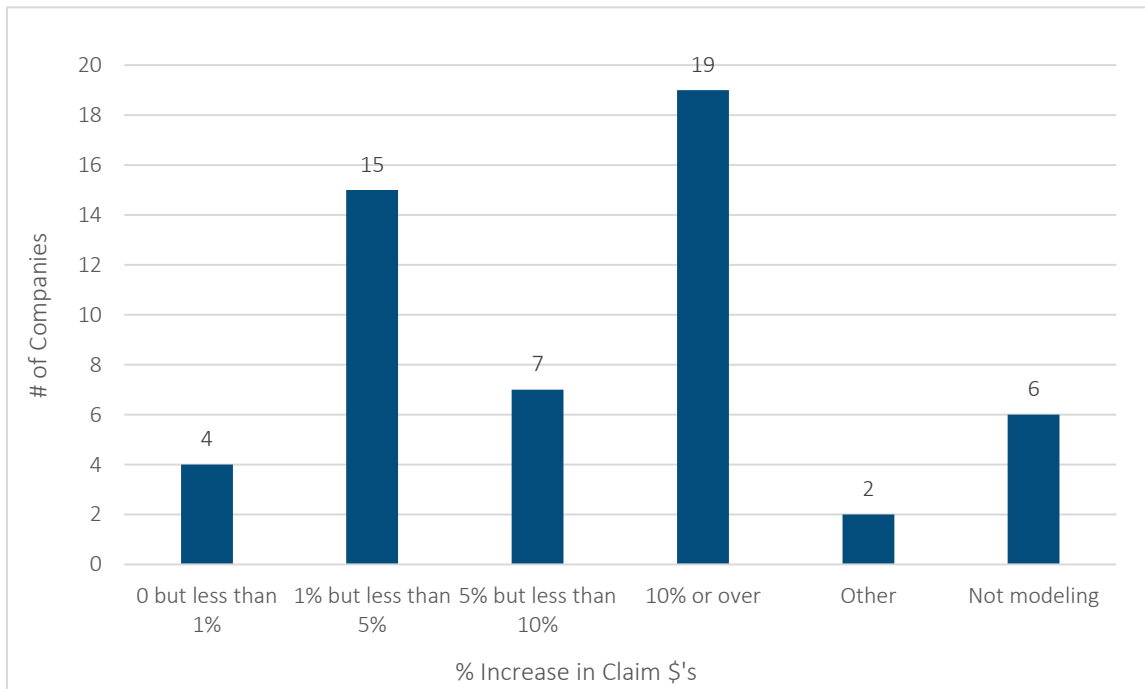
3.11 WHAT % OF YOUR LIFE INSURANCE MORTALITY CLAIMS ARE DUE TO INFLUENZA/PNEUMONIA IN A TYPICAL YEAR?

ASSUME A TYPICAL YEAR OCCURS 90% OF THE TIME AND CLAIMS ARE IN TERMS OF THE # OF POLICIES



3.12 WHAT IS YOUR COMPANY'S CURRENT VIEW ON THE APPROXIMATE IMPACT OF COVID-19 ON YOUR COMPANY'S 2020 INDIVIDUAL LIFE INSURANCE MORTALITY CLAIMS?

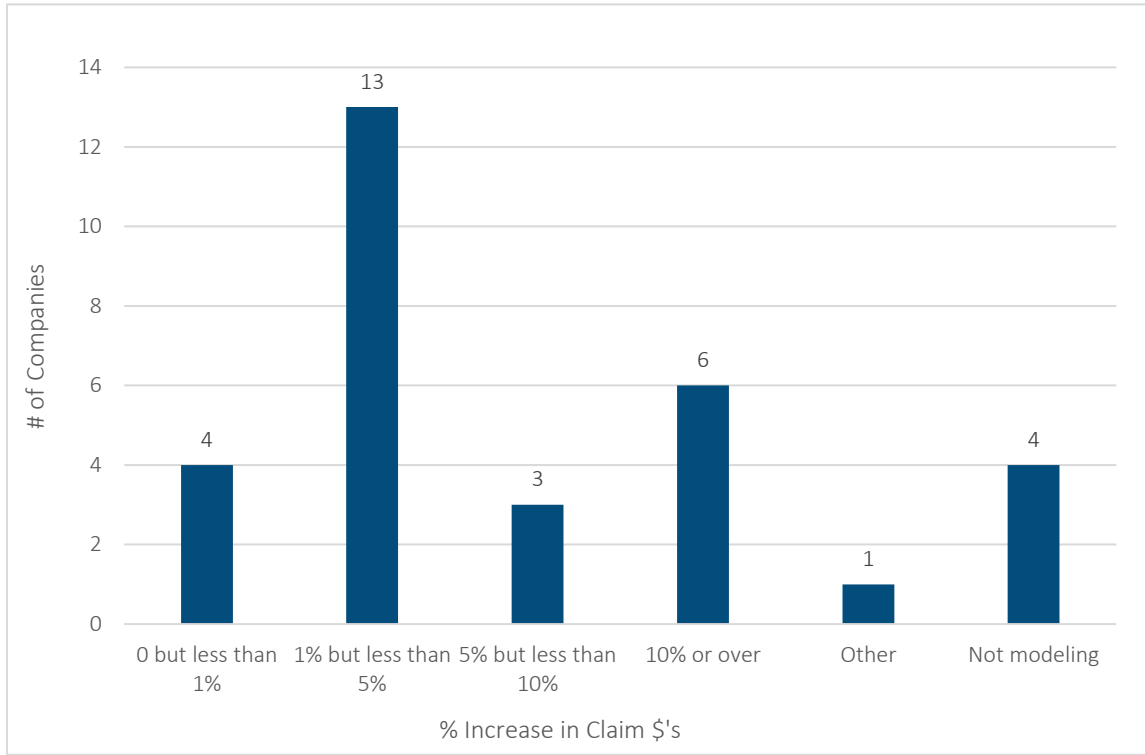
ASSUME % INCREASE IN DEATH CLAIMS IN DOLLARS OVER 2019



Includes all companies with individual life insurance mortality risk.

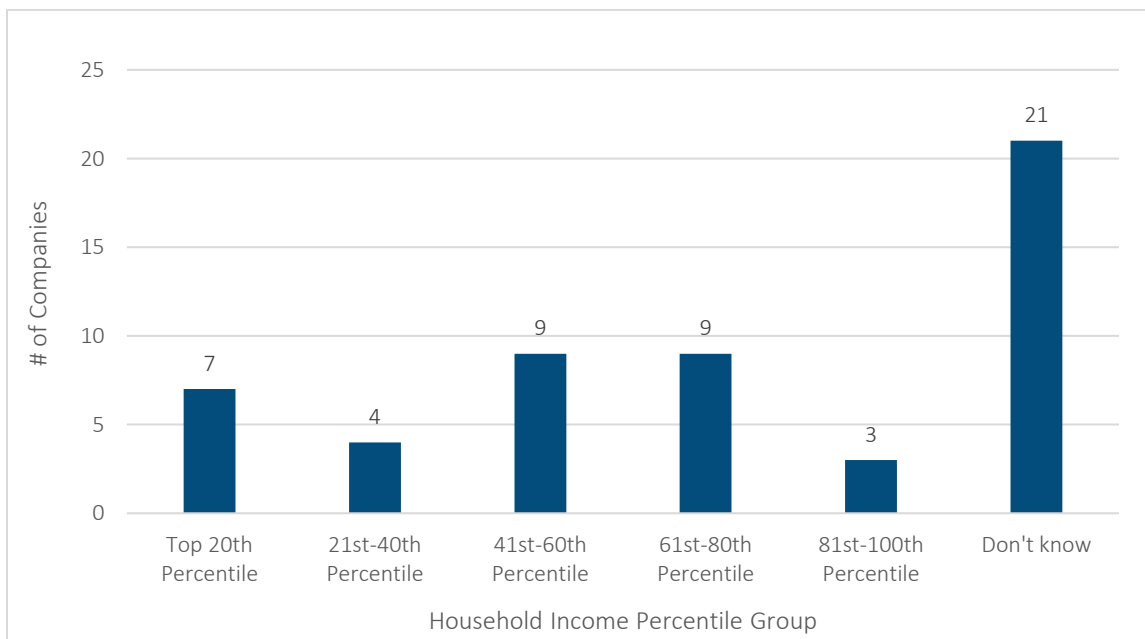
3.13 WHAT IS YOUR COMPANY'S CURRENT VIEW ON THE APPROXIMATE IMPACT OF COVID-19 ON YOUR COMPANY'S 2020 GROUP LIFE INSURANCE MORTALITY CLAIMS?

ASSUME % INCREASE IN DEATH CLAIMS IN DOLLARS OVER 2019

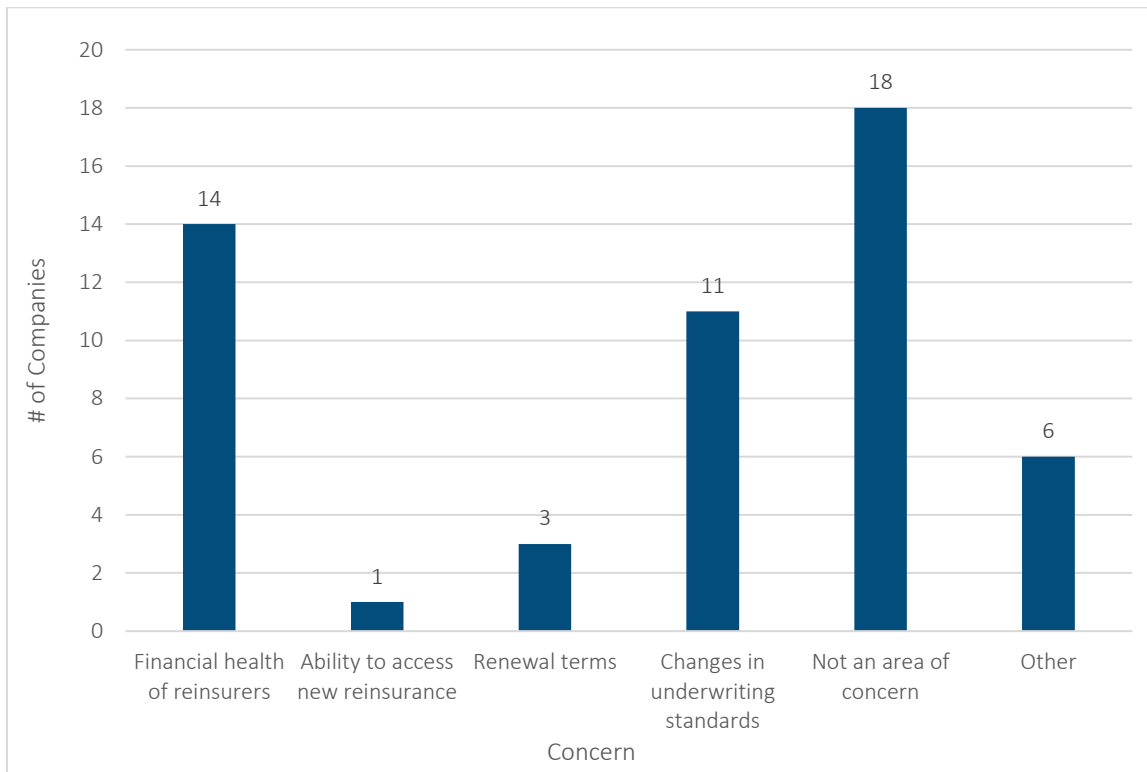


3.14 ON AVERAGE, WHAT IS THE HOUSEHOLD INCOME LEVEL RANGE FOR YOUR LIFE INSURANCE POLICYHOLDERS?

[RESPONSES IN TERMS OF PERCENTILE – US POPULATION]

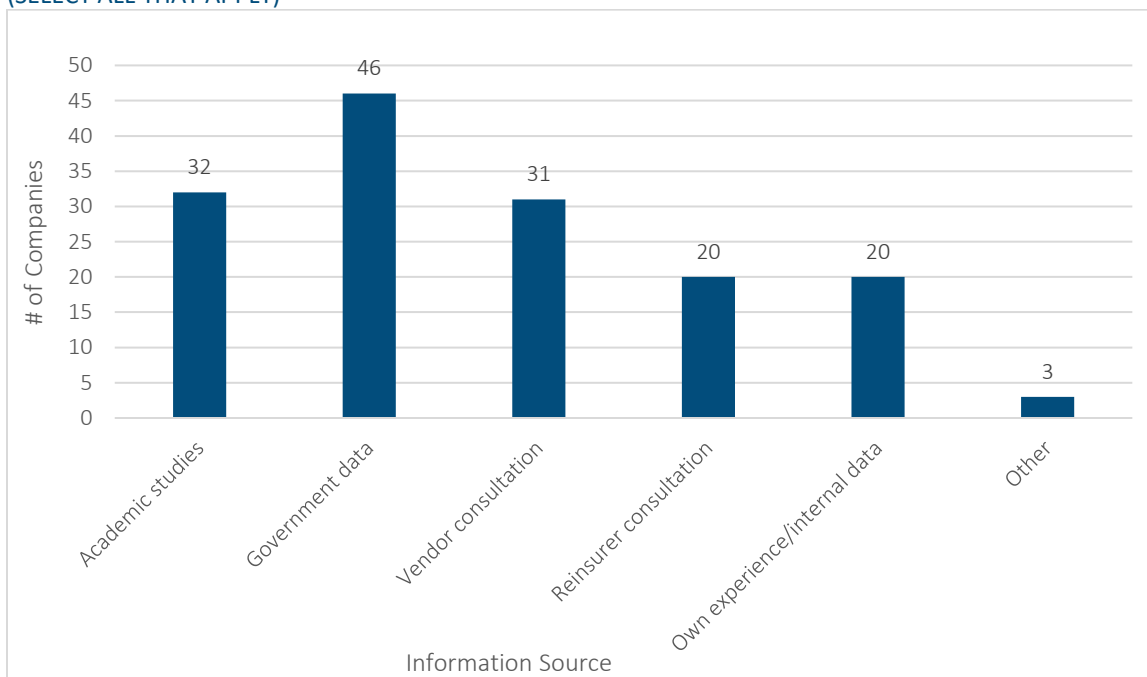


3.15 WHICH OF THE FOLLOWING BEST DESCRIBES YOUR COMPANY’S BIGGEST CONCERN RELATED TO COVID-19 AND REINSURANCE?

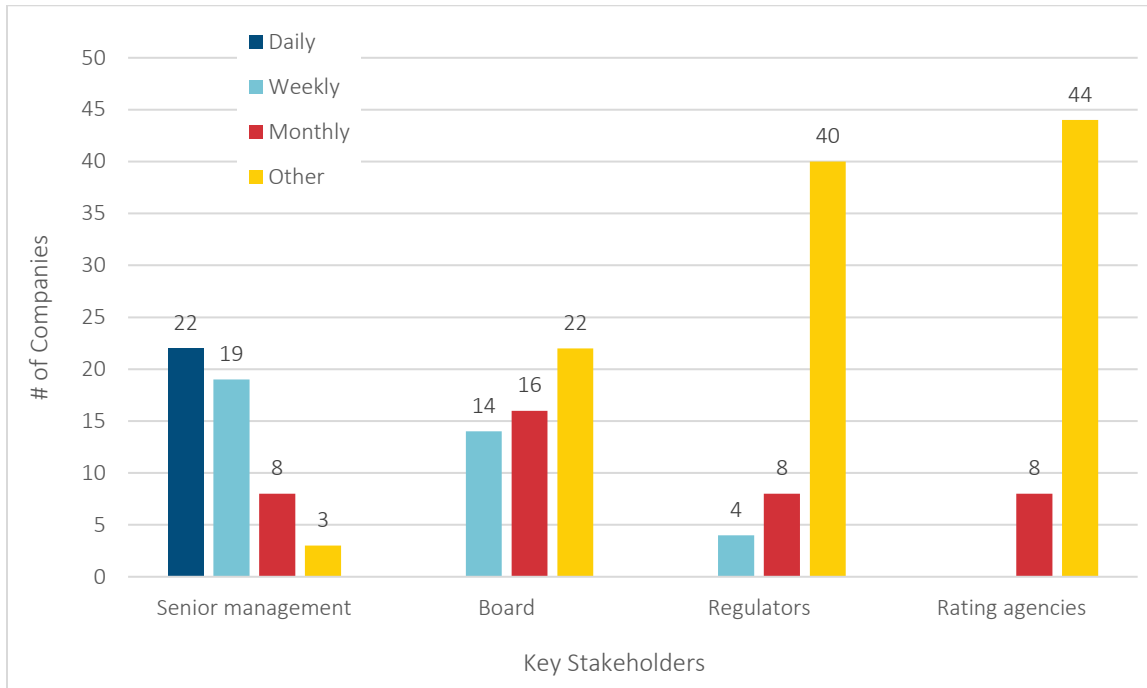


3.16 WHAT INFORMATION SOURCES ARE YOU USING TO INFORM YOUR COMPANY’S COVID-19 MORTALITY ESTIMATES?

(SELECT ALL THAT APPLY)



3.17 HOW FREQUENTLY ARE YOU PROVIDING UPDATES TO KEY STAKEHOLDER GROUPS REGARDING PREPAREDNESS FOR COVID-19 MORTALITY IMPACTS?



Section 4: Acknowledgments

The SOA, LIMRA, and Oliver Wyman would like to thank the industry Low Interest Rate Task Force (established in January 2020 by LIMRA, Oliver Wyman and ACLI), as well as the following individuals for their support in the design and development of the survey.

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Allianz Life	OneAmerica
Allstate	PanAmerican Life
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Ameriprise	Penn Mutual Life Insurance
Ameritas	Principal
Athene	Protective Life
Boston Mutual Life Insurance Company	Prudential Financial
Catholic Order of Foresters	Sagicor Financial Company Limited
Catholic United Financial	Sammons Financial
CFG	SBLI
CNO Financial	Securian Financial
Combined Insurance Company	Sentinel Security Life Insurance
CUNA	State Farm Life
Equitable	Symetra
Global Atlantic Financial Group	Talcott Resolution
Great American	Texas Service Life Insurance Company
Guardian Life Insurance	The Independent Order of Foresters Financial)
Investors Heritage Life Insurance Company	The Union Labor Life Insurance Company
John Hancock	Thrivent
MassMutual	Transamerica
Modern Woodmen of America	Unum Group
Munich Re	USable Life
Mutual of Omaha	Vantis Life Insurance Company
National Life Group	Voya Financial
Nationwide	Western & Southern Financial Group
New York Life	WoodmenLife
Northwestern Mutual	

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The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

The SOA has a history of working with public policymakers and regulators in developing historical experience studies and projection techniques as well as individual reports on health care, retirement and other topics. The SOA's research is intended to aid the work of policymakers and regulators and follow certain core principles:

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