

2020 ASIA-PACIFIC VIRTUAL SYMPOSIUM

ROBERT EATON, FSA

Session 1, Opportunities for Actuaries in the Time of a Pandemic

September 28, 2020



SOCIETY OF ACTUARIES

Antitrust Compliance Guidelines

Active participation in the Society of Actuaries is an important aspect of membership. While the positive contributions of professional societies and associations are well-recognized and encouraged, association activities are vulnerable to close antitrust scrutiny. By their very nature, associations bring together industry competitors and other market participants.

The United States antitrust laws aim to protect consumers by preserving the free economy and prohibiting anti-competitive business practices; they promote competition. There are both state and federal antitrust laws, although state antitrust laws closely follow federal law. The Sherman Act, is the primary U.S. antitrust law pertaining to association activities. The Sherman Act prohibits every contract, combination or conspiracy that places an unreasonable restraint on trade. There are, however, some activities that are illegal under all circumstances, such as price fixing, market allocation and collusive bidding.

There is no safe harbor under the antitrust law for professional association activities. Therefore, association meeting participants should refrain from discussing any activity that could potentially be construed as having an anti-competitive effect. Discussions relating to product or service pricing, market allocations, membership restrictions, product standardization or other conditions on trade could arguably be perceived as a restraint on trade and may expose the SOA and its members to antitrust enforcement procedures.

While participating in all SOA in person meetings, webinars, teleconferences or side discussions, you should avoid discussing competitively sensitive information with competitors and follow these guidelines:

- **Do not** discuss prices for services or products or anything else that might affect prices
- **Do not** discuss what you or other entities plan to do in a particular geographic or product markets or with particular customers.
- **Do not** speak on behalf of the SOA or any of its committees unless specifically authorized to do so.
- **Do** leave a meeting where any anticompetitive pricing or market allocation discussion occurs.
- **Do** alert SOA staff and/or legal counsel to any concerning discussions
- **Do** consult with legal counsel before raising any matter or making a statement that may involve competitively sensitive information.

Adherence to these guidelines involves not only avoidance of antitrust violations, but avoidance of behavior which might be so construed. These guidelines only provide an overview of prohibited activities. SOA legal counsel reviews meeting agenda and materials as deemed appropriate and any discussion that departs from the formal agenda should be scrutinized carefully. Antitrust compliance is everyone's responsibility; however, please seek legal counsel if you have any questions or concerns.

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Actuaries in the time of coronavirus

- Building new models
- Working across disciplines
- The distributed work model
- Epilogue

Speaker introduction

Robert Eaton, FSA, MAAA
Principal, Milliman

Board of Directors ('19 – '22)
Society of Actuaries



EMERGING RISKS | PANDEMICS

Actuaries in the Time of Coronavirus

How should actuaries think and spend their time with regard to the pandemic?

ROBERT EATON

APRIL 2020

Building new models



Building new models - Healthcare

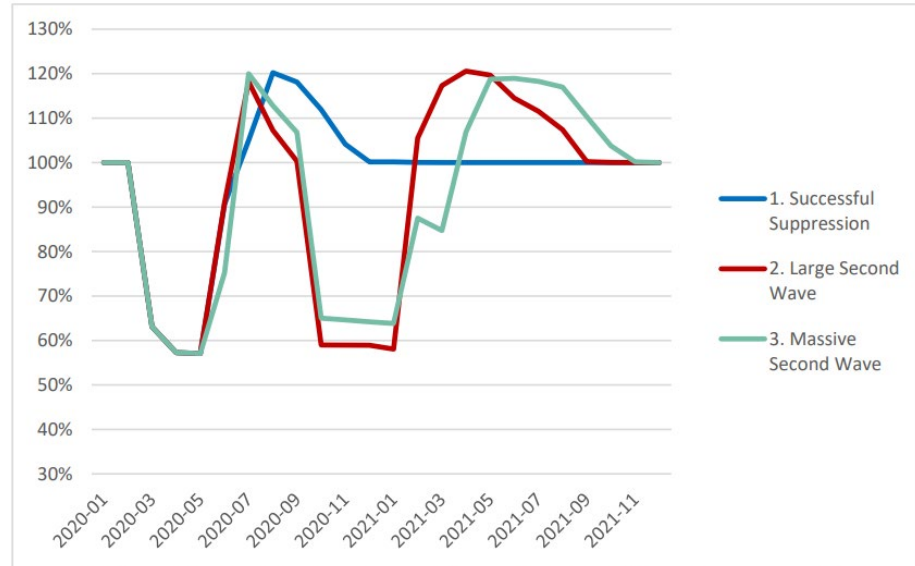
- Traditional models
 - Base data, trends, seasonality, provider costs, service utilization
- Modeling the pandemic (Society of Actuaries)
 - Baseline forecast (no pandemic)
 - Social distancing: impact on utilization and mix of services
 - Treatment costs for people infected
 - Outbreak scenarios: suppression or subsequent waves
 - Mobility data

Building new models - Healthcare

SOA 2021 Health Care Cost Model

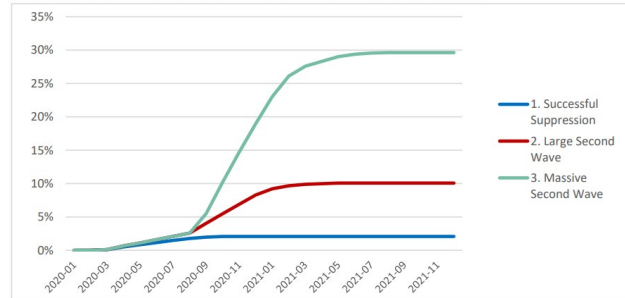
Figure 1

PROJECTED MONTHLY HEALTH CARE COSTS AS A PERCENT OF A BASELINE SCENARIO IN WHICH THE OUTBREAK NEVER OCCURRED



These results were computed for a large group plan with a rating area factor of "1". Results differ slightly by line of business.

Figure A1
CUMULATIVE INFECTED PERSONS AS A PERCENT OF THE COVERED POPULATION

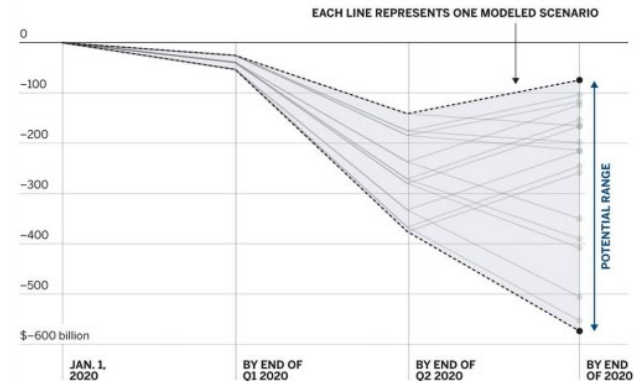


2021 Health Care Cost Model: <https://www.soa.org/resources/research-reports/2020/covid-19-cost-model/>

Building new models - Healthcare

- Deferrals and Returned Utilization
 - Impact of deferred and foregone care
 - Effect of the return of deferred services
 - Geographic- and population-specific
- Micro- and Macroeconomic models
 - Infection rates, mortality, and hospitalizations by area
 - Calibrated to independent estimates
 - Payer-specific cost impacts

FIGURE 1: TOTAL 2020 NATIONWIDE NET ALLOWED COST IMPACT OF COVID-19 FOR COMMERCIAL, MEDICARE AND MEDICAID COMBINED



Estimating the impacts of COVID-19 on healthcare costs in 2020, Rogers, Mills, Kramer

<https://us.milliman.com/-/media/milliman/pdfs/articles/estimating-the-financial-impact-covid19.ashx>

Building new models - Mortality

COVID-19 and life insurance claims

- Information on traditional drivers (age, sex) may lag
- New relationships
 - Population vs. insured mortality
 - Influenza historical data
 - Hospitalizations

Building new models Mortality

Connecting Emerging
COVID-19 Data to
Insured Claims

Society of Actuaries
(April 2020)

Figure 2
INFLUENZA ESTIMATED HOSPITALIZATIONS AND DEATHS BY FLU SEASON – TOTAL U.S. POPULATION

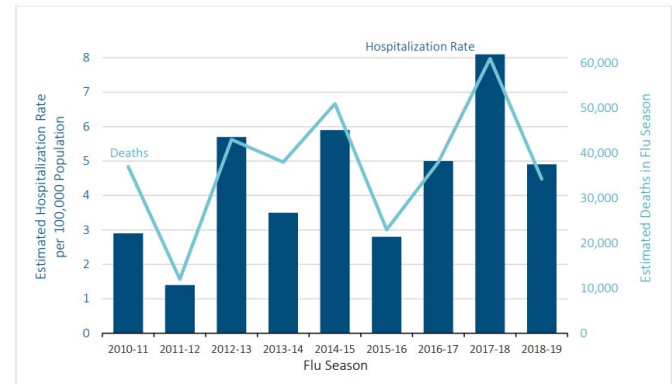
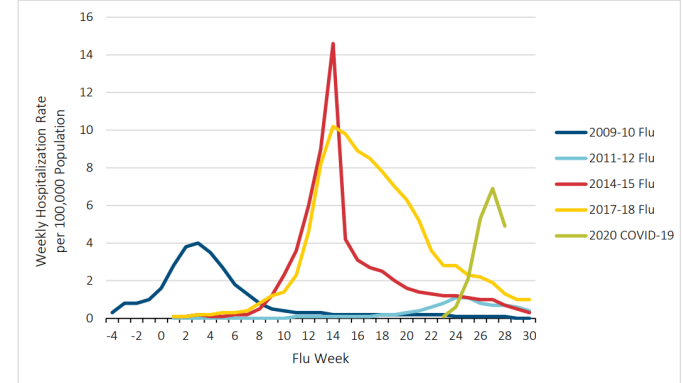


Figure 3
WEEKLY HOSPITALIZATION RATE BY FLU SEASON – TOTAL U.S. POPULATION



<https://www.soa.org/resources/research-reports/2020/connecting-emerging-covid-19/>

Building new models Mortality



Connecting Emerging COVID-19 Data to Insured Claims

April 23, 2020 Update



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Figure 10

U.S. POPULATION DEATHS FROM FLU AND PNEUMONIA BY COUNTY INCOME PERCENTILE

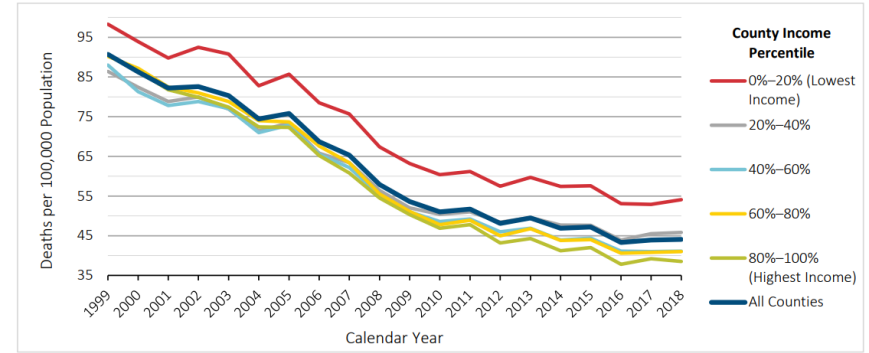


Table 4

INDIVIDUAL LIFE INSURANCE AND POPULATION MORTALITY IN THE UNITED STATES^{16,17}

Year	Estimated Individual Life Death Claims (Millions)	Estimated Individual Life Face Amount Exposure (Millions)	Estimated Individual Life Crude Mortality Rate per 100,000 (A)	Population Deaths (Millions)	Population Exposure (Millions)	Population Crude Mortality Rate per 100,000 (B)	(A) / (B)
2009	\$38,306	\$10,289,417	372.3	2.44	306.77	794.50	46.9%
2010	\$39,045	\$10,403,986	375.3	2.47	308.75	799.50	46.9%
2011	\$41,869	\$10,738,509	389.9	2.52	311.59	807.30	48.3%

Table 5

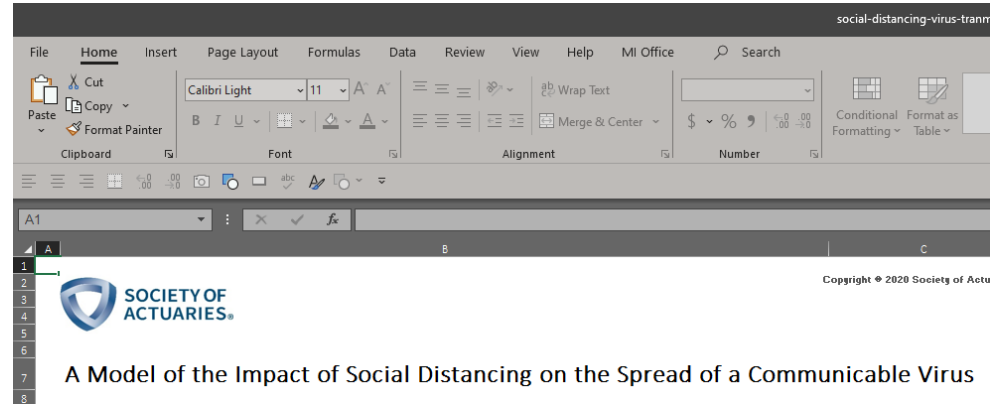
PERCENTAGE OF DEATHS FOR AGES 55-89, 2010-2015

Selected Causes of Death	Population Proportion of Total Claims, Male	Population Proportion of Total Claims, Female	Individual Life Proportion of Total Claims, Male	Individual Life Proportion of Total Claims, Female
Circulatory System Disease	33.3%	33.0%	25.9%	22.1%
Cancer	26.4%	21.9%	38.7%	44.4%
Respiratory System Disease, Influenza and Pneumonia	10.8%	11.0%	6.8%	7.5%

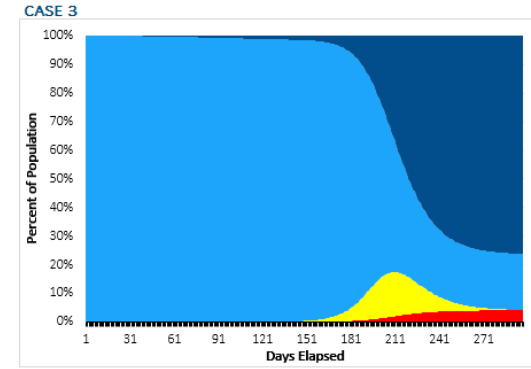
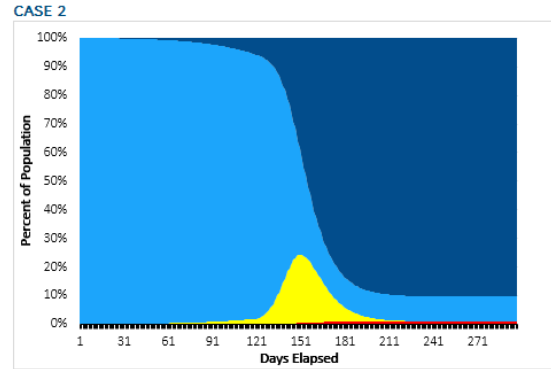
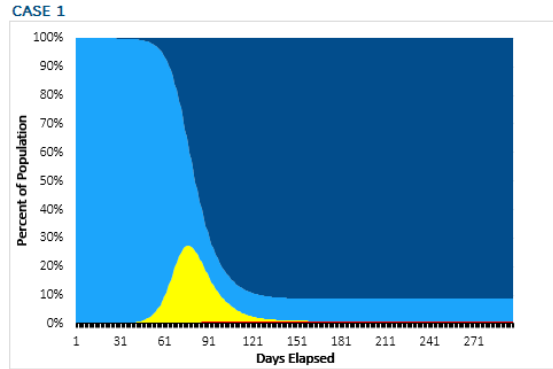
<https://www.soa.org/resources/research-reports/2020/connecting-emerging-covid-19/>

Building new models Population

Social distancing



Simulation Results



<https://www.soa.org/resources/research-reports/2020/impact-coronavirus/>

Working across disciplines

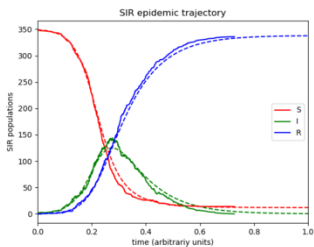


Working across disciplines

- Healthcare
- Epidemiology
- Mortality
- Economics
- Long-term care
- Retirement
- P&C

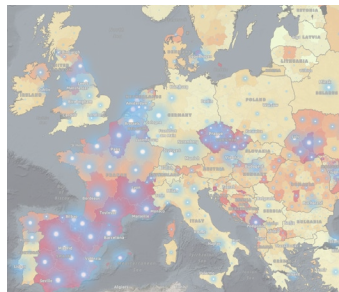


Working across disciplines



Epidemiology

Economics



Demographics



Milliman healthcare and demographic modeling

COVID-19 ADVANCED POPULATION SHIFT MODEL

The COVID-19 Advanced Population Shift (CAPS) Model estimates the impact of pandemic-related job termination scenarios on employer sponsored insurance coverage and household incomes, and models coverage transitions for households experiencing income and/or coverage loss into one of Individual ACA, Medicaid, or uninsured statuses. The model leverages public and proprietary data sources to build a robust picture of each state's population before and after the pandemic by employment status, income, health insurance coverage, demographic characteristics, and health status.

Healthcare

Mortality /
Longevity

The distributed work model: Communication is King



Communication is king



- Actuaries that can thrive in a virtual this environment will succeed
- Make yourself 'present'
- Lean towards more communicating: IM, text, memes



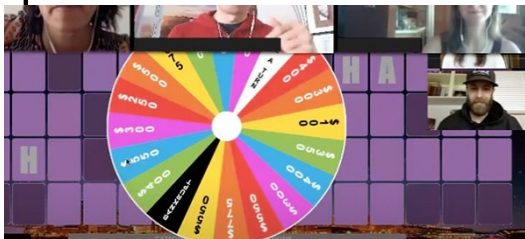
Have you been here?



Connect with your team

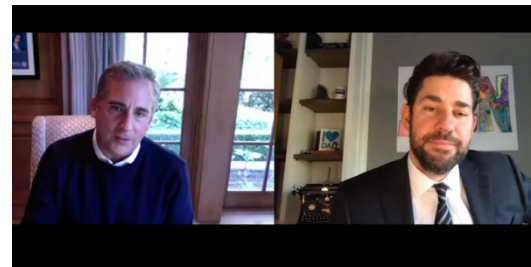
Casual

- Morning coffees
- Trivia
- Sharing photos
- Pop-ins



Professional

- Specifics
 - Feedback
 - Assignments
- Video (not always)
- Make up ground for lost body language
 - Intonation
 - Nodding
 - Thumbs-up



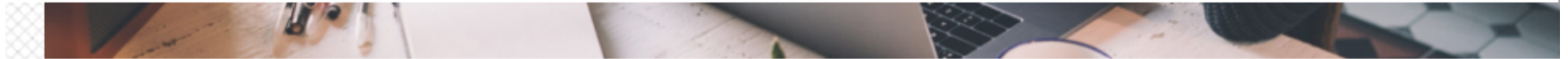
Case Study – Quarterly Close



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EMERGING RISKS | PANDEMICS

Moving to a Virtual Financial Close

How to successfully execute complex processes in a remote world

JASON GAGE, KORY OLSEN AND DANIEL J. STROOT

AUGUST 2020

Related Posts

[A New Page Dedicated to COVID-19](#)

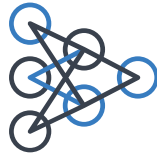
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Case Study – Quarterly Close

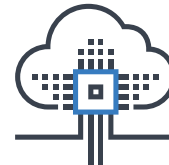
Technical keys to success

- Testing
 - close processes
 - pre-planning meetings
- IT-support prioritization
- Documentation
- Cross-training



Resiliency strategies

- Technology partners
- Employee mobility
- Running processes in the cloud



Case Study – Quarterly Close



Cultural keys to success

- Strong existing relationships
- Timely and transparent communication
- Pride in the work



Actuaries **after** the time of the coronavirus



A post-covid actuary

The actuarial profession is based on TRUST

- Challenges

- Keeping and earning trust in a hybrid / virtual world
- Increasing digitalization of work



- Opportunities

- Productivity (increasing digitalization of work)
- Work-life balance





SOCIETY OF
ACTUARIES®