



Pandemics: Proactive Considerations

NAIC CIPR seminar

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My Background

- ALM and ERM strategist
- Using common sense with ORSA
- LHATF 2008 – Interest Rate Generator
- Credentials
 - FSA CFA CERA MAAA FLMI RHU
- Trying to understand pandemics since 2004

Research

- 2015 Interest Rate Risk
- Sustained Low Interest Rates 2014
- Emerging Risks (annually since 2008)
- ERM for Health Practitioners 2009
- Insurer Crisis Investing Strategies 2011
- Value Investing and ERM: Two Sides of the Same Coin 2013

CIDRAP March 1-18, 2015 (Minnesota, Michael Osterholm)

- MERS 931/400 S. Arabia
- Influenza
 - H5N2, H7N3: turkeys KS AR MO WA MN CA
 - H5N1(Egypt, China, Nigeria), H1N1 (India)
 - H5N8: Taiwan, S. Korea
 - H7N9: China 602/227, finches, quail, waterborne
- Measles: vaccine, herd immunity
- Ebola, Chikungunya, meningitis, norovirus, cholera, listeria, Marburg, tuberculosis

Why a severe scenario won't happen

- Better health care
 - Intensive Care Units, germ theory, antibiotics, antivirals, vaccines
- Better sanitation
- Better coordination between human and animal disease researchers (reservoirs)
- Better able to deal with secondary infections

Why a severe scenario could happen

- Virus mutates (RNA)
- Virus builds resistance to antibiotics/antivirals/vaccines
- Higher at risk population (HIV, cancer, diabetes)
- Poverty and malnutrition
- Urbanization
- Supply chain constraints
- Reaction time
 - Travel/trade
 - Vaccines take 6 months to develop
- Overconfidence

Risk to Insurers

- Insurance risk
 - Mortality and morbidity
- Economic risk
 - Global recession likely
- Counterparty risk
 - Reinsurer solvency
- Business continuity
 - Claims and customer service

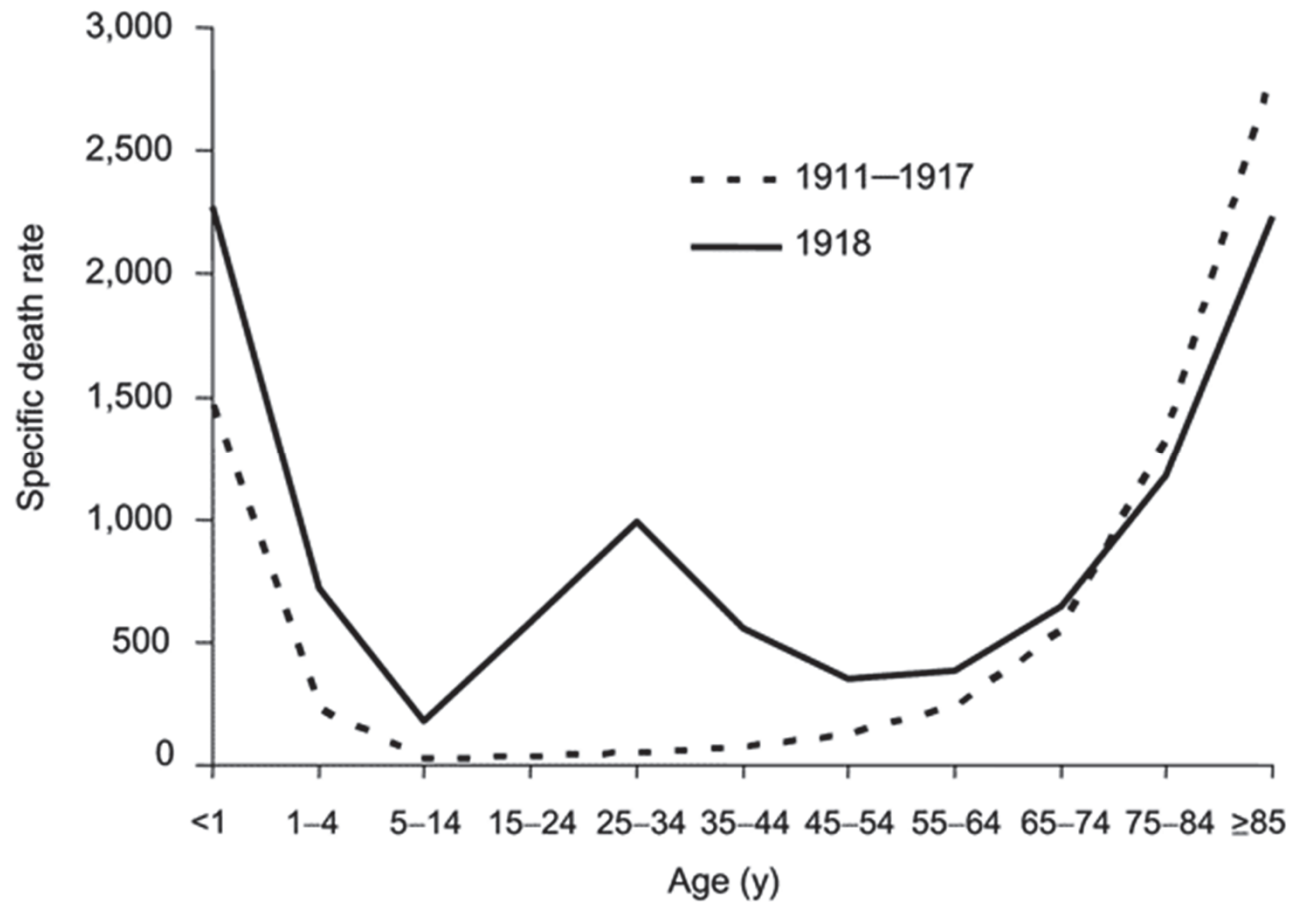
1918 Influenza Pandemic

- US: 25% morbidity, 2.5% mortality
 - $25\% \times 2.5\% = .6\%$ excess mortality
 - US population today 320 million
 - 2 million deaths
 - Secondary bacterial infections (pneumonia)
- Fewer insured – limited group policies
- Age distribution
- Human behavior is not constant – note Ebola funerals, WWI victory parades

Insurance Risk

- Life Insurers (ACLI 2014 Fact Book)
 - Gross Net Amount at Risk
 - \$18.6 trillion
 - Statutory Surplus
 - \$350 billion
 - Excess deaths 0.6%
 - Cost: Flat Extra (before tax benefit and reinsurance)
 - \$111 billion or 32% of surplus
 - Reinsurance ceded – face amount
 - \$1.6 trillion
- Annuity – payout annuities, GMDB
- Health – interaction with vaccination/voluntary procedures
- P/C – claims, terrorism
- Direct response (mail) products – special concerns

W-shaped mortality curve



Economic Risk

- Global recession: GDP growth -3%
- Asset default rate will spike
- Interest rates will go down (offset)
- Who will buy your assets?
- Liquidity event (like 2008?)
- Other risks don't stop (e.g., hurricane)

Counterparty Risk

- Reinsurers have low Reserves set aside relative to Face Amount (term)
- Other catastrophes will not go away
- Multi-year event
- Might defer payment or not pay
- Will direct writers survive if reinsurers fail?
- Do regulators understand reinsurer interactions? (transparency)

Business Continuity Risk

- Advance planning and communication is critical
 - Minimal notice once clusters form
- High absenteeism due to being sick, caring for family
 - Assume 40-50%
 - Succession planning
 - Multiple locations (field offices/international)

Issues

- **Just-in-time supply chain**
 - Hospitals: oxygen, gloves, ventilators
 - Individuals: medicine, parts, food, energy, garbage
 - Will FedEx, UPS and US Post Office deliver?
 - Pockets of social unrest
 - Borders
- **Prioritization**
 - Vaccines
 - Hospital beds
 - Emergency personnel
- **Back up plans rely on internet**
- **Economic: no built in recovery**

Advice

- React proactively and think for yourself
- Climate change, biodiversity, rate of change
- Insurers
 - HR practices (send sick home, caregiver pay practices)
 - Reinsurer risk, Stress testing
 - Telecommuting/multiple shifts
 - Privacy issues
 - Stockpile supplies
- Employees
 - Use available resources from county, CDC, WHO
- Regulators
 - Transparency, leave politics at home

Thank you!

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 - ERM and ALM strategist
 - Getting value from ORSA
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 - Pandemics/emerging risks
 - Common sense practitioner
 - Research/continuing education: seminars, newsletter, ERM, Investing
- Professionalism
 - SOA Board of Governors
 - SOA President's Award
 - Chair, ERM Symposium
 - Chair, Investment Section
 - ASB ERM Committee